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RESEARCH BULLETIN 55

Studies In Animal Nutrition

III. Changes in Chemical Composition on Different Planes of Nutrition



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STUDIES IN ANIMAL NUTRITION

III. Changes in Chemical Composition on Different Planes of Nutrition.

C. ROBERT MOULTON, P. F. TROWBRIDGE*, L. D. HAIGH

The changes experienced by beef cattle in form and weight and in proportions of carcass and offal when on different planes of nutrition were presented in previous bulletins†. The 31 representative animals slaughtered at various intervals from three groups were used (with one exception) for a study of the chemical composition of the various parts, organs, and cuts of beef.

GENERAL TREATMENT

For a general discussion of the treatment of the animals the previous bulletins must be consulted. The ration included milk for several months after birth, and timothy hay and grain were soon introduced. At weaning time the ration consisted of alfalfa hay and a grain mixture in the ratio of one to two. The grain consisted of six parts corn chop, three parts whole oats, and one part of old process linseed meal.

The animals were early divided into three groups. Group I was fed all it would eat of the ration. Group II was fed for maximum growth without permitting the laying on of much fat. Group III was fed for scanty or retarded growth. The Group II steers gained about a pound a day for the first two years while the Group III cattle gained but 0.69 pounds a day.

The animals were slaughtered at intervals and a series of weights and measurements were taken. The wholesale cuts were divided into lean flesh, fatty tissue, and bone and tendon. Various composites and individual samples were analyzed, there being a rather large number of samples for each animal.

METHODS OF PREPARATION OF SAMPLES

The samples of the soft tissues and parts were passed through a power grinder equipped with four sets of plates, each plate hav-

*Resigned September, 1918.

†C. Robert Moulton, P. F. Trowbridge, L. D. Haigh, Studies in Animal Nutrition. I. Changes in Form and Weight on Different Planes of Nutrition, Research Bulletin 43. II. Changes in Proportions of Carcass and Offal on Different Planes of Nutrition, Research Bulletin 54, Missouri Agricultural Experiment Station.

ing holes of a different size than the other. Samples were ground through the coarser plate and then through the next size. The samples well mixed and quartered down if necessary and then ground through a finer plate. The large samples were then quartered again and ground through the finest plate. Very homogeneous and fine samples were easily obtained in this manner. An especially difficult sample to make uniform was the respiratory system. The cartilaginous rings of the trachea would partly remain behind in the mill while the softer lungs were squeezed out past them. By means of a knife these rings were finely cut and mixed with the lungs. The hide sample was cut into thin strips with a knife, alternate strips being rejected in the larger samples. The strips were then cut into short lengths and ground through the mill already described. The grinding of the sample proceeded very slowly, but with repeated grindings the work advanced more rapidly and a final uniform and fine sample was obtained.

The work of preparing and grinding the samples proceeded as rapidly as possible until the samples were in a position where there was no danger of decomposition or change. The samples were kept in jars provided with rubber gaskets, glass tops, and metal clamps so that no loss of moisture could occur. They were kept in cold storage at a temperature just above freezing, so that they remained fresh for analysis.

The skeleton samples were ground through a Mann green bone grinder, mixed well and sampled. From this smaller samples were weighed out directly and rapidly, in triplicate, in tared porcelain evaporating dishes. The size of the samples varied according to the coarseness or fineness of the bone. For finely ground samples 25 to 40 grams were considered sufficient while for coarse samples 100 grams or even more were sometimes taken. The dishes containing the weighed samples were at once placed in vacuum desiccators and dried to a constant weight within 25 or 30 milligrams. They were then extracted with ether in specially constructed Soxhlet extractors. The residue was saved, the triplicates combined, and the whole ground in a steel mill until fine enough to pass through a millimeter sieve. The sample was allowed to become air dry and saved for a complete analysis later.

Samples of horn and hoof were dried and reduced to a fairly fine state with a horseshoer's rasp. A drug mill was then used to reduce the material to a finer state.

METHODS OF ANALYSIS

The samples were analyzed for water, fat, nitrogen, ash and phosphorus, following in general official methods of the Association of Official Agricultural Chemists.

Glycogen, dextrose, and sarco-lactic acid and similar flesh acids were not determined. The formation of the acids in flesh progressively increases from the time of slaughter up to a maximum and then a decrease follows as decomposition takes place until neutrality and finally alkalinity is reached*. The glycogen† content varies considerably in different parts of the animal and decreases quite rapidly at ordinary temperatures through hydrolysis to dextrose. Through determination of the glycogen content of a number of animals it is certain that in beef flesh the amount of glycogen will seldom exceed one-half of one percent.

Water.—For this work the S. & S. extraction shells and glass tubes with hardened filter paper bottoms were filled about one-third full of ignited sea sand and then stuffed with fat-free absorbent cotton. In our later work cotton alone was used. The tubes were numbered consecutively, extracted with ether, dried *in vacuo* and weighed in glass stoppered weighing bottles. This was done previous to the slaughtering. A counterpoised weighing bottle was found very convenient as it obviated complications arising from a broken weighing bottle, the use of a new bottle and subsequent corrections of weights. Scheibler vacuum desiccators six inches in diameter with stopcocks in the lid were filled to the depth of an inch with C. P. sulphuric acid (sp. gr. 1.84). A brass gauze or porcelain plate was placed on the shelf of the desiccator and one-half inch above this supported by corks or rubber stoppers was a second gauze. Clean paper was placed on this. It was necessary to have the ground glass surfaces and stopcocks fit well. A lubricant of three parts of hard paraffin and five parts of yellow vaseline was prepared by melting together these ingredients and allowing the mixture to cool slowly. In cold weather a little more vaseline is used and in hot weather a little more paraffin to give the mixture the proper consistency.

The thoroughly mixed samples were placed in weighing bottles provided with short aluminum scoops and triplicate samples of three to five grams were weighed out. The cotton was removed from the extraction tube and placed in a flat-bottomed, shallow,

*Trowbridge, P. F. and Grindley, H. S., J. Amer. Chem. Soc. 28, (1906), 469.

†Trowbridge, P. F. and Francis, C. K., J. Ind. and Eng. Chem. 2 (1910), 21 and 215.

glazed porcelain dish and the sand was poured carefully into the dish. The meat sample was placed on the sand and the whole was carefully and thoroughly mixed and then returned to the tube by a steel spatula. The cotton was used to wipe every trace of the sample from the dish and spatula. A large sheet of glazed paper prevented loss of sand. The last of the unused cotton was placed in the top of the tube. Later when cotton alone was used, the mixing of the sample was greatly facilitated and the danger of loss of sand was entirely removed. The sand, or cotton, was used to separate the particles of the sample and so allow a more thorough drying and extraction. Otherwise the samples had to be ground and reextracted a second time. The triplicate samples were placed in separate desiccators in order to avoid a loss in case a desiccator was broken or acid spilled on the cones. The desiccators held 15 to 20 tubes. The desiccators when full were exhausted to a one-centimeter vacuum by means of a Geryk duplex vacuum pump. The desiccators were rotated carefully twice a day to mix the concentrated acid with the supernatant watery layer. After 24 to 48 hours or longer, as convenient, air was allowed to bubble slowly through a sulphuric acid tower into the desiccator until the vacuum was destroyed. The tubes were transferred to desiccators holding fresh acid and the drying was continued as before. The tubes were then transferred to glass stoppered weighing bottles and weighed in the weighing bottle. The drying was continued to constant weight as given in detail above.

Fat.—The dry tubes from the moisture determinations were extracted for 24 hours in Soxhlet extractors, using ether. They were partially dried in an electric oven at a low temperature and then dried in the vacuum desiccators as given in detail above. They were weighed as above and dried again to constant weight. Loss in weight is fat.

Nitrogen.—Nitrogen was determined by the Kjeldahl-Gunning-Arnold method. Triplicate samples were weighed out as in the fat determination and placed in S. & S. No. 595 filter papers and introduced into a 500-cc. Kjeldahl flask. For hide and hair 0.50 to 0.75 grams was used, for lean meat 1.00 to 1.25 grams, and for fat samples 2.50 to 3.50 grams. Other samples in accordance to the nitrogen content. Twenty-five cubic centimeters of C. P. concentrated sulphuric acid was used for the meats and 35 to 50 cc. for fats. About 0.7 grams of mercury was added and the digestion was made on a digestion frame. When the sample had ceased

foaming and was not pasty, 7 to 10 grams of potassium or sodium sulphate was added and the digestion was continued for one or two hours. The flasks were then cooled and the necks washed down with water. They were again digested for an hour or more. About 300 cc. of nitrogen-free water was added to the cool flasks also a piece of paraffin the size of a pea and a few small pieces of granulated zinc. Then 85 cc. of the alkali solution (100 cc. for fats) was added carefully, the flask was connected with a condenser, the contents were mixed, the flasks boiled for 40 minutes and the distillate caught in a wide-mouthed receiving flask containing the necessary amount of one-tenth normal hydrochloric acid with some cochineal indicator. The above alkali solution was made by dissolving 40 pounds of Greenbank alkali and 375 grams of potassium sulphide in 30 liters of distilled water. For fats and other foaming materials 800-cc. Kjeldahl flasks were used.

Protein.—The protein was calculated by multiplying the nitrogen by the factor 6.25.

Ash.—Triplicate samples of ten to fifteen grams were weighed out as for fat and placed in numbered, tared porcelain crucibles. The samples were dried in ovens and then charred carefully. Later they were ashed over Fletcher burners, using a low heat and taking plenty of time. In this way fusion and loss of chlorides was prevented.

Phosphorus.—The crucibles from the ash determinations were leached with strong hydrochloric acid and a little nitric acid. The solutions were neutralized and ammonium nitrate was added. The phosphorus was precipitated to 65° C. with acid ammonium molybdate. The yellow phospho-molybdate was filtered off, washed, dissolved in ammonia and hot water and the phosphorus was reprecipitated with magnesia mixture. The precipitate was ignited strongly in a gasoline muffle and weighed as the pyrophosphate.

AIR DRY BONE SAMPLES

Moisture and Ash.—Two-gram samples were weighed out in tared porcelain crucibles and dried at 100 to 110° C. The difference in weight between crucible plus sample and dry weight of crucible plus sample gave the moisture. The samples were then ashed by igniting over Fletcher burners until practically free from carbon and the ignition was completed in a muffle at a dull red heat. A clear white ash was readily obtained by this means in a short time.

Nitrogen.—The nitrogen was determined as given in detail above using 0.5 gram samples.

Phosphorus.—The ash from the above determination was dissolved by digestion in hot, dilute nitric acid and the solution was made up to 250 cc. Aliquots of 25 cc. were taken and the phosphorus determined as given in detail above.

COMPOSITION OF SAMPLES

The percentage composition of each sample analyzed is shown in the Appendix in Tables 1 to 30 and the weights of the constituents in Tables 31 to 60. The detailed weights for the separate parts included in each sample can be found in Research Bulletin 54. The weight of the entire sample is shown in the tables listed above. From this data samples can be composited and the composition of various classes of tissues, parts of the animal, or the entire animal can be calculated. The tables include the analyses of 1061 samples from 30 different animals, or over 35 samples per animal.

The samples listed are mutually exclusive. For example the circulatory system for Steer 500 weighed 1.562 kilograms and had 48.451 percent water, 37.638 percent fat, and so on. This sample consisted of the large arteries and blood vessels in the thorax, the pericardium, adherent fat, and the ears of the heart. The lean heart itself exclusive of the ears formed a separate sample weighing 1.284 kilograms and having 77.544 percent of water, 3.559 percent of ether soluble material, and so on. Each system listed is exclusive of those parts which follow as separate samples which parts would ordinarily be considered as part of the system.

A few samples of horns, teeth or hoofs and dewclaws were lost or destroyed before the analyses were completed. The composition of a similar sample was in such cases used to calculate the composition of the sample destroyed or lost. Full explanation of this is given at the foot of each table where such instances occur.

Since the plan of the experiment was slightly modified from time to time the number and content of the samples is not the same for all the animals. Consequently the samples can not all be compared directly. To facilitate comparison certain composited systems are presented in Tables 61 to 71 in the Appendix.

The Blood.—The composition of the blood is shown graphically in figure 1. The water content is close to 80 percent being about 82 percent during the first two years and 78 to 80 percent

from 3 years on. There is a tendency for the percentage of water to be in inverse order to the plane of nutrition, i. e., the higher the plane the lower the percentage of water. Fat was not found in the blood by the method used for this work.

The nitrogen content varies between 2.5 and 3.5 percent increasing with age and increased plane of nutrition, although there are a few exceptions to both rules. The ash content is close to

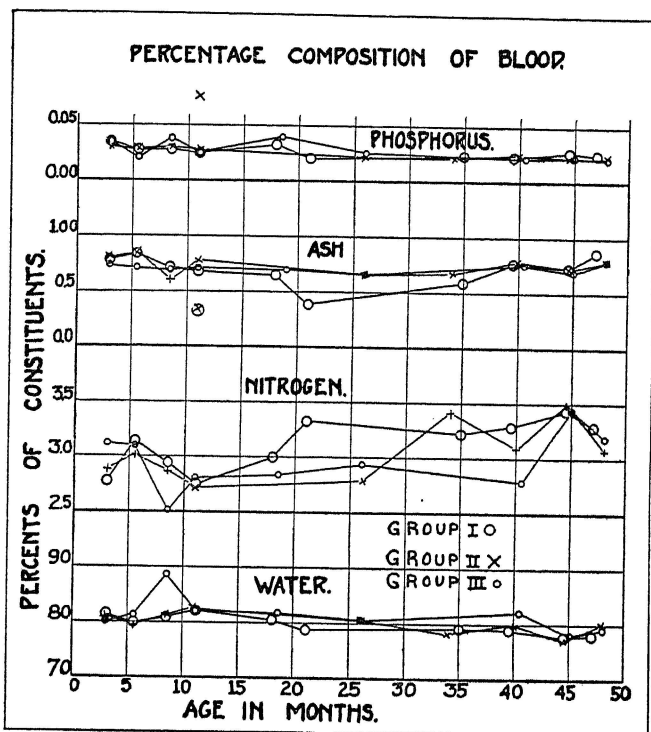


Fig. 1.—Composition of the blood of beef animals.

0.75 percent. It seems to be unaffected by age or plane of nutrition. The ash content of the blood of Steers 503, 504, and 505 is unusually low and probably is not normal. The phosphorus is 0.025 percent and is apparently unaffected by the plane of nutrition. It seems to be slightly less in the older animals than in the younger animals.

The Nervous System.—The composition of the central nervous system—the brain and spinal cord—is shown in figure 2. The water content is between 65 and 75 percent. It decreases slightly with

age and does not seem to be affected by the plane of nutrition. The fat—ether soluble material—is 10 to 20 percent of this sample. It increases with age and seems not to be affected by the plane of nutrition. The nitrogen content is low for animal tissue being about 1.7 percent. It seems to be independent of age or plane of nutrition. The ash varies from 1.4 to 1.9 percent, increasing with age

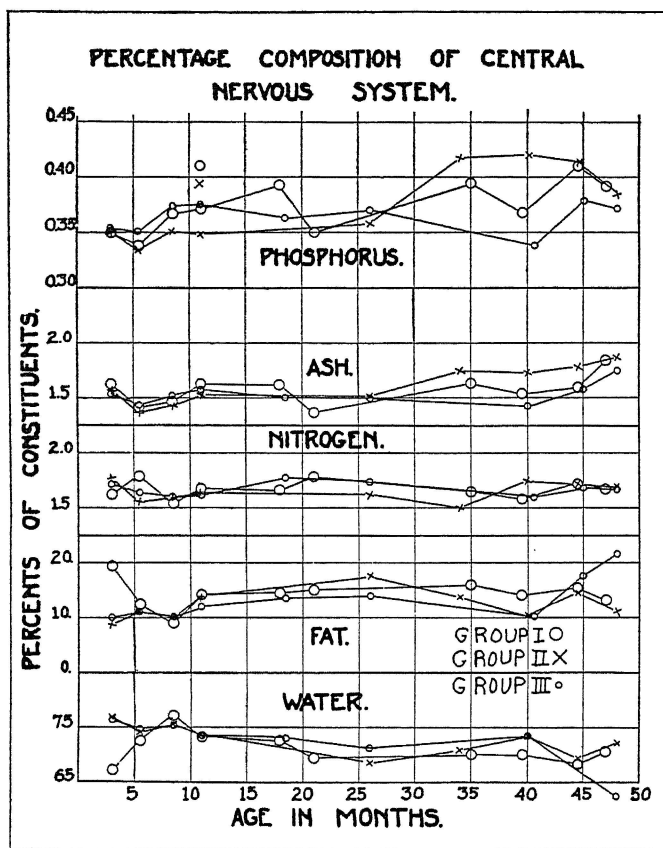


Fig. 2.—Composition of the central nervous system of beef animals.

but being independent of the plane of nutrition. The phosphorus content is 0.34 to 0.43 percent, increasing with age but being unaffected by the plane of nutrition. Steers 503 to 505 give too high values for their age. This sample is rather typical of the glands of the animal body being higher in ash and phosphorus than any class of tissue but the skeleton.

Digestive and Excretory System.—The composition of the composited digestive and excretory system is shown in figure 3. The external fatty tissue has largely been removed from this system. The water is 66 to 78 percent, the fat 3 to 19 percent, the nitrogen 2 to 2.6 percent, the ash 1.5 to 0.8 percent, and the phosphorus 0.27 to 0.15 percent.

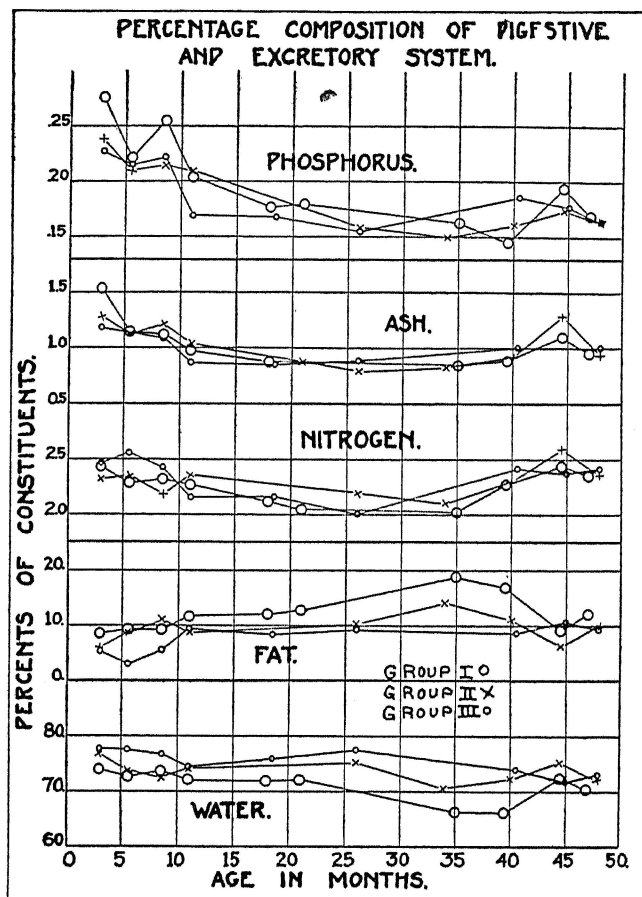


Fig. 3.—Composition of the digestive and excretory system of beef animals.

phorus 0.27 to 0.15 percent. The fat content increases with age and plane of nutrition while the water, nitrogen, ash and phosphorus decrease up to the age of 3 years. Thereafter the fat decreases again while the other constituents increase. This may be due to the fact that the offal fat is somewhat more easily and completely removed from the older and fatter animals.

The Liver.—The above sample is a conglomerate of several classes of tissue in which the glandular predominates. As an example of pure glandular tissue the liver will serve. Figure 4 shows the composition. With few exceptions the composition of the liver from 3 months to 4 years is strikingly constant. The water content is about 67 percent, the ether soluble matter 2 to 3

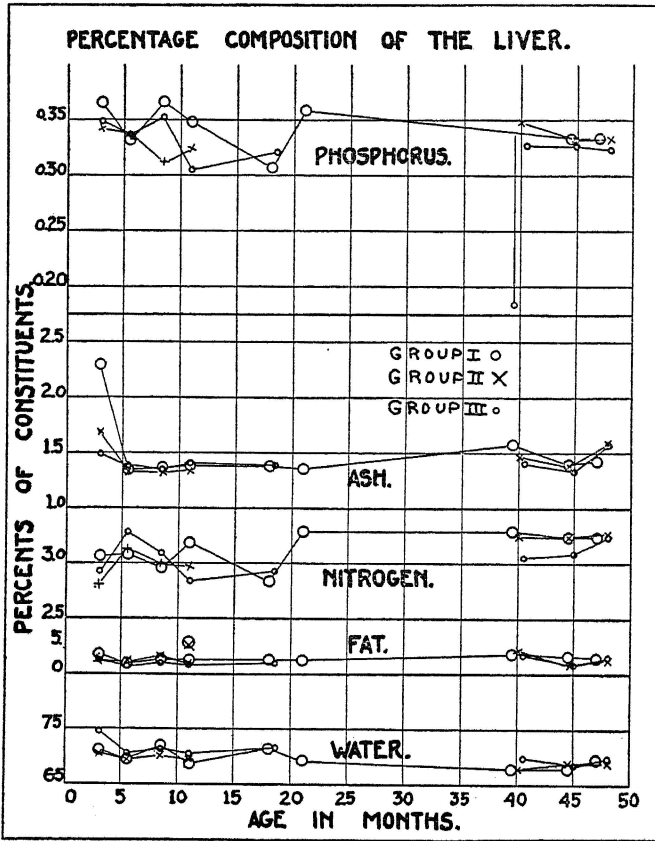


Fig. 4.—Composition of the liver of the beef animals.

percent, the nitrogen 2.8 to 3.3 percent, the ash 1.35 to 1.60 percent and the phosphorus 0.30 to 0.35 percent. The plane of nutrition does not seem to affect the composition, and age has but little effect. There is a slight decrease in water and increase in fat, nitrogen and ash with increasing age. The ash content of the 3-month-old Group I animal and the phosphorus content of Steer 527 are considered to be atypical and are probably due to errors. Again

as with the brain and spinal cord the ash and phosphorus content is quite high while the nitrogen content is about that of muscle tissue.

The Spleen.—In contrast to the above glands the spleen (figure 5) has a rather constant composition and low fat content. The fat runs from 1.5 to 5 percent and is slightly greater in the Group I animals. It increases slightly with age. The water content is 75 to 78 percent. The nitrogen content is from 2.9 to 3.3 percent in the young animals and from 2.75 to 3.0 percent in the old animals.

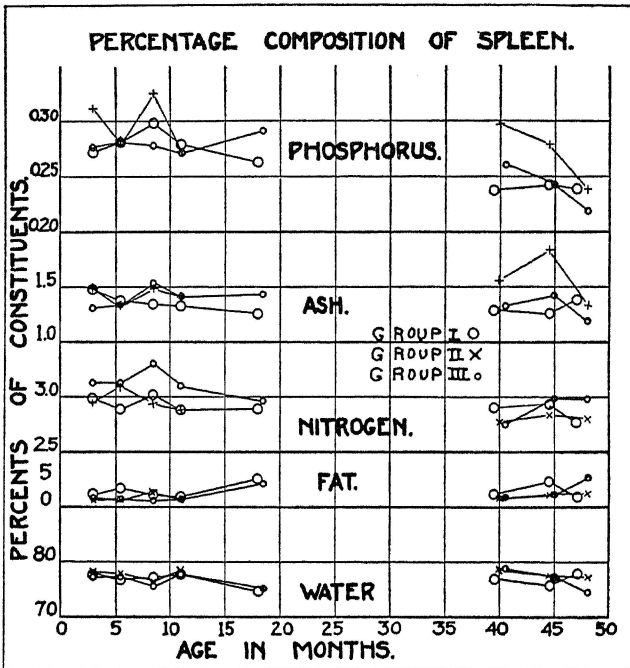


Fig. 5.—Composition of the spleen of beef animals.

With the exception of two of the Group II animals the ash content is constant at 1.3 to 1.5 percent. The phosphorus varies from 0.260 to 0.325 percent in the young cattle and from 0.300 to 0.220 percent in the old cattle. It seems to decrease somewhat with age. On the whole the plane of nutrition has practically no effect on the composition of the spleen and there is but a slight change with age.

The Heart and Neck Sweetbreads.—Not all of the other glands of the animals were analyzed as separate samples. In a number of cases the sweetbreads, spleen, pancreas and kidneys were analyzed as separate samples. No figure is shown for these glands but

a study of the tables in the appendix shows that the heart and neck sweetbreads have from about 2 to over 60 percent fat and from 80 to 30 percent water. The nitrogen content runs between 1 and 3 percent following the water content. The ash and phosphorus are 1.7 and 0.34 percent respectively in the samples low in fat and about one-third those amounts in the samples high in fat. The

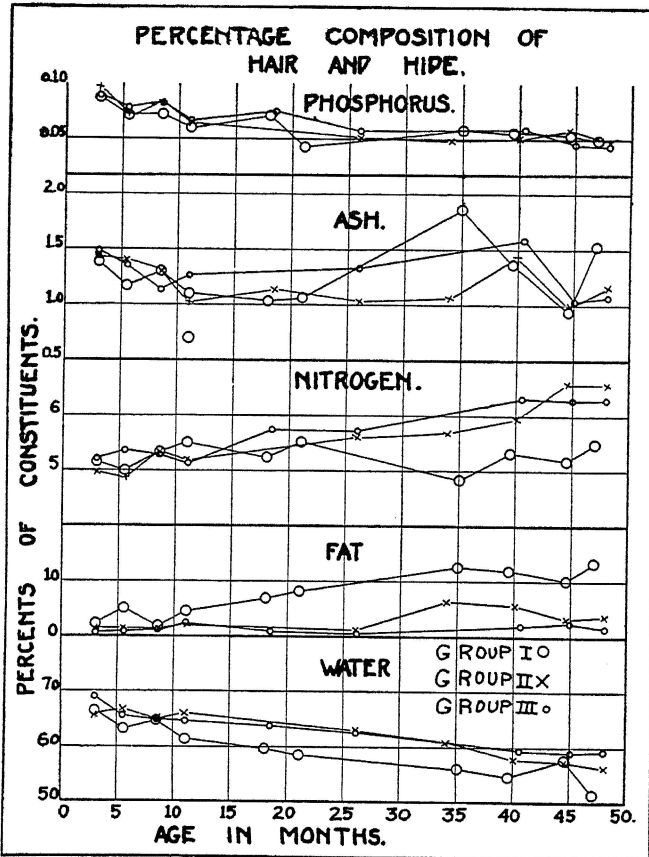


Fig. 6.—Composition of the hair and hide of beef animals.

fat content increases in the older fatter animals while the other constituents decrease. The pancreas is much like the heart and neck sweetbreads in composition. Both of these glands—the thymus and the pancreas—become so intermingled with fat in the older fatter animals that a good separation is impossible.

The Kidneys.—The composition of the kidneys is rather constant. The water content is 74 to 78 percent. The fat content runs

from 2 to 12 percent, but on account of the lack of uniformity in removing the kidney fat from the pelvis of the kidney this variation is not considered significant. The nitrogen varies from 2.08 to 2.7 percent, the ash from 1.00 to 1.35 percent, and the phosphorus from 0.19 to 0.25 percent.

The Hair and Hide.—The hair and hide (figure 6) is a rather dry tissue having from 50 to 70 percent water, 1 to 13 percent fat, 4.8 to 6.6 percent nitrogen, 1 to 1.5 percent ash, and 0.10 to 0.05 percent phosphorus. The nitrogen content is higher than in any other tissue excepting hoofs, dewclaws, and horn exclusive of the bony core. The fat increases with age and plane of nutrition while the water content does just the reverse. The nitrogen percentage increases with age and is in inverse order to the plane of nutrition. The ash content seems to be rather independent of age and nutrition. It was difficult at times to insure perfectly clean hides at slaughter and some of the variations in ash content may be due to dirt on the animal. The phosphorus content decreases with age and seems to vary but little between the different planes.

The Offal Fat.—The composition of the offal fat is shown in figure 7. A large range in composition is shown. This tissue has from 60 to 6 percent of water, 30 to 93 percent fat, 1.7 to 0.2 percent nitrogen, 0.7 to 0.1 percent ash, and phosphorus 0.12 to 0.01 percent. The fat increases with age and plane of nutrition, while all the other constituents decrease. The greatest changes are between the ages of 3 and 11 months.

The Skeleton.—The composition of the skeleton, or bone, is shown in figure 8. The water content is from 30 to 57 percent, the fat from 8 to 23 percent, the nitrogen from 3 to 3.5 percent, the ash from 15 to 27 percent, and the phosphorus from 2.5 to 5 percent. The fat increases with age and is generally higher in the well fed animals although the difference is not great. The water content is just the reverse. The nitrogen content averages slightly higher in the older animals than in the younger animals while the plane of nutrition seems to have no effect. The ash and phosphorus content of the older animals is about double that of the 3-months-old animals. This ossification is on the whole rather gradual. The plane of nutrition is here without effect.

It has been shown in earlier work of this Experiment Station (Research Bulletin 28) that it is a difficult matter to alter the composition of the bone by the plane of nutrition. The present study shows that aside from the small difference in fat and water content

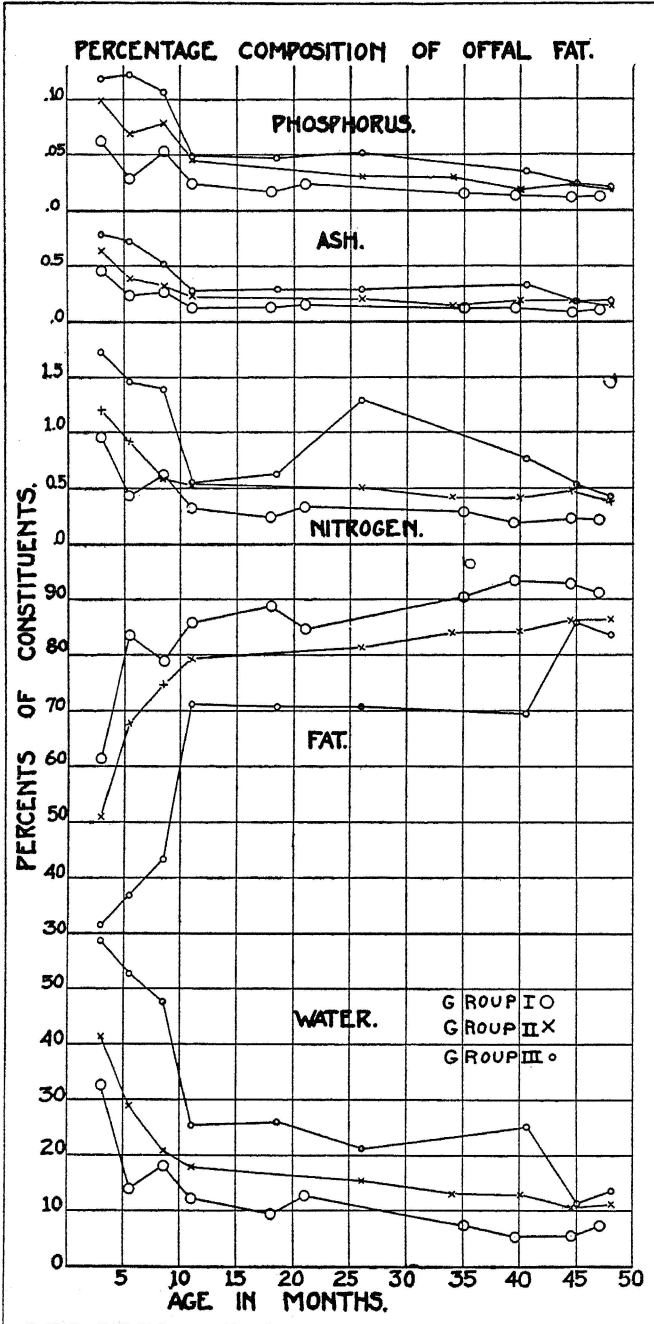


Fig. 7.—Composition of the offal fat of beef animals.

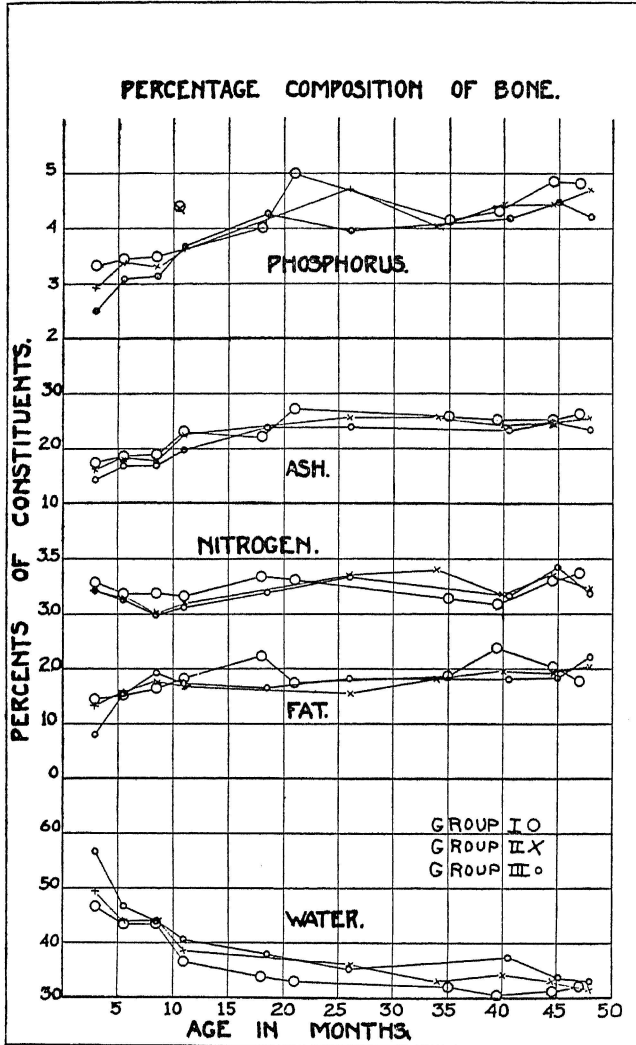


Fig. 8.—Composition of the skeleton of beef animals.

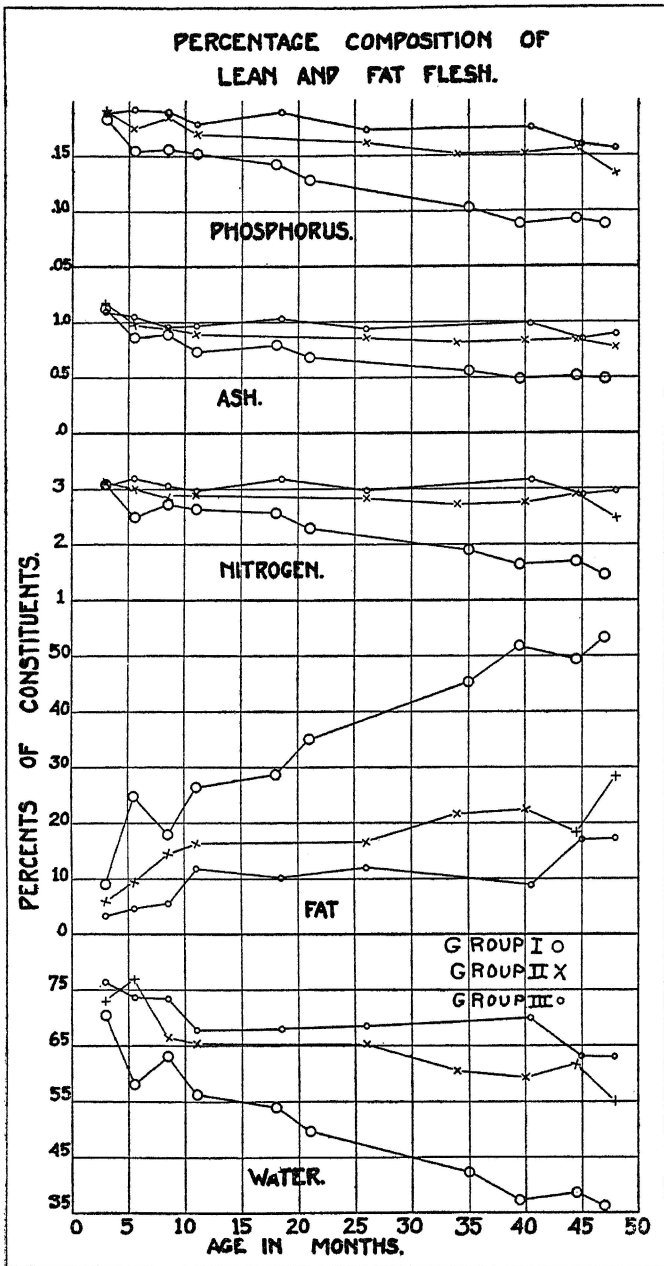


Fig. 9.—Composition of the lean and fat flesh of beef animals.

the bones are not affected in composition by the three planes of nutrition imposed.

The Lean and Fat Flesh.—The composition of the lean and fat flesh is shown in figure 9. This sample is a composite of all the skeletal musculature and the fatty tissue associated with it. The offal and thoracic fat is not included. The figure shows, mainly, the effect of increasing fatness on the composition. The fat increases with fatness of the animal, i. e., with increasing age and plane of nutrition, while all other constituents decrease. The nitrogen content of the Group II and Group III animals, however, is practically constant at about 3 percent. The water runs from 77 to 36 percent, the fat from 3 to 53 percent, the nitrogen from 3.2 to 1.5 percent, the ash from 1.15 to 0.50 percent, and the phosphorus from 0.190 to 0.090 percent.

The Total Animal.—The composition of the total animal analyzed is shown in figure 10. The figures are for the total animal less the fill and the loss on cooling and cutting. This basis is designated as the analytical animal in Tables 72 and 73. The average composition of 13 beef calves at birth* is included in the figure. The water content decreases from 73 percent at birth to 39 percent in the old fat steer. The higher the plane of nutrition and the older the animal the lower is the percent of water. The fat increases from about 4 percent at birth to about 45 percent. The increase follows age and plane of nutrition. The nitrogen shows first an increase from 2.9 percent at birth to 3.3 percent at 3 months. It remains practically constant thereafter for Groups II and III but decreases in Group I to 2 percent at 4 years. The ash content for Groups II and III increases from 4.5 percent at birth to over 5 percent at 4 years. The high value for the Group III animal at 40 months is probably an error or an abnormality. For the Group I cattle the ash increases to about 5 percent at 3 months, falls to 4 percent at 5½ months and remains there in spite of fattening until after 3 years when it drops to nearly 3 percent. It should be noted that the Group III 3-months-old calf was so greatly retarded in development by the low plane of nutrition that its ash and phosphorus content is actually lower than that of the calves at birth. In general the phosphorus content of the entire animal follows the ash. The values for Steer 505, Group I, and Steer 503, Group II, are so much higher than those of the other animals of their groups

*Research Bulletin 38, Agr. Expt. Station, University of Missouri.

that they are not averaged on the curve but are shown separately. The phosphorus content increases in percentage for Groups II and III but decreases for Group I.

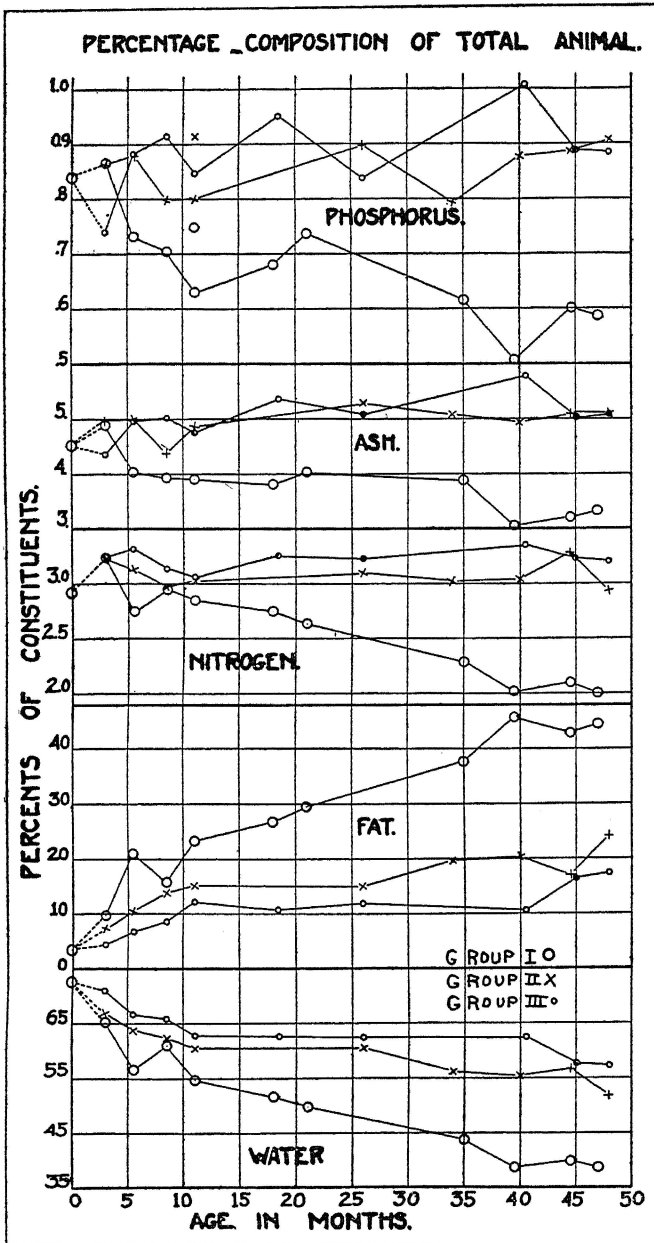


Fig. 10.—Composition of the total animal (empty) of beef animals.

THE COMPOSITION ON A PROTOPLASMIC BASIS

A brief summary of the composition of various parts and samples of the beef steer given above shows that those parts or organs that become depots of deposit for fat, exhibit an increasing percentage of fat with increasing age and plane of nutrition; while most, if not all, other constituents decrease. Certain organs remain fairly constant in composition. It is the belief of the senior author that the composition of animal tissue should be studied also on the fat-free, or protoplasmic, basis. Its usefulness has already been demonstrated by Moulton* and Greene†. In the animal body lipoid matter can be divided largely into two classes: (1) stored and inactive lipins, largely glycerol esters of the higher fatty acids; and, (2) those lipins that are essential to the protoplasmic structure and that take part in the physiological activities of the tissue, such as lecithins and cholesterol. The former is largely if not entirely inert stored matter and should not be considered as part of the protoplasmic tissue. Unfortunately the usual method of extraction by ether removes both classes together; but, since in the fatty tissue and even in the entire body of fat animals the former very greatly predominates, the ether extract can safely be called stored fat.

For the above reasons the composition will now be considered on the fat-free basis. Tables 72 and 73 show the composition of the entire animal on the analytical basis, the empty weight basis, and the fat-free basis. The first basis has been defined just above. The second assumes that the loss on cooling and cutting is water, which it must largely be. This weight is added to the water content and the composition recalculated. The result is a slightly larger water percentage and slightly smaller percentages of the other constituents. The third basis assumes that all ether soluble fat had been removed.

Thirteen calves at birth and three embryos reported in Research Bulletin 38 of this Station are included in the tables. In order to complete the picture of the development of the composition of mammalian tissue a search has been made for analyses of other mammalian embryos. On account of the length of the gestation period and relative size of the animal it is thought that rabbits and other mammals cannot serve our purpose. The composition of some 21 human embryos reported by Fehling‡ in 1877 and recalcu-

*J. Biol. Chem. XLIII, 67.

†J. Biol. Chem. XXXIX, 435.

‡Archiv. f. Gynaekologie XI, 523.

lated by the senior author to the fat-free basis have been added to the results obtained from the bovine.

Figure 11 shows the water content of the animals on the fat-free basis from the beginning of gestation to maturity. The gestation periods for man and the ox are practically the same. Man is less mature at birth, however, and this should be borne in mind in considering the composition of the full term human infant. The water content of the fat-free human embryo at the beginning of the sixth week of gestation, or at an intra-uterine age of 35 days, is 97.5 percent. It decreases rapidly and uniformly to about 86 percent at 6 months. It is seen that the ox embryo at this age has practically the same composition as the human. At birth the ox has 76.5 percent water. The human infant being less mature has 81.5 percent. At the age of 3 to 5 months there is a marked change in the rate of decrease of the water in the ox. It is about 72 percent at 5 months and 70 percent at 4 years. The plane of nutrition has practically no effect on the composition of the ox, on the protoplasmic basis.

The percentage of nitrogen is shown in figure 11. At about 35 days (intrauterine) it is 0.4 percent. It increases rapidly and uniformly to about 3.0 percent at birth and at 5 months is 3.5 percent. Maturity is reached at about 11 months when the percentage is 3.6. This continues to be the value excepting for a few of the old thin animals which exceed it by about 0.2 percent.

The ash content at 35 days is practically nothing. It increases rapidly and uniformly to 4.3 percent at birth. At 5 months it is 5 percent and thereafter increases slowly to about 5.7 percent at 4 years. There is more variation in the ash content than in the water or nitrogen content. It is higher in the low plane animals than in the high plane animals. This is probably due to a small proportion of bone in the Group I cattle.

The phosphorus content of the human embryos was not given. Therefore the figure shows the results for the ox only. The phosphorus content on the protoplasmic basis is about 0.3 percent at 185 days intrauterine. It increases rapidly to about 0.74 percent at birth. By 11 months the value is about 0.90 percent and thereafter it increases very slowly to 1 percent at 4 years.

These figures show, then, that the evolution of the tissue of such mammals as the ox is rapid from conception to shortly after birth—about 5 to 11 months in the ox. Thereafter the composition on the fat-free, or protoplasmic, basis is practically constant

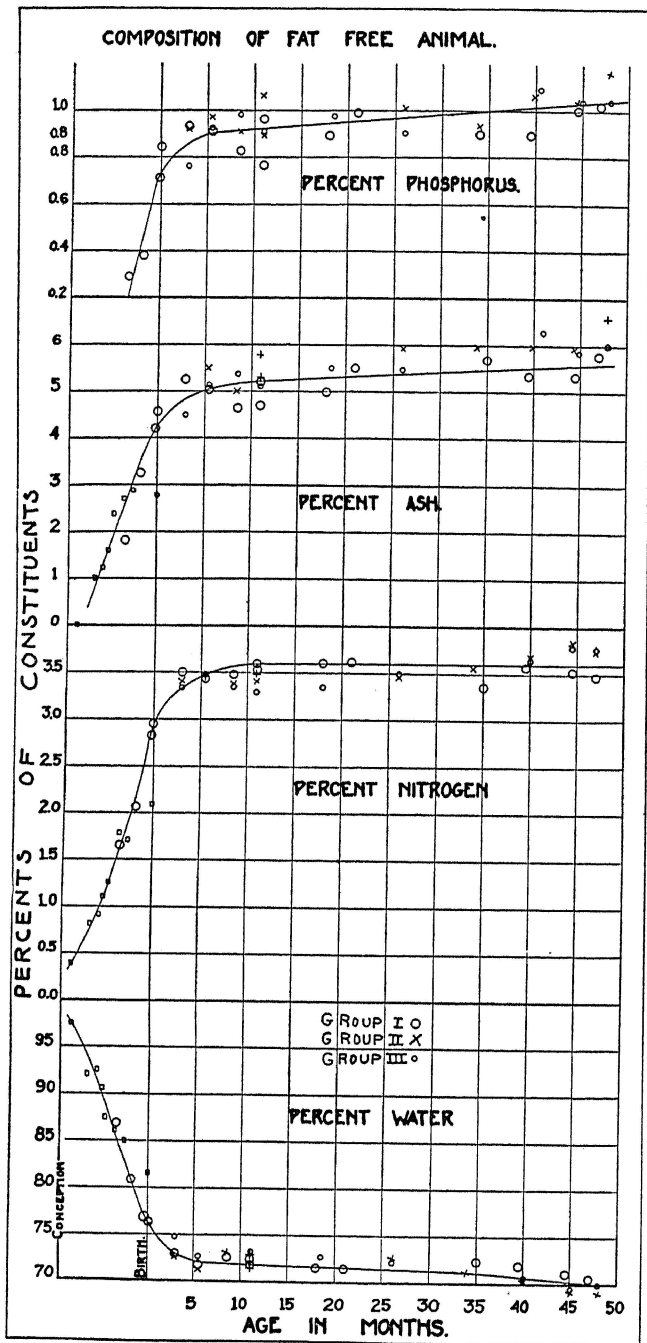


Fig. 11.—Composition of the fat-free beef animal.

there being but slight changes to full maturity. Such relations as these are entirely destroyed by the presence of stored fat in the animal body and would be left undiscovered if the fresh, fat-containing basis were used.

THE COMPOSITION OF OX MUSCLE ON THE PROTOPLASMIC BASIS

The above results show the advisability of studying the composition of such tissues as striated muscle on the fat-free basis. Unfortunately only the composite embryo was studied by us. However, Buglia and Costantino* have recently reported some analyses of ox embryo muscle. Three samples of embryo muscle at 75, 120 and 135 days were analyzed for water, fat and nitrogen. These results are included with all samples of lean muscle reported in this bulletin and are shown in Tables 74, 75, and 76.

Figure 12 shows the percentage of water in ox muscle from miduterine life to maturity. At mid-term the tissue is 87.5 percent water. At birth it is 80 percent and at 5½ months it is 77 percent. It remains practically constant then at 76.5 percent with no apparent effect on the plane of nutrition. Perhaps more rigidly controlled conditions in sampling and analyzing might have resulted in less variation than is shown. The water content of the muscle is 5 to 6 percent higher than in the total animal.

The nitrogen content is shown in figure 12. At miduterine age it is 1.4 percent, at birth 2.9 percent, and at 11 months 3.5 percent which is the value maintained to the end. This value is slightly less than that for the total animal.

The percentage of ash exhibits some striking changes. There are no figures preceding birth. At birth the ash in the fat-free muscle is 1.05 percent. At 3 months of age it has risen to 1.28 percent and falls to 1.11 percent at 6 months. From then on it decreases slowly and gradually to 1.06 percent at 4 years. The peak at 3 months may need verification, but it is a fact that only one other animal, the Group II steer at 40 months, exhibits anywhere near as high a figure.

*Z. Physiol. Chemie 81 (1921), 143 and 155.

The phosphorus percentage in the fat-free muscle exhibits some rather similar changes. At birth the tissue shows about 0.172 percent and at 3 months 0.218 percent. The value thereafter falls fairly rapidly and uniformly to about 0.200 percent at 4 years. The figure confirms in general the relations shown by the ash percentages.

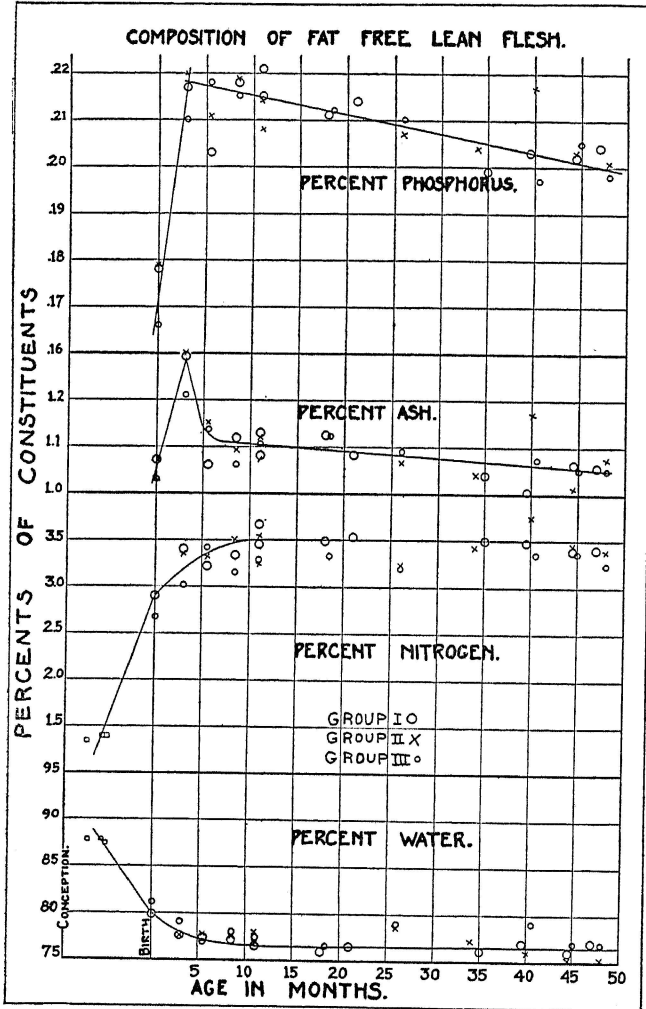


Fig. 12.—Composition of the fat-free lean flesh of beef animals.

AMOUNT AND COMPOSITION OF GAIN

Composition of Gain From Start to Slaughter.—The composition of the animal at slaughter is given above. In order to calculate the composition of the gains made by each steer from the time it was put in the experiment until slaughter it is necessary to know the weight and composition at the start. The weight for each animal at the beginning of the experiment is shown in the Appendix of Research Bulletin 43 of this series. Since the analysis is based upon empty weight in Tables 72 and 73 it is necessary to estimate the empty weight of each calf at the start. To facilitate this the percentage of empty weight is plotted against the live weight in

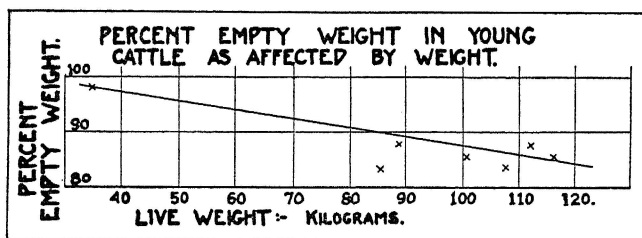


Fig. 13.—Percent empty weight in young cattle.

kilograms in figure 13. Only calves of 100 kilograms empty weight or less are shown. The line shows the relation between the percentage of empty weight and the size of the animal for a normally fed beef calf. The Group III calves lie below the line. The live weight used in this figure is the average live weight for the last five days of the animal's life. This is usually larger than the live weight before slaughter because at that time the cattle had been without water for the morning. From this figure it is possible to estimate accurately the probable percentage of live weight in each calf at the beginning of the experiment. Table 77 gives the empty weights at the start.

In figure 14 are presented the relations between the empty weight of young calves and the composition of the calf. The composition at 35 kilograms is the average of 13 beef calves at birth. The lines show a fairly uniform relation between empty weight and composition. Using the empty weight of the calves shown in Table 77 the composition of each calf at the start can be accurately estimated.

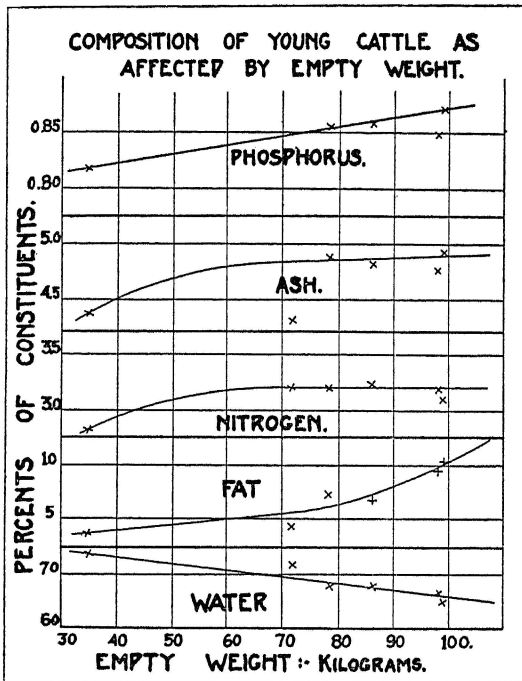


Fig. 14.—Composition of young cattle.

Table 78 shows the weights and percentage of each constituent for each animal at the start and at slaughter and the composition of the gain made. The animals are not in all cases ideal checks on each other consequently the composition of the gain does not vary uniformly. Figure 15 shows the composition of the gains made by each group from the start to slaughter.

The first gains of the thinnest cattle are 80 percent water the next gain is but 62 percent water. The water increases slightly to 18.5 months and then decreases slowly. The Group II cattle

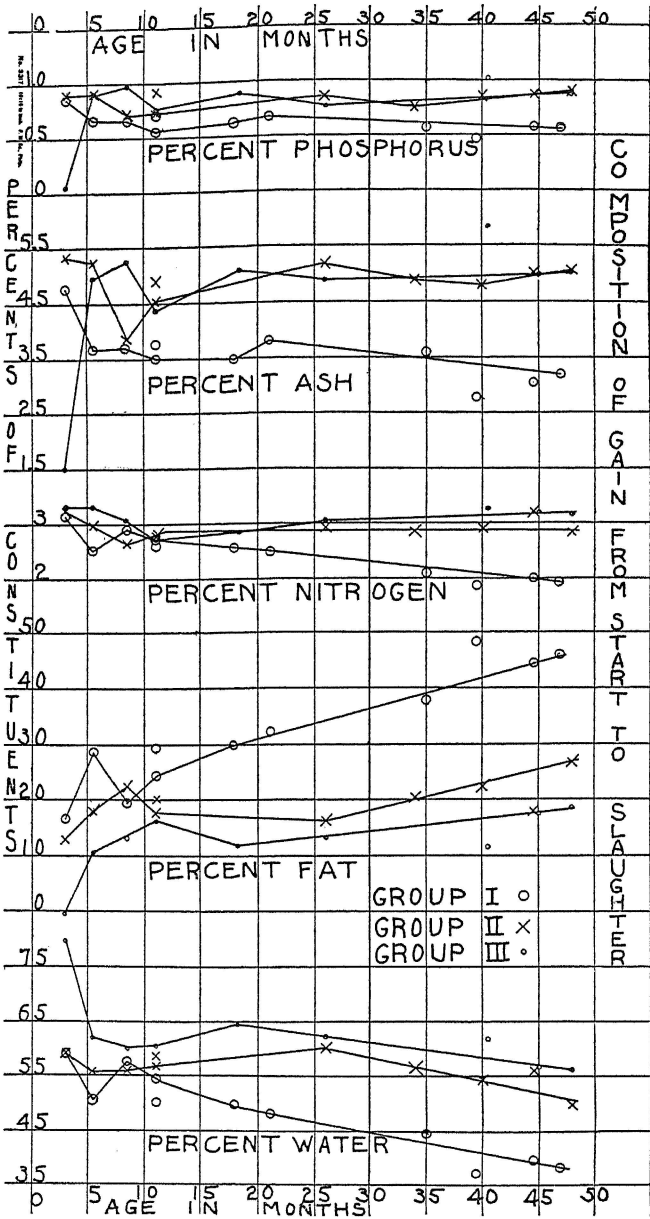


Fig. 15.—Composition of total gains of beef cattle.

show much the same sort of change but in a less marked degree. For the Group I cattle the gains at first are 50 to 60 percent water and only 38 percent at 4 years.

In contrast to this the gains made by all cattle become higher in percentage of fat as the age advances. The Group III calf at 3 months actually shows a loss of fat. The next gain was 10 percent fat and at 4 years the gain contained 18 percent fat. The Group II cattle show increasing percentages of fat up to 11 months when growth becomes so rapid that the animal becomes relatively thinner and the gains contain relatively less fat. At 4 years the gain contains 27 percent of fat. The Group I cattle show this thinning down at 8½ months. Thereafter the gains increase rapidly in fat, containing at 4 years as much as 46 percent of fat.

The gains of the Group I cattle decrease in percentages of nitrogen excepting during the period of rapid growth at 8½ and 11 months when there is an increase. At the start the gain contains about 3.15 percent nitrogen and at the end only 1.9 percent. The Group II cattle show a decrease in percentage of nitrogen in the gain at first followed by a slight increase. Then the value becomes constant at 2.9 percent. The Group III cattle show much the same thing excepting that the value continues to increase up to 40 months when it is almost as great a part of the gain as it was at 3 to 5 months.

As for the ash gained the Group III cattle show a very low percentage at 3 months with a very rapid recovery at 5½ months. Thereafter the value is fairly constant at 5 percent. The Group I and Group II cattle at first show the opposite tendency, the gains containing a relatively smaller percentage of ash. The Group II cattle then show a gradual increase to 2 years, after which the value is rather constant at about 5 percent. The Group I cattle continue to show a decrease in the percentage of ash with some rather large individual variations. The phosphorus content of the gains made in general follows the ash.

It has perhaps been noticed that the lines miss a few of the points by a large margin. The following reasons will account for this. Steers 505 and 503, representing Groups I and II respectively, were among the first animals killed and analyzed. The other animals at this age—11 months—differed in weight or composition from these first two. There must be some difference in age or treatment to account for some of the large differences. Steers 505

and 503 are not considered to be quite typical. Again Steer 527, the Group I steer at 40 months, was too fat for its age and Steers 502 and 524 were too thin for their ages and groups. The former was the Group II 45-months animal and the latter the Group III 40-months animal.

Figure 15 (as does also figure 10 which gives the composition of the total animal) raises the question of the regularity of the change

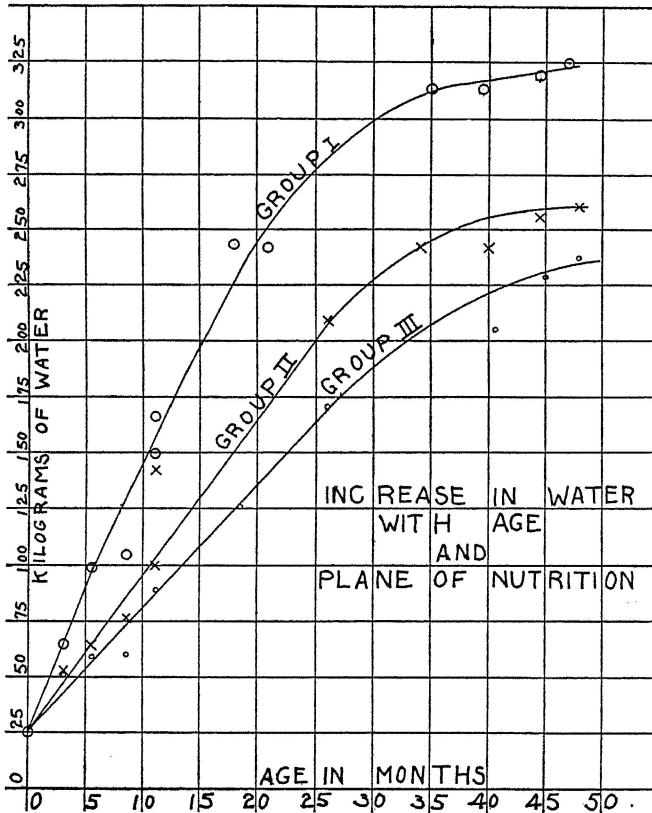


Fig. 16.—Quantity of water in beef cattle.

in composition of the cattle and of the rate of deposition of each constituent. To throw more light on these questions there is presented in figure 16 the weight of water found in each animal slaughtered. At birth it is about 25 kilograms. In the Group I cattle this increases rapidly and uniformly to 250 kilograms at 21 months. The rate of increase then declines until at about 35 months the steer has almost as much water as at 47 months. The curves

for the other groups are rather similar excepting that for Group II the break in the curve is at 26 months and flattening occurs at 40 months. For Group III the rate of increase has been still less, the break occurs at about 27 months and the flattening is at the end if present at all.

In marked contrast to these curves are those for the fat shown

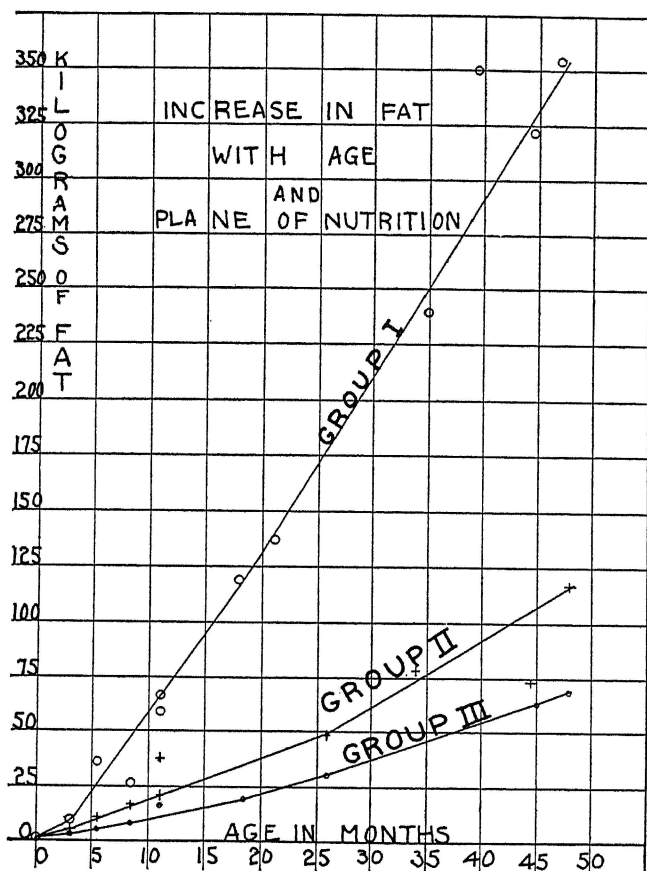


Fig. 17.—Quantity of fat in beef cattle.

in figure 17. After the third month the Group I cattle deposited fat at a rapid and very uniform rate averaging 7.86 kilograms per month. The curve is very slightly convex to the (abscissae) horizontal axis. For the other groups the rate of increase in weight of fat is very much smaller and the curves are more convex to the horizontal, i. e., the rate of deposition increases more with age.

Figure 18 shows the weights of nitrogen (or protein), ash, and phosphorus for each animal slaughtered. In general the curves resemble the curves for water more than they do the curves for fat. The Group I cattle show a decided break in the building up of protein at 20 months and a further break at 40 months. The curves for the other groups are very similar. Both the ash and the phosphorus, on the other hand, fail to show the flattening of the curve after three years.

INCREASE WITH AGE AND PLANE OF NUTRITION

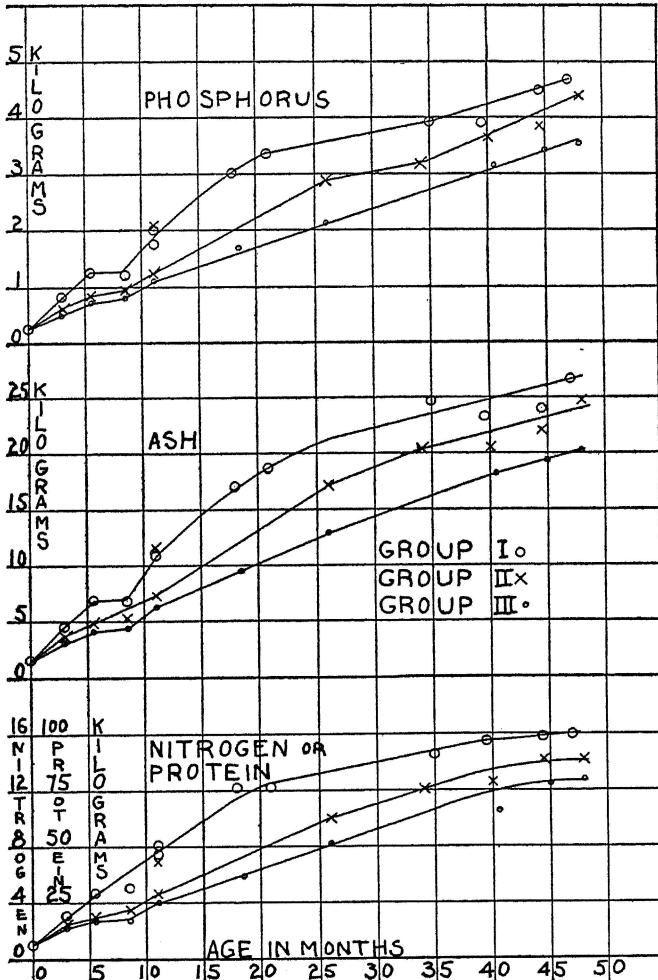


Fig. 18.—Quantity of nitrogen (protein), ash and phosphorus in beef cattle.

COMPOSITION OF GAIN BETWEEN EACH AGE

In order to calculate the composition of the gains made between the succeeding ages it is necessary to assume that each steer slaughtered had at the age at which the preceding steer was slaughtered the composition of that steer both in percentage composition and in percentage of empty weight. Table 79 gives the percentage of empty weight referred to the live weight at the end of the feeding period (a five-day average). This is more representative of conditions in the pen than when the live weight just preceding slaughter is used.

For the live weight at the age at which the preceding animal was slaughtered the live weight at the beginning of that period which came nearest to giving the correct age was used. This facilitates the calculations and is as correct as any of the assumptions. The composition of the gains made between each succeeding age for each group is given in Table 80.

A study of the table shows that on the whole each animal at the time of slaughter contained more of each constituent than it did at the time the preceding animal was slaughtered. This is true with all but one animal in each group in the latter months. In these cases the three steers—527 in Group I, 502 in Group II, and 524 in Group III—were not of normal condition for the group, the first being too fat and the latter two too thin for the age and group. These statements are borne out by data presented above on the composition of the steers and by the proportion of lean, fat and bone shown by these animals in Research Bulletin 54. These animals must be omitted entirely from a study of the composition of the gains made between successive ages or else the composition of normal animals of the respective ages and groups must be used in place of the composition shown by those abnormal steers.

From figure 10 the percentage of fat a steer should have on these three planes of nutrition can be read off for any given age. By its use it is estimated that Steer 527 should have had 38.5 percent of fat, Steer 502 should have had 20.3 percent of fat, and Steer 524 should have had 15 percent of fat. From figure 11 the normal composition of the fat-free animal is readily determined. Calculating these values to the fat content just given it is found that these animals should have had the following composition.

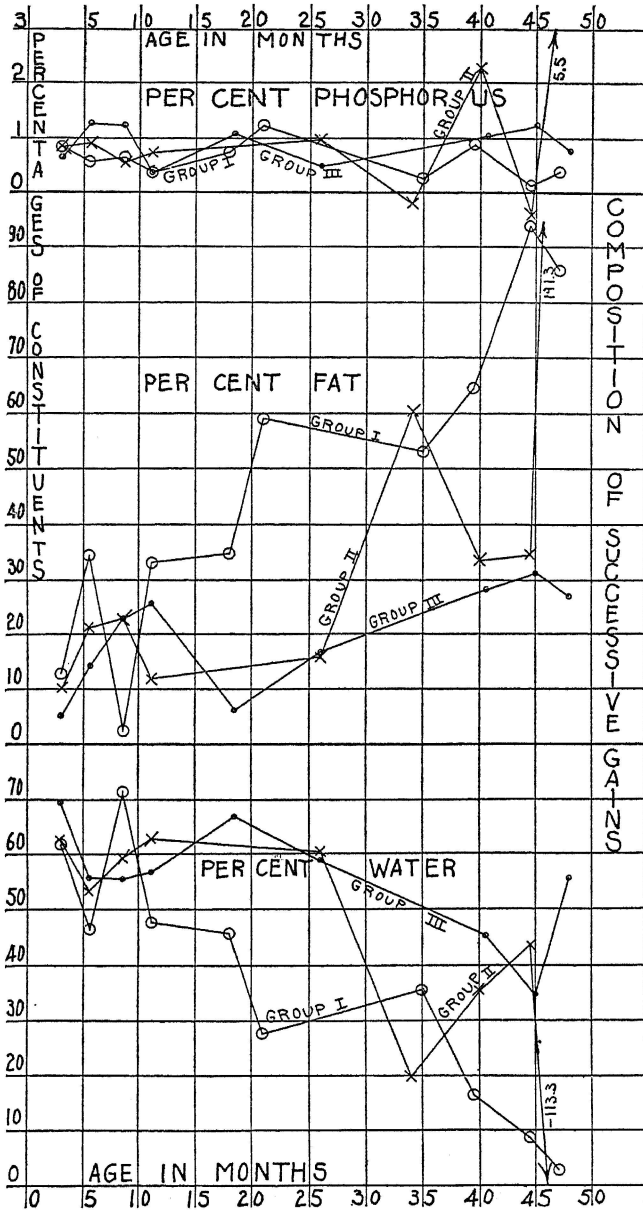


Fig. 19.—Composition of successive gains of beef cattle—water, fat and phosphorus.

ESTIMATED PERCENTAGE COMPOSITION.

Steer	Water	Fat	Nitrogen	Ash	Phosphorus
527	43.48	38.5	2.21	3.38	0.615
502	56.03	20.3	2.87	4.46	0.797
524	60.00	15.0	3.06	4.70	0.850

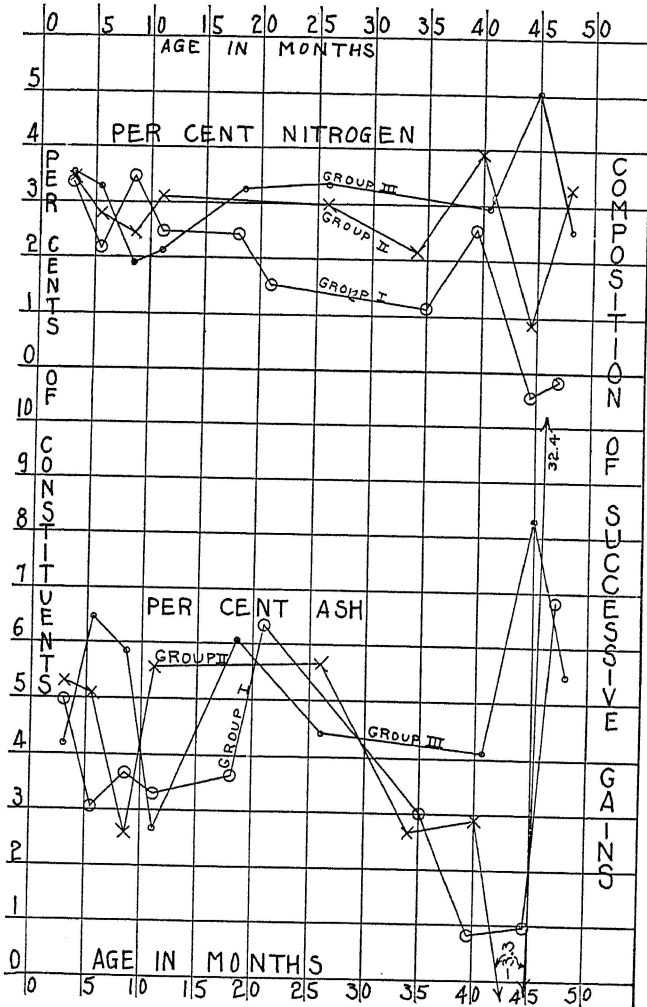


Fig. 20.—Composition of successive gains of beef cattle—ash and nitrogen.

From these values the composition of the gains as shown in the latter part of the table are calculated. These corrected results are shown graphically in figures 19 and 20.

Water.—The water content of the gains made by the Group I steers decreased as the animals got older and fatter. The 8½-months-old steer had been growing rather rapidly and these gains were largely protoplasmic tissue as shown by the high water and nitrogen content of the gain. From gains containing 60 to 70 percent of water the change becomes rapid to gains containing 30 to 40 percent of water. After 35 months the water content drops until at 47 months it is only a little over 2 percent.

The Group II steers after an initial decrease in percentage of water in the gains show a rise to 11 months. This would indicate that their development was about 3 months behind the Group I cattle. At 34 months the steers become rather fat having only 20 percent of water in the gain made during the past 8 months. The next gains contain more water. The 48-months-old steer of this Group was too fat (and too well supplied with bone at the same time). Consequently his last gain appears to contain —113 percent of water. This is, of course, impossible.

For the Group III steers there is the initial fall in percentage of water in the gains followed by a rise with the maximum in this case deferred to 18 months. The water content of the successive gains then falls to about 34 percent at 45 months and shows a rise to about 55 percent at 4 years.

Fat.—In general the fat content of the successive gains is inversely to the water content. The first gains contain about 10 percent of fat. This increases, after an initial fall with minima occurring where the water showed maxima, to 90 percent for Group I and only 30 percent for Group III. The Group II cattle lie between these, but on account of the wide abnormality of the 4-year-old Group II steer the last gain appears to contain 191 percent of fat. This is of course impossible.

Nitrogen.—The nitrogen content of the gains is shown in figure 20. In general it follows the water and is inversely to the percentage of fat. The Group I cattle show gains containing over 3 percent of nitrogen at first. The percentage of nitrogen decreases until at about 4 years the gains contain no nitrogen (—0.45 and —0.15 percent). The Group II and Group III cattle show gains containing over 3 percent nitrogen at first. This percentage falls to less than 2 percent for Group III and about 2.5 percent for Group II. There is then an increase to over 3 percent again. Towards the end there are some rather sudden changes which can only be

accounted for by individual differences in the steers. At the end the values are not far from 3 percent in either case.

Ash.—The ash content of the gains shows some rather striking changes. For the Group I cattle the percentage drops from 5 to 3 or 3.6 percent. But the 21-months-old steer shows a gain containing over 6 percent ash. The value then falls to 3 percent and 1 percent at 44½ months. However at 47 months the gains contain nearly 7 percent of ash. These changes are partly due to different proportions of bone in the cattle. The Group II cattle follow Group I in general. At 8½ months the gain contains but 2.6 percent ash. It then shows a rise to nearly 6 percent falling rapidly after 26 months. The last two steers show abnormal values, the 45-months-old steer showing the gain of the last 5 months to contain —3.3 percent of ash and the 4-year-old steer showing for the last 3 months a gain containing 32.37 percent of ash. These last two values are, of course, impossible and bear witness to the abnormality of the 4-year-old Group II steer as well as to the different proportions of bone in the last two animals.

The Group III animals indicate that the early growth of the calves has been so retarded that the bone is insufficiently developed. The gains made immediately after 3 months contain 6 percent of ash and show that the animals are recovering in this respect. There is a big drop in the ash content of the gain made just preceding 11 months. The following gain is higher in ash and there then follows a decrease. Towards the end there is another increase in the percentage of ash in the gains.

Phosphorus.—The percentage of phosphorus in the successive gains is shown at the top of figure 19. On the whole the values appear fairly constant. This is partly due to the scale of the figure. The percentages vary much as do the ash percentages. The 4-year-old Group II steer is again abnormal and shows the gain for the last 3 months to contain 5.5 percent of phosphorus.

SUMMARY

Thirty Hereford-Shorthorn beef animals ranging in age from 3 months to 4 years were used in this experiment representing three different planes of nutrition. An average of 35 samples per animal or a total of 1061 samples were analyzed for water, fat, nitrogen, ash, and phosphorus.

The chief effect of age and plane of nutrition on the composi-

tion of parts and total animal is through a change in the fat content, which increases in most cases with age and plane of nutrition. The skeleton shows greatly increasing ash and phosphorus content with advancing age.

The total empty animal shows an increasing fat content and decreasing percentage of other constituents with age and plane of nutrition excepting where the fattening is slight and a small increase in nitrogen, ash and phosphorus becomes apparent. When calculated to the fat-free basis, however, the total animal shows very striking changes in composition depending on age alone. The water content decreases rapidly from conception to about the age of 6 months and then becomes constant. The other constituents show a rapid increase to a maximum. For nitrogen and phosphorus the maximum is attained at about 11 months. The ash does not attain a maximum and constant value but from 5 months to 4 years increases slowly.

The composition of the composite ox muscle on the fat-free or protoplasmic basis shows somewhat similar results. The minimum for water and the maximum for ash occur at about 6 and 11 months respectively. The ash and phosphorus content show irregularities having a marked maximum at 11 months with a decreasing percentage thereafter.

The amount and composition of the gains from start to slaughter and between each succeeding age have been calculated. The beef steer may contain 4 percent fat at birth and 45 percent at 4 years. For the full fed cattle the gains become richer in fat and poorer in other constituents with advancing age until the last gains are shown to consist of 90 percent fat. With the other groups there is some variation. All groups show a thinning down during the early months and a fattening after the period of rapid growth is over. The thin cattle have a more nearly constant composition after the first few months.

The irregularity of the percentage composition of the gains raises a question as to the uniformity of the treatment. It is shown that the weight of water in the fattening beef steer increases rapidly to 21 months and then slowly to 35 months. With the poorer groups the flattening of the curve occurs at 26 months and 40 months. The deposition of fat was very uniform from 3 months on for the full fed cattle and slightly increasing with age for the poorer cattle.

APPENDIX

TABLE 1.—STEER 500. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood	21,269	79.041	0.192	3.193	0.789	0.022
Circulatory system	1,562	48.451	37.638	1.867	0.541	0.061
Lean heart	1,284	77.544	3.559	2.723	1.107	0.208
Respiratory system	3,747	76.501	2.702	2.840	1.145	0.172
Fat from thoracic cavity	568	17.038	79.391	0.489	0.239	0.024
Brain and spinal cord	332	62.766	21.718	1.667	1.748	0.371
Digestive and excretory system (partial)	19,275	74.635	9.971	2.203	0.834	0.118
Offal fat	12,940	13.501	83.556	0.422	0.184	0.020
Heart and neck sweetbreads	538	53.199	33.943	1.837	1.043	0.224
Liver	4,634	69.786	2.902	3.243	1.579	0.323
Gall	241	91.875	0.219	0.200	1.237	0.027
Spleen	1,054	74.374	5.355	2.977	1.196	0.219
Pancreas	625	59.139	25.091	2.140	1.201	0.256
Kidneys	1,019	77.091	4.806	2.420	1.120	0.207
Tongue, marketable (excl. bones)	1,619	69.404	11.874	2.703	0.914	0.154
Hair and hide	35,938	59.327	1.319	6.280	1.072	0.044
Head and tail, lean and fat	3,784	63.713	15.958	3.155	0.882	0.134
Shin and shank, lean and fat	12,496	70.862	6.591	3.363	0.989	0.164
Flank and plate, lean and fat	36,410	54.788	27.651	2.687	0.866	0.139
Rump, lean and fat	7,058	55.149	27.639	2.527	0.819	0.145
Chuck and neck, lean and fat	58,918	67.594	11.869	3.387	0.912	0.158
Round, lean	39,898	74.031	3.485	3.123	1.011	0.191
Round, fat	4,936	27.767	61.442	1.590	0.377	0.051
Loin, lean	29,692	70.269	7.734	3.113	1.010	0.185
Loin, fat	6,830	16.464	76.508	0.598	0.245	0.038
Rib, lean	13,602	67.137	12.323	3.196	0.929	0.170
Rib, fat	1,804	20.368	71.084	1.293	0.300	0.060
Kidney, fat	2,432	7.026	90.275	0.410	0.143	0.018
Skeleton of feet	6,838	39.603	11.528	3.612	24.970	4.529
Skeleton of head	3,953	47.986	13.584	3.487	17.862	3.434
Skeleton of tail	386	39.305	24.024	2.650	15.917	2.786
Skeleton of shin	5,610	26.487	21.585	3.700	29.441	5.211
Skeleton of shank	3,750	31.458	20.187	3.454	26.183	4.429
Skeleton of flank and plate	6,350	41.031	18.008	3.223	18.537	3.200
Skeleton of rump	2,988	24.341	20.609	3.067	25.007	4.430
Skeleton of chuck and neck	14,450	28.775	22.517	3.000	25.926	4.575
Skeleton of round (excl. marrow)	6,438	32.552	27.793	2.589	21.074	3.786
Marrow from skeleton of round	680	9.460	89.251	0.147	0.213	0.031
Skeleton of loin	7,772	25.050	31.376	2.935	24.006	4.277
Skeleton of rib	5,192	27.145	22.308	3.182	27.925	4.952
Hoofs and dewclaws	2,095	50.581	0.837	7.742	2.606	0.117
Teeth	852	21.329	1.162	2.079	61.007	11.516

TABLE 2.—STEER 501. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood	28,710	77.977	0.176	3.290	0.857	0.025
Circulatory system	1,836	41.962	45.889	1.907	0.476	0.049
Lean heart	1,882	77.616	3.738	2.573	0.992	0.198
Respiratory system	3,838	76.577	3.248	2.873	1.041	0.172
Fat from thoracic cavity	2,459	18.334	76.645	0.612	0.237	0.026
Brain and spinal cord	757	70.404	13.274	1.713	1.836	0.392
Digestive and excretory system (partial)	24,235	71.756	12.870	2.143	0.809	0.123
Offal fat	38,625	7.488	91.061	0.205	0.102	0.012
Heart and neck sweetbreads	784	30.756	61.763	0.993	0.502	0.107
Liver	6,161	69.513	2.898	3.233	1.423	0.334
Gall	176	91.952	0.050	0.213	1.229	0.034
Spleen	1,178	77.892	1.953	2.773	1.386	0.239
Pancreas	836	59.873	24.564	2.203	1.153	0.263
Kidneys	1,037	77.660	4.867	2.347	1.051	0.199
Tongue, marketable (excl. bones)	2,153	65.843	16.199	2.610	0.870	0.157
Hair and hide	50,090	51.432	13.235	5.493	1.522	0.049
Head and tail, lean and fat	5,224	60.421	20.746	2.833	0.767	0.126
Shin and shank, lean and fat	17,420	58.949	22.573	2.707	0.772	0.132
Flank and plate, lean and fat	134,146	26.818	65.884	1.050	0.342	0.057
Rump, lean and fat	22,226	28.769	62.760	1.140	0.395	0.069
Chuck and neck, lean and fat	110,990	47.698	38.429	1.525	0.652	0.118
Round, lean	50,130	69.902	9.356	3.090	0.957	0.185
Round, fat	22,284	16.846	78.237	0.667	0.218	0.026
Loin, lean	45,996	62.557	17.934	2.863	0.851	0.163
Loin, fat	71,358	9.031	88.682	0.388	0.112	0.018

TABLE 2.—STEER 501. ANALYSIS OF SAMPLES—Continued.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Rib, lean.....	20,834	58.892	22.409	2.759	0.791	0.149
Rib, fat.....	28,322	9.697	87.439	0.401	0.134	0.020
Kidney, fat.....	19,544	5.462	93.311	0.190	0.067	0.011
Skeleton of feet.....	7,744	36.054	12.326	3.531	26.182	5.045
Skeleton of head.....	10,462	43.603	11.776	3.287	23.776	4.199
Skeleton of tail.....	304	40.880	19.185	3.481	18.055	3.155
Skeleton of shin.....	6,170	32.712	14.188	3.476	28.968	5.237
Skeleton of shank.....	7,128	26.943	22.187	3.348	27.861	5.124
Skeleton of flank and plate.....	7,068	40.213	15.682	3.320	18.801	3.403
Skeleton of rump.....	3,682	25.333	26.213	3.172	25.973	4.688
Skeleton of chuck and neck.....	15,778	30.106	15.495	3.656	28.381	5.205
Skeleton of round (excl. marrow).....	6,978	26.646	24.351	3.086	27.253	4.948
Marrow from skeleton of round.....	286	10.169	88.390	0.222	0.530	0.084
Skeleton of loin.....	8,614	25.711	22.523	3.127	28.411	5.072
Skeleton of rib.....	6,388	28.428	18.371	3.322	27.868	5.181
Horns.....	3,354	36.989	0.633	6.469	22.743	4.167
Hoofs and dewclaws.....	2,523	47.011	0.658	8.453	1.715	0.143
Teeth.....	778	22.106	0.808	2.075	59.784	11.737

TABLE 3.—STEER 502. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	19,728	77.433	.....	3.492	0.720	0.023
Circulatory system.....	3,446	68.285	14.513	2.586	0.679	0.138
Respiratory system.....	3,696	76.165	3.056	2.829	1.038	0.166
Fat from thoracic cavity.....	1,271	21.504	73.479	0.754	0.295	0.041
Brain and spinal cord.....	800	69.104	14.579	1.717	1.794	0.414
Digestive and excretory system (partial).....	20,933	77.020	6.035	2.495	1.264	0.136
Offal fat.....	11,377	10.651	86.180	0.468	0.185	0.023
Heart and neck sweetbreads.....	502	59.778	25.414	2.244	1.153	0.270
Liver.....	3,716	68.941	1.728	3.305	1.391	0.334
Gall.....	241	92.020	0.043	0.208	1.027	0.029
Spleen.....	921	77.301	2.420	2.838	1.834	0.279
Pancreas.....	581	53.462	29.615	2.172	1.073	0.240
Kidneys.....	838	73.657	6.587	2.681	1.115	0.221
Hair and hide.....	39,556	57.299	3.010	6.574	0.976	0.059
Head and tail, lean and fat.....	4,250	64.599	14.122	3.201	0.828	0.149
Skin and shank, lean and fat.....	12,364	68.295	8.671	3.486	0.884	0.164
Flank and plate, lean and fat.....	35,594	51.905	31.222	2.583	0.696	0.119
Rump, lean and fat.....	8,100	56.028	25.426	2.611	0.797	0.147
Chuck and neck, lean and fat.....	70,744	66.333	12.728	3.072	0.921	0.158
Round, lean.....	44,426	72.153	4.051	3.306	0.971	0.195
Round, fat.....	4,620	26.602	62.837	1.549	0.322	0.038
Loin, lean.....	35,104	69.877	8.126	3.193	0.975	0.199
Loin, fat.....	9,144	15.400	78.182	1.047	0.249	0.036
Rib, lean.....	18,256	66.358	10.116	3.068	0.893	0.164
Rib, fat.....	3,338	20.655	69.994	1.484	0.281	0.051
Kidney, fat.....	2,916	7.388	89.687	0.420	0.241	0.039
Skeleton of feet.....	6,982	38.632	12.205	3.788	23.868	4.240
Skeleton of head.....	9,577	48.757	8.378	3.185	20.196	3.460
Skeleton of tail.....	441	40.425	22.573	3.251	15.075	2.733
Skeleton of shin.....	5,490	27.399	19.319	3.532	29.466	5.252
Skeleton of shank.....	5,978	27.197	24.585	3.454	25.363	4.505
Skeleton of flank and plate.....	5,590	41.156	12.997	3.582	21.818	3.861
Skeleton of rump.....	2,362	25.436	29.734	3.026	23.684	4.232
Skeleton of chuck and neck.....	15,082	30.767	18.259	3.407	27.553	4.918
Skeleton of round (excl. marrow).....	6,295	26.477	26.444	2.995	26.259	4.681
Marrow from skeleton of round.....	408	7.876	90.632	0.202	0.413	0.074
Skeleton of loin.....	7,866	26.290	26.514	3.149	25.839	4.569
Skeleton of rib.....	5,290	30.433	20.599	3.647	24.864	4.401
Horns*.....	1,949	.....	.....	.....	.....	.....
Hoofs and dewclaws.....	2,010	58.634	0.572	6.625	1.186	0.120
Teeth.....	1,038	36.211	1.025	1.632	50.004	9.483

*This sample was lost before analysis.

TABLE 4.—STEER 503. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	13,058	82.780	0.110	2.708	0.336	0.076
Circulatory system.....	1,782	36.244	54.914	1.249	0.329	0.040
Lean heart.....	1,063	78.139	3.736	2.591	0.951	0.207
Respiratory system.....	2,549	78.706	3.155	2.654	0.976	0.207
Brain and spinal cord.....	666	73.106	16.109	1.682	1.549	0.394
Digestive and excretory system (partial).....	8,761	72.710	11.013	2.375	1.012	0.208
Offal fat.....	7,385	14.642	81.920	0.521	0.182	0.035
Liver.....	3,646	68.680	5.266	2.995	1.284	0.334
Kidneys.....	655	71.360	11.795	2.414	1.041	0.225
Stomach.....	5,765	77.658	6.925	2.211	1.085	0.207
Tongue, marketable.....	789	69.328	13.263	2.535	0.827	0.170
Hair and hide.....	23,008	67.765	2.570	4.793	0.979	0.066
Shin, snank, head and tail, lean and fat.....	8,614	69.707	10.223	3.196	0.847	0.168
Flank and plate, lean and fat.....	16,290	56.518	25.666	2.742	0.748	0.136
Chuck and neck, lean and fat.....	31,934	68.526	12.574	2.954	0.870	0.171
Round and rump, lean.....	25,022	73.087	4.805	3.370	1.024	0.204
Round and rump, fat.....	3,400	22.450	70.130	1.212	0.287	0.048
Loin, lean.....	17,206	70.994	8.451	3.187	0.983	0.190
Loin, fat.....	5,746	15.748	79.917	0.777	0.190	0.035
Rib, lean.....	8,932	69.677	10.231	3.154	0.927	0.185
Rib, fat.....	840	23.294	66.936	1.481	0.318	0.061
Kidney, fat.....	2,126	8.676	89.467	0.340	0.125	0.027
Skeleton.....	41,122	38.277	15.059	3.104	23.704	4.378
Horns, hoofs and dewclaws.....	1,058	46.286	2.022	7.576	6.055	0.661
Teeth.....	253	23.299	0.525	2.252	58.876	11.280

TABLE 5.—STEER 504. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	21,005	78.650	.....	3.334	0.387	0.022
Circulatory system.....	1,637	28.710	63.739	1.112	0.405	0.041
Lean heart.....	1,423	76.650	4.310	2.774	1.015	0.203
Respiratory system.....	3,628	67.410	14.900	2.882	0.974	0.131
Brain and spinal cord.....	724	69.230	15.080	1.788	1.358	0.350
Digestive and excretory system (partial).....	17,569	68.540	18.040	1.910	0.726	0.145
Offal fat.....	25,105	12.760	84.820	0.334	0.147	0.023
Liver.....	4,754	69.220	2.436	3.275	1.352	0.358
Kidneys.....	877	69.480	12.810	2.452	1.058	0.219
Stomachs.....	12,820	79.670	8.040	1.701	0.897	0.151
Tongue, marketable.....	1,587	60.750	23.480	2.182	0.759	0.141
Hair and hide.....	41,144	58.290	8.070	5.522	1.057	0.043
Shin, shank, head and tail, lean and fat.....	16,070	60.040	20.560	2.951	0.803	0.146
Flank and plate, lean and fat.....	49,650	41.040	45.620	1.945	0.572	0.101
Rump, lean and fat.....	10,846	40.720	46.810	1.847	0.574	0.106
Chuck and neck, lean and fat.....	59,808	58.330	24.030	2.620	0.758	0.146
Round, lean.....	37,238	69.510	9.210	3.208	0.983	0.194
Round, fat.....	9,818	16.610	78.030	0.906	0.238	0.030
Loin, lean.....	33,676	66.920	12.220	3.051	0.946	0.181
Loin, fat.....	18,340	11.620	84.910	0.532	0.162	0.025
Rib, lean.....	18,506	63.280	17.520	2.940	0.831	0.167
Rib, fat.....	6,770	14.420	80.630	0.833	0.202	0.031
Kidney, fat.....	11,400	4.800	93.940	0.215	0.126	0.017
Skeleton of feet, head, tail, shin and shank.....	23,568	36.050	13.640	3.237	27.594	5.076
Skeleton of flank and plate.....	4,572	44.100	18.180	3.523	15.715	2.916
Skeleton of rump.....	2,428	25.720	26.000	3.073	27.381	5.154
Skeleton of chuck and neck.....	11,176	30.180	16.270	3.524	29.162	5.344
Skeleton of round.....	4,808	21.880	27.470	3.120	31.049	5.755
Skeleton of loin.....	5,850	29.840	22.100	3.184	26.452	4.812
Skeleton of rib.....	5,092	32.550	16.200	3.417	27.791	5.096
Horns, noofs and dewclaws.....	2,532	69.476	0.514	4.621	2.428	0.157
Teeth*.....	338	.....	.....	.....	.....	.....

*This sample was lost before analysis.

TABLE 6.—STEER 505. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	13,810	82.260	0.351	2.726	0.329	0.023
Circulatory system.....	1,168	33.230	59.064	1.285	0.277	0.047
Lean heart.....	938	77.382	5.110	2.618	0.973	0.209
Brain and spinal cord.....	2,498	76.829	5.477	2.713	0.951	0.202
Respiratory system.....	537	73.810	14.738	1.688	1.719	0.411
Brain and spinal cord.....	8,253	71.593	12.815	2.476	1.053	0.226
Digestive and excretory system (partial).....	12,731	12.410	85.384	0.340	0.117	0.022
Offal fat.....	3,983	65.096	5.770	3.205	1.329	0.347
Liver.....	718	75.712	7.535	2.376	1.061	0.226
Kidneys.....	8,818	77.261	10.849	1.681	0.868	0.173
Stomach.....	1,115	64.061	20.160	2.352	0.759	0.156
Tongue, marketable.....	22,884	62.138	5.336	5.297	0.698	0.066
Hair and hide.....	9,386	64.430	15.398	3.216	0.813	0.165
Shin, snank, head and tail, lean and fat.....	24,194	43.720	42.762	2.211	0.580	0.116
Flank and plate, lean and fat.....	38,344	62.294	18.049	2.886	0.830	0.165
Chuck and neck, lean and fat.....	25,784	69.066	9.464	3.326	0.976	0.200
Round and rump, lean.....	5,970	14.140	80.640	0.452	0.174	0.032
Round and rump, fat.....	19,686	68.130	9.983	3.236	0.963	0.196
Loin, lean.....	7,558	9.333	87.547	0.535	0.127	0.024
Loin, fat.....	11,300	61.762	19.191	2.064	0.841	0.176
Rib, lean.....	2,040	10.913	85.235	0.643	0.167	0.033
Rib, fat.....	5,754	5.263	93.527	0.236	0.084	0.016
Kidney, fat.....	37,745	35.792	17.555	3.186	23.852	4.403
Skeleton.....	1,206	40.098	1.104	7.724	5.340	0.611
Horns, hoofs and dewclaws.....	268	21.938	0.634	2.264	59.386	10.697
Teeth.....						

TABLE 7.—STEER 507. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	20,316	78.174	.....	3.431	0.670	0.022
Circulatory system.....	4,278	47.118	41.273	1.695	0.535	0.104
Respiratory system.....	3,768	77.467	3.927	2.729	0.954	0.169
Brain and spinal cord.....	744	70.806	13.738	1.498	1.749	0.418
Digestive and excretory system.....	27,417	70.515	14.079	2.097	0.825	0.150
Offal fat.....	11,037	13.096	83.962	0.412	0.140	0.029
Hair and hide.....	34,473	60.845	6.213	5.688	1.065	0.049
Head and tail, lean and fat.....	4,038	62.582	18.949	2.841	0.895	0.161
Shin and snank, lean and fat.....	11,860	69.383	7.860	3.343	0.922	0.167
Flank and plate, lean and fat.....	36,130	51.939	32.362	2.504	0.693	0.124
Rump, lean and fat.....	7,736	50.303	31.644	2.275	0.721	0.139
Chuck and neck, lean and fat.....	62,530	65.569	15.166	2.891	0.862	0.157
Round, lean.....	39,302	72.727	5.772	3.230	0.981	0.192
Round, fat.....	5,378	24.446	68.671	1.093	0.276	0.039
Loin, lean.....	29,724	70.696	8.096	3.128	0.972	0.185
Loin, fat.....	10,188	17.822	76.684	0.826	0.223	0.039
Rib, lean.....	15,788	67.438	12.239	2.999	0.937	0.174
Rib, fat.....	2,432	17.554	76.436	0.947	0.253	0.042
Kidney, fat.....	4,376	6.784	91.300	0.284	0.147	0.025
Skeleton of feet, head and tail.....	15,275	42.804	11.776	3.456	23.906	3.858
Skeleton of shin and snank.....	10,350	23.960	19.357	3.646	33.717	4.634
Skeleton of flank and plate.....	6,278	44.217	13.485	3.380	18.472	2.851
Skeleton of rump.....	2,536	25.041	26.339	3.229	25.836	3.940
Skeleton of chuck and neck.....	13,202	31.923	15.245	3.555	25.644	4.204
Skeleton of round.....	5,864	26.093	29.961	3.142	23.204	4.161
Skeleton of loin.....	6,506	26.630	26.891	2.866	26.102	3.724
Skeleton of rib.....	5,050	28.673	18.021	3.363	28.739	4.282
Horns.....	1,600	41.605	0.624	5.762	21.877	3.960
Hoofs and dewclaws.....	1,490	54.438	1.143	7.002	2.044	0.163
Teeth.....	712	26.534	1.027	1.964	56.717	10.889

TABLE 8.—STEER 509. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	18.291	78.053	.....	3.429	0.686	0.023
Circulatory system.....	2.616	69.945	12.261	2.590	0.922	0.167
Respiratory system.....	3.233	77.032	2.879	3.004	1.011	0.176
Fat from thoracic cavity.....	1.243	19.808	76.095	0.720	0.297	0.043
Brain and spinal cord.....	739	66.874	17.662	1.679	1.576	0.379
Digestive and excretory system (partial).....	19.016	73.011	11.886	2.206	0.908	0.123
Offal fat.....	9.922	11.360	85.888	0.534	0.175	0.024
Heart and neck sweetbreads.....	630	50.304	37.140	1.816	1.039	0.254
Liver.....	3.875	63.408	1.757	3.088	1.354	0.326
Gall.....	110	91.529	0.059	0.250	0.874	0.031
Spleen.....	1.304	77.255	2.126	2.993	1.420	0.242
Pancreas.....	562	54.915	28.448	2.239	1.178	0.269
Kidneys.....	774	77.013	3.823	2.649	1.115	0.234
Hair and hide.....	37.614	58.969	2.477	6.270	1.024	0.046
Head and tail, lean and fat.....	3.212	66.769	13.022	3.077	0.821	0.150
Shin and shank, lean and fat.....	11.782	67.912	9.765	3.380	0.911	0.167
Flank and plate, lean and fat.....	31.790	53.639	28.926	2.620	0.733	0.145
Rump, lean and fat.....	7.370	55.813	26.599	2.628	0.804	0.146
Chuck and neck, lean and fat.....	60.176	68.493	9.856	3.076	0.895	0.166
Round, lean.....	40.376	73.647	4.183	3.223	1.005	0.196
Round, fat.....	5.106	25.559	64.040	1.621	0.343	0.041
Loin, lean.....	30.836	69.632	9.010	3.103	0.951	0.180
Loin, fat.....	7.570	16.259	77.561	1.033	0.253	0.041
Rib, lean.....	16.360	67.795	10.844	2.927	0.915	0.170
Rib, fat.....	1.978	17.552	76.022	1.058	0.279	0.045
Kidney, fat.....	1.576	5.466	92.412	0.314	0.138	0.017
Skeleton of feet.....	6.144	41.075	10.778	3.669	23.457	4.245
Skeleton of head.....	8.247	47.540	8.478	3.176	21.164	3.772
Skeleton of tail.....	386	37.947	26.555	2.873	15.105	2.734
Skeleton of shin.....	5.046	28.351	18.203	3.839	29.339	5.168
Skeleton of shank.....	5.498	28.550	22.558	3.619	26.144	5.027
Skeleton of flank and plate.....	5.124	41.367	13.032	3.533	22.382	4.082
Skeleton of rump.....	2.860	26.895	29.745	3.058	22.246	3.878
Skeleton of chuck and neck.....	13.682	32.337	17.293	3.704	25.046	4.606
Skeleton of round (excl. marrow).....	5.442	27.956	24.600	2.967	25.948	4.624
Marrow from skeleton of round.....	578	11.658	86.848	0.203	0.370	0.058
Skeleton of loin.....	6.872	27.517	25.661	3.130	25.647	4.414
Skeleton of rib.....	4.986	28.050	16.791	3.623	30.569	5.444
Hoofs and dewclaws.....	1.590	66.980	0.459	5.193	1.457	0.117
Teeth.....	838	28.535	0.535	1.740	56.001	10.533

TABLE 9.—STEER 512. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	24.176	79.949	0.055	3.073	0.790	0.023
Circulatory system.....	5.432	40.529	47.983	1.710	0.563	0.055
Lean heart.....	1.555	77.321	3.470	2.803	1.260	0.215
Respiratory system.....	3.831	75.487	4.670	2.803	1.079	0.164
Fat from thoracic cavity.....	1.171	12.232	85.592	0.263	0.144	0.015
Brain and spinal cord.....	666	72.058	11.117	1.687	1.871	0.385
Digestive and excretory system (partial).....	20.735	73.684	10.288	2.183	0.761	0.119
Offal fat.....	17.454	11.212	86.273	0.369	0.144	0.019
Heart and neck sweetbreads.....	511	40.399	49.421	1.497	0.793	0.168
Liver.....	4.416	68.984	2.625	3.263	1.588	0.334
Gall.....	212	93.144	0.023	0.223	1.039	0.028
Spleen.....	1.255	77.145	2.366	2.800	1.339	0.239
Pancreas.....	736	57.391	26.641	2.087	1.326	0.274
Kidneys.....	1.074	77.235	6.831	2.080	1.053	0.203
Tongue, marketable.....	1.766	66.979	13.428	2.580	0.899	0.161
Hair and hide.....	41.268	56.193	3.612	6.547	1.163	0.047
Head and tail, lean and fat.....	4.412	61.554	19.074	2.893	0.859	0.139
Shin and shank, lean and fat.....	12.706	68.606	9.380	3.343	0.927	0.161
Flank and plate, lean and fat.....	48.948	41.914	45.337	1.910	0.570	0.094
Rump, lean and fat.....	10.484	44.598	41.829	2.027	0.887	0.119
Chuck and neck, lean and fat.....	73.512	63.188	18.191	2.826	0.919	0.150
Round, lean.....	43.408	73.272	4.557	3.237	1.024	0.192
Round, fat.....	9.840	22.030	70.658	0.765	0.311	0.040
Loin, lean.....	32.062	67.607	11.040	3.076	0.919	0.170
Loin, fat.....	13.308	12.497	83.354	0.650	0.180	0.026
Rib, lean.....	16.908	65.119	14.950	2.967	0.896	0.157
Rib, fat.....	5.398	14.938	80.367	0.840	0.212	0.035

TABLE 9.—STEER 512. ANALYSIS OF SAMPLES—Continued.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Kidney, fat.....	4,740	4.482	93.915	0.183	0.130	0.020
Skeleton of feet.....	7,016	37.452	14.314	3.597	24.365	4.405
Skeleton of head.....	9,665	43.142	12.955	3.229	22.420	4.204
Skeleton of tail.....	416	36.970	24.279	3.129	18.107	3.265
Skeleton of shin.....	6,074	27.159	20.808	3.631	29.984	5.388
Skeleton of shank.....	6,156	31.979	21.541	3.540	22.768	4.094
Skeleton of flank and plate.....	7,788	36.792	21.061	3.033	19.564	3.586
Skeleton of rump.....	3,264	23.678	30.680	2.986	26.274	4.446
Skeleton of chuck and neck.....	16,536	28.775	18.986	3.244	30.510	5.438
Skeleton of round (excl. marrow).....	7,430	28.723	26.734	2.822	22.605	4.058
Marrow from skeleton of round.....	396	10.084	88.297	0.186	0.657	0.132
Skeleton of loin.....	8,748	25.136	24.403	2.987	26.642	5.334
Skeleton of rib.....	6,938	29.436	16.324	3.475	28.699	5.454
Horns.....	1,810	35.228	0.480	7.033	22.746	3.874
Hoofs and dewclaws.....	1,724	48.002	0.588	7.857	2.791	0.124
Teeth.....	710	19.913	0.782	2.152	63.721	12.031

TABLE 10.—STEER 513. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	25,630	77.676	.....	3.341	0.722	0.028
Circulatory system.....	3,435	77.600	4.500	2.673	0.909	0.157
Respiratory system.....	4,853	73.905	7.032	2.742	0.992	0.155
Fat from thoracic cavity.....	3,942	13.440	83.707	0.366	0.185	0.024
Brain and spinal cord.....	748	68.192	15.496	1.724	1.601	0.410
Digestive and excretory system (partial).....	25,642	75.309	7.697	2.310	1.041	0.157
Ofal fat.....	53,771	5.653	92.874	0.215	0.079	0.011
Heart and neck sweetbreads.....	1,334	40.327	50.545	1.405	0.824	0.198
Liver.....	5,920	67.926	3.126	3.235	1.397	0.333
Gall.....	37	91.391	0.146	0.312	1.191	0.035
Spleen.....	1,114	75.645	4.542	2.932	1.253	0.242
Pancreas.....	873	50.118	34.657	1.868	1.088	0.242
Kidneys.....	1,015	76.071	5.802	2.503	1.133	0.220
Hair and hide.....	45,286	57.566	10.072	5.178	0.941	0.054
Head and tail, lean and fat.....	5,390	56.379	26.291	2.439	0.770	0.128
Shin and shank, lean and fat.....	17,798	55.759	27.657	2.309	0.697	0.118
Flank and plate, lean and fat.....	115,774	29.221	62.259	1.242	0.385	0.065
Rump, lean and fat.....	19,082	31.575	58.755	1.378	0.438	0.080
Chuck and neck, lean and fat.....	110,940	47.879	37.191	2.152	0.629	0.116
Round, lean.....	50,782	65.159	14.337	2.901	0.911	0.173
Round, fat.....	19,108	17.763	76.089	0.921	0.199	0.024
Loin, lean.....	44,510	59.396	21.597	2.777	0.826	0.163
Loin, fat.....	49,928	8.901	88.492	0.366	0.115	0.018
Rib, lean.....	24,744	55.589	27.713	2.567	0.757	0.142
Rib, fat.....	23,608	17.797	75.455	0.408	0.138	0.021
Kidney, fat.....	14,490	3.912	94.928	0.156	0.074	0.010
Skeleton of feet.....	7,598	36.238	14.856	3.522	23.836	4.243
Skeleton of head.....	7,865	40.707	9.440	3.300	25.028	5.856
Skeleton of tail.....	297	39.282	19.765	3.353	17.252	3.031
Skeleton of shin.....	6,120	29.290	17.835	3.377	27.325	4.811
Skeleton of shank.....	6,058	26.124	19.919	3.570	29.591	5.233
Skeleton of flank and plate.....	7,438	40.922	15.081	3.278	20.425	4.139
Skeleton of rump.....	3,464	24.417	29.288	3.009	24.688	4.683
Skeleton of chuck and neck.....	15,526	32.008	17.781	3.508	25.202	5.058
Skeleton of round (excl. marrow).....	6,564	24.756	30.638	2.968	24.757	4.366
Marrow from skeleton of round.....	480	8.660	89.964	0.161	0.811	0.139
Skeleton of loin.....	8,536	25.186	39.799	3.025	24.383	4.699
Skeleton of rib.....	7,096	26.559	21.539	3.363	29.216	5.528
Horns.....	2,144	36.851	0.766	6.450	22.622	4.168
Hoofs and dewclaws.....	2,180	41.930	0.890	8.956	2.960	0.239
Teeth.....	874	31.897	1.103	1.811	52.576	9.959

TABLE 11.—STEER 515. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	27,856	79.107	.....	3.217	0.594	0.024
Circulatory system.....	5,787	42.032	48.530	1.276	0.480	0.086
Respiratory system.....	3,653	76.354	5.443	2.699	0.968	0.187
Brain and spinal cord.....	728	70.028	16.091	1.654	1.634	0.395
Digestive and excretory system.....	36,311	66.167	18.711	2.019	1.851	0.162
Ofal fat.....	29,877	7.532	90.291	0.281	0.124	0.015
Hair and hide.....	49,943	56.003	12.550	4.840	1.857	0.059
Head and tail, lean and fat.....	5,918	53.562	30.538	2.417	0.731	0.130
Shin and shank, lean and fat.....	16,676	57.361	26.753	2.502	0.716	0.123
Flank and plate, lean and fat.....	87,138	31.118	59.929	1.360	0.388	0.071
Rump, lean and fat.....	15,810	35.336	54.204	1.506	0.476	0.085
Chuck and neck, lean and fat.....	88,134	53.265	31.088	2.356	0.712	0.126
Round, lean.....	42,942	67.691	11.052	3.102	0.924	0.177
Round, fat.....	19,058	17.522	77.696	0.784	0.215	0.026
Loin, lean.....	41,620	64.691	15.193	2.999	0.994	0.181
Loin, fat.....	38,324	10.576	86.623	0.412	0.115	0.017
Rib, lean.....	19,016	61.183	20.387	2.776	0.849	0.152
Rib, fat.....	16,282	9.071	88.287	0.394	0.134	0.020
Kidney, fat.....	9,922	4.951	94.433	0.178	0.081	0.015
Skeleton of feet, head and tail.....	18,179	41.368	11.161	3.032	23.490	4.066
Skeleton of shin and shank.....	13,900	27.713	27.063	3.045	24.670	4.032
Skeleton of flank and plate.....	6,368	42.196	15.964	3.410	17.779	3.113
Skeleton of rump.....	4,074	29.793	25.690	3.096	23.313	4.071
Skeleton of chuck and neck.....	14,528	30.500	15.517	3.333	29.568	4.253
Skeleton of round.....	6,344	23.643	29.413	3.024	28.767	4.890
Skeleton of loin.....	7,784	25.307	28.219	2.971	26.216	4.497
Skeleton of rib.....	6,464	26.086	20.159	3.270	31.176	4.374
Horns.....	1,804	40.640	0.591	5.617	23.674	4.223
Hoofs and dewclaws.....	1,893	53.752	0.529	7.363	1.823	0.072
Teeth.....	786	27.331	0.859	1.785	57.132	10.992

TABLE 12.—STEER 523. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	15,287	80.520	.....	2.790	0.659	0.022
Circulatory system.....	3,044	53.054	35.823	1.684	0.598	0.110
Respiratory system.....	3,371	78.769	4.054	2.605	0.986	0.189
Brain and spinal cord.....	797	68.595	17.610	1.616	1.515	0.359
Digestive and excretory system.....	24,667	75.194	10.330	2.190	0.788	0.158
Hair and hide.....	33,097	62.801	1.150	5.603	1.030	0.051
Head and tail, lean and fat.....	3,100	68.166	11.573	3.094	0.923	0.154
Shin and shank, lean and fat.....	8,684	71.786	6.036	3.402	0.915	0.169
Flank and plate, lean and fat.....	26,984	59.510	22.920	2.693	0.739	0.139
Rump, lean and fat.....	5,418	54.330	29.269	2.532	0.748	0.154
Chuck and neck, lean and fat.....	50,320	70.884	10.288	2.986	0.921	0.171
Round, lean.....	33,900	76.929	2.310	3.155	1.042	0.202
Loin, lean.....	25,834	69.754	10.406	3.027	0.921	0.172
Rib, lean.....	12,032	70.282	9.297	3.119	0.927	0.178
Round, fat.....	4,556	29.544	60.224	1.580	0.357	0.048
Loin, fat.....	6,376	16.497	77.934	0.863	0.281	0.045
Rib, fat.....	1,522	23.543	64.977	1.511	0.394	0.059
Kidney, fat.....	3,110	5.259	92.726	0.465	0.179	0.015
Ofal, fat.....	7,915	15.418	81.284	0.495	0.204	0.030
Skeleton of feet, head and tail.....	13,120	44.251	8.120	3.563	22.796	4.135
Skeleton of shin and shank.....	8,862	29.464	20.364	3.381	27.635	5.132
Skeleton of flank and plate.....	3,882	44.868	10.710	3.471	19.443	3.467
Skeleton of rump.....	1,770	27.036	20.259	3.270	29.591	5.430
Skeleton of chuck and neck.....	9,376	33.866	12.894	3.681	29.394	5.391
Skeleton of round.....	4,630	39.850	26.599	1.942	20.522	3.840
Skeleton of loin.....	5,322	27.873	23.686	3.145	27.029	4.981
Skeleton of rib.....	3,844	31.218	12.517	3.592	31.713	5.769
Horns.....	1,167	46.232	0.625	5.616	18.740	3.416
Hoofs and dewclaws*.....	1,063	.....	.....	.....	.....	.....
Teeth.....	766	26.317	0.763	2.098	56.395	10.676

*This sample was lost before analysis.

TABLE 13.—STEER 524. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood	17,019	82.006	.....	2.787	0.746	0.022
Circulatory system	2,953	62.090	22.418	2.240	0.768	0.132
Respiratory system	3,455	77.635	2.601	2.793	1.073	0.178
Brain and spinal cord	758	73.218	10.255	1.597	1.418	0.338
Digestive and excretory system (partial)	17,924	74.094	9.821	2.303	0.885	0.160
Offal fat	5,007	25.069	69.444	0.750	0.320	0.035
Heart and neck sweetbreads	541	75.123	7.448	2.603	1.873	0.463
Liver	3,019	69.840	3.316	3.047	1.408	0.327
Gall	229	94.859	0.092	0.167	0.794	0.031
Spleen	757	78.752	1.819	2.750	1.335	0.260
Pancreas	435	65.634	15.877	2.540	1.230	0.285
Kidneys	766	76.830	5.735	2.433	1.158	0.208
Hair and hide	30,092	59.259	1.813	6.300	1.577	0.058
Head and tail, lean and fat	3,364	66.261	13.126	3.127	1.026	0.179
Shin and shank, lean and fat	8,674	73.037	5.601	2.925	0.974	0.166
Flank and plate, lean and fat	19,788	63.711	15.372	3.200	0.952	0.154
Rump, lean and fat	4,030	63.611	17.147	2.957	0.972	0.175
Chuck and neck, lean and fat	46,386	72.555	6.292	3.160	0.975	0.174
Round, lean	37,714	76.864	2.716	3.257	1.043	0.192
Round, fat	2,526	36.260	49.962	2.237	0.420	0.053
Loin, lean	24,200	72.680	4.544	3.310	1.057	0.194
Loin, fat	2,444	18.811	73.319	1.237	0.350	0.053
Rib, lean and fat	13,144	70.285	7.949	3.310	0.982	0.182
Kidney, fat	766	11.440	84.187	0.440	0.179	0.031
Skeleton of feet	6,010	40.508	13.002	3.592	24.515	4.375
Skeleton of head and tail	8,318	45.930	10.389	3.053	23.867	4.263
Skeleton of shin and shank	10,262	31.581	19.317	3.365	25.920	4.619
Skeleton of flank and plate	5,926	43.358	15.272	3.211	19.164	3.345
Skeleton of rump	2,424	34.304	21.452	2.997	22.395	4.067
Skeleton of chuck and neck	12,896	40.299	15.844	3.316	21.786	3.986
Skeleton of round	5,878	31.056	28.341	2.666	22.700	4.063
Skeleton of loin	6,586	29.252	26.901	2.845	24.306	4.246
Skeleton of rib	5,310	35.735	18.535	2.969	24.951	4.429
Horns*	1,227	.....	.....	.....	.....	.....
Hoofs and dewclaws	1,494	50.239	0.832	7.553	3.194	0.219
Teeth	806	26.967	1.106	1.907	57.863	10.988

*This sample was lost before analysis.

TABLE 14.—STEER 525. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood	13,614	80.514	.....	2.942	0.660	0.026
Circulatory system	1,320	64.087	24.542	1.705	0.715	0.121
Respiratory system	1,658	78.612	2.633	2.823	1.111	0.193
Brain and spinal cord	711	71.054	13.931	1.737	1.504	0.370
Digestive and excretory system	23,001	77.479	9.144	1.999	0.883	0.156
Hair and hide	27,813	62.396	0.498	5.724	1.331	0.157
Head and tail, lean and fat	2,788	74.319	13.082	1.858	0.986	0.158
Shin and shank, lean and fat	7,596	72.849	5.330	3.537	0.965	0.177
Flank and plate, lean and fat	13,762	60.827	20.204	2.873	0.828	0.149
Rump, lean and fat	4,154	60.691	20.925	2.760	0.864	0.162
Chuck and neck, lean and fat	35,824	71.151	8.443	3.125	0.949	0.178
Round, lean	27,524	77.034	2.403	3.120	1.064	0.205
Loin, lean	18,710	74.634	3.469	3.237	1.048	0.200
Rib, lean	11,666	70.514	8.659	3.161	0.977	0.181
Round, fat	1,962	32.685	56.826	1.599	0.433	0.056
Loin, fat	3,758	22.002	69.589	1.099	0.294	0.040
Rib, fat	664	28.087	61.613	1.611	0.605	0.092
Kidney, fat	1,258	6.721	90.181	0.470	0.161	0.020
Offal, fat	4,961	21.028	70.641	1.286	0.293	0.051
Skeleton of feet, head and tail	10,782	43.021	9.990	3.736	21.822	4.171
Skeleton of shin and shank	7,014	30.333	19.135	3.485	29.526	4.190
Skeleton of flank and plate	3,454	44.613	10.853	3.365	21.567	2.989
Skeleton of rump	1,542	30.800	23.819	3.234	24.612	4.216
Skeleton of chuck and neck	8,450	34.145	19.714	3.092	22.900	4.301
Skeleton of round	4,046	28.602	32.687	2.653	21.783	2.826
Skeleton of loin	3,928	28.594	25.309	3.020	24.434	3.678
Skeleton of rib	3,888	31.735	18.050	3.593	24.740	4.352
Horns	1,298	48.873	0.543	5.641	16.718	3.141
Hoofs and dewclaws	940	51.906	0.575	7.892	1.259	0.134
Teeth	690	23.125	1.063	1.903	60.713	11.737

TABLE 15.—STEER 526. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	18,957	79.926	.....	3.087	0.777	0.025
Circulatory system.....	2,413	63.316	21.434	2.343	0.814	0.145
Respiratory system.....	3,797	76.615	3.288	2.800	1.025	0.156
Fat from the thoracic cavity.....	1,585	21.467	73.139	0.753	0.286	0.034
Brain and spinal cord.....	660	73.217	10.255	1.747	1.728	0.420
Digestive and excretory system (partial).....	20,541	72.884	12.222	2.130	0.768	0.127
Offal fat.....	11,551	12.992	84.144	0.410	0.175	0.018
Heart and neck sweetbreads.....	439	60.467	24.213	2.253	1.444	0.348
Liver.....	3,531	67.922	4.255	3.247	1.469	0.348
Gall.....	143	92.398	0.138	0.230	1.158	0.031
Spleen.....	831	78.490	1.496	2.767	1.554	0.297
Pancreas.....	498	63.457	18.209	2.245	1.172	0.282
Kidneys.....	922	73.557	9.071	2.353	1.069	0.198
Hair and hide.....	35,732	57.828	5.714	5.923	1.440	0.050
Head and tail, lean and fat.....	3,616	61.791	19.640	2.910	0.832	0.142
Shin and shank, lean and fat.....	11,644	70.950	7.537	3.301	0.900	0.164
Flank and plate, lean and fat.....	39,524	49.492	35.249	2.330	0.678	0.125
Rump, lean and fat.....	3,594	53.663	29.882	2.463	0.736	0.138
Chuck and neck, lean and fat.....	61,228	65.441	14.500	2.923	0.907	0.166
Round, lean.....	44,614	66.884	11.887	3.300	1.031	0.191
Round, fat.....	5,016	22.666	63.981	1.670	0.284	0.036
Loin, lean.....	31,440	71.946	5.341	3.210	1.018	0.190
Loin, fat.....	11,634	14.508	79.929	0.850	0.208	0.030
Rib, lean.....	17,264	69.641	10.014	3.077	0.920	0.165
Rib, fat.....	3,720	17.241	74.768	1.160	0.259	0.044
Kidney, fat.....	3,224	9.074	87.831	0.340	0.137	0.021
Skeleton of feet.....	6,138	38.425	13.853	3.682	23.475	4.354
Skeleton of head and tail.....	9,165	46.363	12.805	2.998	21.004	3.832
Skeleton of shin and shank.....	11,612	27.802	20.097	3.254	28.703	5.238
Skeleton of flank and plate.....	6,588	40.154	16.466	3.175	20.333	3.793
Skeleton of rump.....	2,838	29.344	25.608	3.108	23.706	4.277
Skeleton of chuck and neck.....	13,842	34.313	17.449	3.339	24.601	4.482
Skeleton of round.....	6,352	27.057	30.272	2.694	23.272	4.318
Skeleton of loin.....	6,844	29.163	28.333	2.826	23.314	4.282
Skeleton of rib.....	5,690	31.712	20.075	3.314	26.287	4.758
Horns.....	1,427	41.315	0.744	6.411	19.354	3.592
Hoofs and dewclaws.....	1,875	54.392	0.625	7.294	2.123	0.085
Teeth.....	782	22.147	1.273	1.941	61.470	11.686

TABLE 16.—STEER 527. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	27,382	78.941	.....	3.283	0.762	0.023
Circulatory system.....	4,903	53.951	32.798	1.927	0.635	0.114
Respiratory system.....	4,326	73.330	7.186	2.717	1.024	0.166
Fat from thoracic cavity.....	3,988	10.340	87.646	0.335	0.128	0.015
Brain and spinal cord.....	701	69.957	14.059	1.683	1.544	0.368
Digestive and excretory system (partial).....	23,818	66.822	18.527	2.077	0.710	0.119
Offal fat.....	48,517	5.394	93.260	0.183	0.118	0.013
Heart and neck sweetbreads.....	1,037	36.622	55.347	1.187	0.734	0.308
Liver.....	5,720	67.872	3.472	3.293	1.575	0.184
Spleen.....	1,226	76.790	2.169	2.903	1.282	0.237
Pancreas.....	849	41.574	46.296	1.460	0.887	0.203
Kidneys.....	1,244	75.345	8.280	2.210	1.001	0.193
Hair and hide.....	46,240	54.475	11.859	5.317	1.309	0.056
Head and tail, lean and fat.....	5,018	53.921	30.635	2.410	0.691	0.123
Shin and shank, lean and fat.....	17,358	56.503	26.398	2.570	0.754	0.130
Flank and plate, lean and fat.....	118,978	27.200	65.491	1.097	0.312	0.059
Rump, lean and fat.....	24,020	29.026	62.962	1.233	0.315	0.059
Chuck and neck, lean and fat.....	112,440	46.782	39.316	2.030	0.617	0.109
Round, lean.....	51,396	66.109	13.931	2.993	0.864	0.175
Round, fat.....	21,466	16.129	79.323	0.753	0.204	0.022
Loin, lean.....	50,140	61.192	20.496	2.797	0.849	0.161
Loin, fat.....	52,724	9.519	88.271	0.357	0.127	0.017
Rib, lean.....	25,860	54.984	28.098	2.547	0.787	0.141
Rib, fat.....	24,273	9.463	88.208	0.407	0.133	0.016
Kidney, fat.....	18,964	5.423	93.227	0.187	0.102	0.014
Skeleton of feet.....	7,442	37.280	16.115	3.372	23.664	3.819
Skeleton of head and tail.....	8,822	42.136	24.822	3.165	21.749	3.676
Skeleton of shin and shank.....	13,136	27.256	21.276	3.149	28.360	4.550
Skeleton of flank and plate.....	6,082	39.334	18.437	2.996	19.531	3.404
Skeleton of rump.....	3,260	24.846	30.690	2.967	23.925	3.747
Skeleton of chuck and neck.....	14,870	28.058	24.570	3.082	25.037	3.944
Skeleton of round.....	6,446	20.998	33.954	2.642	27.032	4.964
Skeleton of loin.....	7,140	25.920	25.732	3.151	26.949	5.156
Skeleton of rib.....	6,546	26.920	23.074	3.022	28.622	5.503
Horns.....	1,266	35.662	0.775	6.950	19.811	3.638
Hoofs and dewclaws.....	2,174	44.082	0.959	8.916	2.059	0.145
Teeth.....	872	20.697	1.438	1.954	63.378	11.767

TABLE 17.—STEER 531. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	9,457	81.882	.....	2.841	0.703	0.040
Circulatory system.....	1,971	56.721	29.318	1.968	0.676	0.126
Respiratory system.....	1,915	78.338	2.818	2.680	1.054	0.204
Brain and spinal cord.....	573	72.987	13.498	1.765	1.502	0.363
Digestive and excretory system (partial).....	11,807	77.129	9.230	1.977	0.669	0.121
Offal fat.....	2,899	25.931	70.680	0.621	0.290	0.046
Heart and neck sweetbreads.....	472	67.988	14.791	2.497	1.720	0.427
Liver.....	2,205	71.785	1.945	2.921	1.385	0.321
Gall.....	86	91.678	.....	0.214	0.978	0.052
Spleen.....	481	75.079	4.195	2.958	1.440	0.291
Pancreas.....	297	67.078	14.763	2.508	1.229	0.288
Kidneys.....	506	75.079	8.283	2.265	1.042	0.213
Hair and hide.....	16,693	63.665	0.811	5.733	1.136	0.075
Head and tail, lean and fat.....	1,722	67.218	14.073	2.923	0.872	0.155
Shin and shank, lean and fat.....	5,480	71.792	4.736	3.596	1.071	0.188
Flank and plate, lean and fat.....	10,854	60.374	17.191	3.055	1.005	0.176
Rump, lean and fat.....	2,506	61.990	18.113	2.980	0.976	0.177
Chuck and neck, lean and fat.....	26,902	69.914	7.805	3.274	1.034	0.196
Round, lean.....	21,496	75.102	1.831	3.272	1.102	0.208
Round, fat.....	1,490	28.477	60.684	1.524	0.478	0.071
Loin, lean.....	14,078	73.011	4.278	3.312	1.100	0.204
Loin, fat.....	2,264	24.756	64.861	1.386	0.439	0.075
Rib, lean and fat.....	6,612	69.536	7.559	3.338	1.052	0.190
Kidney fat.....	726	6.066	90.265	0.596	0.240	0.031
Skeleton of feet.....	3,762	39.773	14.354	3.233	24.642	4.432
Skeleton of head and tail.....	4,842	51.145	8.071	3.041	20.849	3.629
Skeleton of shin and shank.....	5,998	31.730	18.346	2.937	27.416	5.113
Skeleton of flank and plate.....	2,546	46.771	10.571	3.220	20.395	3.464
Skeleton of rump.....	1,060	31.418	21.238	3.274	25.533	4.573
Skeleton of chuck and neck.....	6,098	37.493	16.015	3.536	23.526	4.187
Skeleton of round.....	3,640	35.030	25.913	2.679	21.363	3.806
Skeleton of loin.....	2,834	31.090	21.915	3.298	25.494	4.471
Skeleton of rib.....	2,280	32.384	16.742	3.738	25.229	4.587
Hoofs and dewclaws.....	790	52.163	0.827	7.587	1.963	0.125
Teeth.....	426	27.423	0.882	1.990	55.799	10.625

TABLE 18.—STEER 532. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	18,752	80.473	.....	2.997	0.652	0.033
Circulatory system.....	4,483	47.915	40.256	1.605	0.566	0.105
Respiratory system.....	3,870	77.557	3.413	2.636	1.052	0.193
Brain and spinal cord.....	643	72.457	14.458	1.658	1.622	0.392
Digestive and excretory system (partial).....	21,741	72.701	13.979	1.898	0.708	0.134
Offal fat.....	23,697	9.552	88.805	0.243	0.116	0.016
Heart and neck sweetbreads.....	441	49.463	38.461	1.629	0.956	0.238
Liver.....	5,694	71.419	2.375	2.843	1.375	0.307
Gall.....	185	92.254	.....	0.220	1.005	0.043
Spleen.....	884	74.698	5.033	2.888	1.256	0.262
Pancreas.....	630	56.164	27.676	2.032	1.180	0.293
Kidneys.....	868	71.247	10.983	2.521	1.019	0.213
Hair and hide.....	33,988	59.564	6.839	5.225	1.032	0.071
Head and tail, lean and fat.....	4,260	60.370	21.950	2.687	0.807	0.146
Shin and shank, lean and fat.....	12,008	67.536	10.998	3.160	0.933	0.167
Flank and plate, lean and fat.....	44,636	43.753	41.749	2.237	0.655	0.116
Rump, lean and fat.....	8,058	48.528	35.883	2.345	0.716	0.133
Chuck and neck, lean and fat.....	66,204	61.792	18.520	2.910	0.899	0.156
Round, lean.....	38,064	71.904	5.223	3.304	1.065	0.200
Round, fat.....	6,064	21.714	70.321	1.113	0.295	0.042
Loin, lean.....	36,136	68.406	9.593	3.252	1.004	0.184
Loin, fat.....	14,954	12.520	83.405	0.674	0.191	0.033
Rib, lean.....	17,356	67.280	11.483	3.156	0.979	0.176
Rib, fat.....	6,194	15.622	78.878	0.852	0.268	0.040
Kidney fat.....	11,734	3.271	95.229	0.150	0.085	0.022
Skeleton of feet.....	6,490	39.050	14.349	3.607	23.845	4.221
Skeleton of head and tail.....	7,120	46.409	12.787	2.985	21.246	3.794
Skeleton of shin and shank.....	10,756	28.890	21.617	4.316	23.357	4.897
Skeleton of flank and plate.....	5,478	44.408	18.946	3.027	14.958	2.738
Skeleton of rump.....	2,282	28.899	27.742	3.205	22.689	4.084
Skeleton of chuck and neck.....	13,014	30.283	23.624	3.367	24.027	4.851
Skeleton of round.....	5,624	26.867	34.032	2.514	20.794	3.713
Skeleton of loin.....	6,246	28.097	29.257	3.093	22.053	4.074
Skeleton of rib.....	5,222	34.969	22.509	2.951	22.280	4.009
Horns.....	228	54.753	0.511	6.327	7.572	1.439
Hoofs and dewclaws.....	1,406	51.936	0.646	7.653	1.948	0.153
Teeth.....	494	31.017	0.882	2.145	51.709	10.154

TABLE 19.—STEER 538. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood	7,219	82.400	0.097	2.735	0.786	0.028
Circulatory system	1,670	55.482	28.703	1.934	0.632	0.114
Respiratory system	1,825	80.802	2.057	2.503	1.018	0.199
Brain and spinal cord	487	74.331	11.750	1.610	1.500	0.348
Digestive and excretory system (partial)	10,290	76.022	9.813	2.111	0.867	0.151
Offal fat	3,452	21.182	76.453	0.544	0.272	0.055
Heart and neck sweetbreads	481	69.816	14.598	2.329	1.655	0.405
Liver	1,978	70.479	1.914	2.958	1.402	0.315
Gall	122	90.916	0.078	0.224	1.038	0.070
Spleen	331	78.439	1.530	2.877	1.409	0.272
Pancreas	208	69.655	11.646	2.566	1.465	0.353
Kidneys	487	73.220	11.270	2.305	1.075	0.209
Hair and hide	15,342	64.339	1.342	5.564	1.063	0.063
Head and tail, lean and fat	1,496	66.304	15.440	2.701	0.893	0.148
Shin and shank, lean and fat	4,190	71.811	5.773	3.294	1.002	0.179
Flank and plate, lean and fat	11,036	57.700	23.466	2.774	0.852	0.160
Rump, lean and fat	2,096	59.745	21.117	2.669	0.892	0.154
Chuck and neck, lean and fat	22,284	68.487	11.963	2.971	0.931	0.174
Round, lean	16,324	75.971	2.699	3.159	1.093	0.202
Round, fat	1,702	30.528	58.733	1.707	0.449	0.068
Loin, lean	12,732	73.141	5.617	3.117	1.055	0.203
Loin, fat	2,360	19.936	72.602	0.977	0.293	0.054
Rib, lean	5,196	70.881	8.150	3.075	1.017	0.191
Rib, fat	426	30.179	56.423	1.454	0.725	0.114
Kidney, fat	622	6.747	90.964	0.340	0.176	0.034
Skeleton of feet	3,166	42.658	15.526	3.293	18.615	3.342
Skeleton of head	4,001	49.779	7.792	2.917	21.579	4.089
Skeleton of tail	135	52.455	14.133	3.189	11.275	1.944
Skeleton of shin	2,208	28.636	23.827	2.827	25.111	3.924
Skeleton of shank	2,608	30.367	22.437	3.389	23.653	3.670
Skeleton of flank and plate	2,144	49.188	14.542	3.198	15.045	2.447
Skeleton of rump	732	34.282	23.745	3.050	22.231	3.797
Skeleton of chuck and neck	5,412	38.139	16.952	3.357	23.969	3.555
Skeleton of round	2,556	29.961	32.225	2.423	20.600	3.177
Skeleton of loin	2,696	34.968	23.196	2.940	21.259	4.163
Skeleton of rib	2,154	36.366	16.613	3.179	22.619	4.031
Horns	250	54.908	0.529	5.783	9.976	1.895
Hoofs and dewclaws	635	66.631*	0.465	5.359	1.015	0.067
Teeth	240	28.678†	1.111	1.961	54.175	10.200

*Hoofs and dewclaws of steer 540 and steer 538 were analyzed together.

†Teeth of steer 540 and steer 538 were analyzed together.

TABLE 20.—STEER 540. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood	6,067	82.280	1.030	2.806	0.724	0.026
Circulatory system	1,436	58.131	27.726	2.039	0.676	0.127
Respiratory system	1,501	79.609	2.314	2.592	1.082	0.198
Brain and spinal cord	512	73.656	11.940	1.617	1.579	0.375
Digestive and excretory system (partial)	9,280	75.239	10.756	1.995	1.703	0.129
Offal fat	2,307	25.244	71.058	0.548	0.282	0.047
Heart and neck sweetbreads	408	68.793	15.449	2.258	1.510	0.373
Liver	1,593	70.592	1.760	2.840	1.411	0.305
Gall	58	93.842	0.076	0.168	1.224	0.040
Spleen	331	77.793	1.372	3.097	1.408	0.271
Pancreas	180	72.201	9.905	2.537	1.457	0.343
Kidneys	363	72.153	10.499	2.368	1.084	0.223
Hair and hide	12,994	64.642	2.353	5.127	1.256	0.067
Head and tail, lean and fat	1,274	67.992	13.404	2.736	0.883	0.167
Shin and shank, lean and fat	3,762	74.264	4.038	3.397	1.039	0.185
Flank and plate, lean and fat	8,824	60.923	18.461	3.021	0.883	0.158
Rump, lean and fat	1,964	61.046	19.592	2.755	0.920	0.166
Chuck and neck, lean and fat	17,978	71.108	8.347	2.961	0.986	0.178
Round, lean	13,456	75.698	2.255	3.208	1.082	0.210
Round, fat	310	27.830	62.313	1.356	0.388	0.060
Loin, lean	10,700	73.545	4.187	3.179	1.075	0.201
Loin, fat	2,308	19.598	73.692	0.958	0.288	0.058
Rib, lean and fat	5,046	69.429	9.677	3.096	1.013	0.181
Kidney, fat	682	13.401	79.809	1.156	0.185	0.035

TABLE 20.—STEER 540. ANALYSIS OF SAMPLES—Continued.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Skeleton of feet	2,784	44.008	12.128	3.288	20.841	3.573
Skeleton of head	3,682	51.688	7.055	2.754	21.417	4.056
Skeleton of tail	138	55.385	12.477	2.254	10.059	1.771
Skeleton of shin	1,952	31.687	22.158	3.498	24.179	4.561
Skeleton of shank	2,304	33.134	24.266	2.969	21.100	3.760
Skeleton of flank and plate	1,862	53.192	12.085	3.378	12.087	2.902
Skeleton of rump	622	35.209	20.449	3.031	22.451	4.221
Skeleton of chuck and neck	4,896	41.285	14.741	3.264	19.664	3.532
Skeleton of round	2,350	35.287	27.370	2.523	16.708	2.801
Skeleton of loin	2,550	34.808	27.381	2.786	19.208	3.575
Skeleton of rib	1,824	34.170	18.773	3.297	22.860	4.637
Horns	304	54.266	0.593	5.453	12.472	2.411
Hoofs and dewclaws	635	66.631*	0.465	5.359	1.015	0.067
Teeth	278	28.678†	1.111	1.961	54.175	10.200

*Hoofs and dewclaws of steer 538 and steer 540 were analyzed together.

†Teeth of steer 538 and steer 540 were analyzed together.

TABLE 21.—STEER 541. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood	12,470	82.112	0.089	2.773	0.679	0.027
Circulatory system	2,646	48.463	39.878	1.648	0.572	0.105
Respiratory system	2,387	79.217	1.976	2.738	1.040	0.213
Brain and spinal cord	568	72.458	13.605	1.658	1.525	0.371
Digestive and excretory system (partial)	16,313	71.285	14.700	2.024	0.746	0.134
Offal fat	11,009	11.714	86.398	0.293	0.125	0.026
Heart and neck sweetbreads	740	65.439	19.148	2.280	1.457	0.367
Liver	3,832	69.540	2.502	3.158	1.441	0.349
Gall	202	89.007	0.174	0.286	1.207	0.060
Spleen	596	77.687	1.811	2.876	1.326	0.279
Pancreas	390	59.915	23.448	2.036	1.192	0.285
Kidneys	645	73.472	9.902	2.223	1.076	0.214
Hair and hide	26,574	60.425	3.650	5.692	1.100	0.055
Head and tail, lean and fat	2,062	66.470	14.520	2.939	1.016	0.164
Shin and shank, lean and fat	6,830	68.724	9.020	2.923	0.956	0.178
Flank and plate, lean and fat	24,910	49.802	34.241	2.427	0.717	0.127
Rump, lean and fat	4,454	50.532	32.775	2.370	0.713	0.137
Chuck and neck, lean and fat	40,480	65.263	14.772	2.942	0.913	0.165
Round, lean	27,000	73.915	3.366	3.340	1.089	0.208
Round, fat	3,854	21.202	73.399	0.987	0.282	0.046
Loin, lean	23,416	71.952	5.559	3.233	1.050	0.198
Loin, fat	8,088	14.861	80.634	0.780	0.204	0.039
Rib, lean	11,588	68.657	10.433	3.126	0.796	0.187
Rib, fat	2,434	17.784	76.039	1.080	0.312	0.059
Kidney, fat	6,056	4.494	94.350	0.202	0.086	0.020
Skeleton of feet	4,506	41.552	12.840	3.435	21.608	3.743
Skeleton of head	5,400	50.560	7.061	2.995	20.107	3.657
Skeleton of tail	206	47.886	19.694	3.175	10.884	1.894
Skeleton of shin	2,946	28.859	23.422	3.102	27.138	3.798
Skeleton of shank	3,744	32.657	20.792	2.933	27.763	3.778
Skeleton of flank and plate	2,864	51.920	15.329	2.277	11.840	1.799
Skeleton of rump	1,056	30.290	24.456	3.061	25.444	4.853
Skeleton of chuck and neck	7,296	34.849	18.389	3.368	25.110	3.622
Skeleton of round	3,250	26.958	32.458	3.253	19.430	4.211
Skeleton of loin	3,916	34.343	24.734	3.216	20.081	3.905
Skeleton of rib	3,162	31.674	21.579	3.195	25.537	3.726
Horns	468	53.053	0.655	5.345	13.848	2.689
Hoofs and dewclaws	869	58.119	0.599	6.018	1.249	0.061
Teeth	304	46.836	0.937	1.458	40.727	7.826

TABLE 22.—STEER 547. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood	8,711	80.850	.....	2.942	0.717	0.029
Circulatory system	1,624	58.440	27.812	1.966	0.682	0.124
Respiratory system	1,868	78.906	2.817	2.547	1.149	0.195
Brain and spinal cord	459	77.158	8.963	1.537	1.460	0.367
Digestive and excretory system (partial)	11,978	74.163	10.929	2.138	1.042	0.192
Offal fat	3,879	18.056	78.881	0.660	0.257	0.053
Liver	2,851	71.964	2.581	2.956	1.364	0.366
Spleen	391	77.086	2.212	3.020	1.345	0.299
Pancreas	200	71.405	10.115	2.426	1.455	0.376
Kidneys	450	73.255	8.553	2.560	1.144	0.240
Hair and hide	14,618	64.546	1.829	5.330	1.295	0.072
Head, tail, shin and shank, lean and fat	8,590	68.763	12.261	2.818	0.897	0.173
Flank and plate, lean and fat	14,226	55.003	27.523	2.502	0.793	0.147
Rump, lean and fat	2,256	54.409	27.572	2.464	0.818	0.157
Chuck and neck, lean and fat	23,636	67.588	12.501	2.772	0.918	0.167
Round, lean	17,092	74.440	3.584	3.223	1.079	0.210
Round, fat	2,150	29.872	60.663	1.343	0.397	0.068
Loin, lean	13,576	71.512	6.124	3.132	1.030	0.199
Loin, fat	3,972	21.083	72.247	0.987	0.300	0.057
Rib, lean	6,560	69.801	9.433	3.043	0.979	0.180
Rib, fat	1,102	25.085	66.287	1.438	0.503	0.075
Kidney, fat	1,630	7.887	90.103	0.312	0.136	0.015
Skeleton of feet, head, tail, shin and shank	11,996	44.993	14.086	3.341	18.989	3.501
Skeleton of flank and plate	1,958	53.339	13.420	3.110	11.771	2.168
Skeleton of rump	760	37.716	15.923	3.294	23.682	4.444
Skeleton of chuck and neck	5,120	43.990	13.982	3.220	20.226	3.645
Skeleton of round	2,488	36.276	28.609	2.525	17.314	3.258
Skeleton of loin	3,132	39.384	20.100	2.909	20.155	3.841
Skeleton of rib	2,172	41.532	16.945	3.321	19.474	3.632
Horns, hoofs and dewclaws	737	53.209	1.321	7.310	2.465	0.220
Teeth	310	32.500	0.680	2.200	51.200	9.550

TABLE 23.—STEER 548. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood	4,603	81.198	.....	3.100	0.715	0.021
Circulatory system	753	70.180	12.580	2.608	0.843	0.137
Respiratory system	1,084	76.883	3.131	2.903	1.106	0.202
Brain and spinal cord	526	74.634	11.062	1.637	1.434	0.350
Digestive and excretory system, partial	5,357	78.972	4.268	2.386	1.066	0.179
Offal fat	845	52.573	36.778	1.461	0.720	0.122
Heart and neck sweetbreads	168	77.090	6.097	2.816	1.577	0.392
Liver	1,104	70.817	1.835	3.285	1.381	0.336
Spleen	215	77.264	1.368	3.131	1.342	0.281
Pancreas	85	75.456	6.206	2.812	1.394	0.331
Kidneys	353	78.549	3.384	2.489	1.237	0.247
Hair and hide	8,358	65.408	0.933	5.346	1.349	0.078
Head and tail, lean and fat	967	71.688	8.999	2.675	0.953	0.175
Shin and shank, lean and fat	2,462	74.845	4.448	3.207	0.998	0.175
Flank and plate, lean and fat	4,802	70.383	7.627	3.320	0.968	0.174
Rump, lean and fat	1,402	72.577	5.800	3.353	1.106	0.204
Chuck and neck, lean and fat	11,136	75.625	3.506	3.100	1.053	0.187
Round, lean	9,208	75.514	1.680	3.363	1.118	0.214
Round, fat	520	53.819	28.733	2.735	0.693	0.086
Loin, lean	5,668	75.325	2.020	3.292	1.123	0.209
Loin, fat	384	40.939	45.371	1.971	0.566	0.097
Rib, lean and fat	3,180	75.848	2.738	3.133	1.093	0.195
Kidney, fat	284	27.638	64.220	1.384	0.490	0.080
Skeleton of feet	2,496	45.620	13.826	3.344	18.414	3.215
Skeleton of head	2,980	56.949	6.785	2.771	17.108	3.133
Skeleton of tail	94	56.745	10.923	3.378	10.652	1.934
Skeleton of shin	1,524	38.976	19.708	3.222	19.487	3.568
Skeleton of shank	1,712	35.963	21.195	3.613	18.669	3.466
Skeleton of flank and plate	1,514	57.844	10.775	3.196	8.981	1.546
Skeleton of rump	570	43.892	15.924	3.252	18.272	3.323
Skeleton of chuck and neck	3,030	47.340	13.202	2.630	17.177	3.208
Skeleton of round	1,898	40.419	26.174	2.620	16.404	3.017
Skeleton of loin	1,632	43.892	18.943	3.128	17.030	3.230
Skeleton of rib	1,614	46.672	14.692	3.420	16.464	3.005
Horns, hoofs and dewclaws	435	55.591	1.144	6.927	2.906	0.264
Teeth	264	42.122	0.624	2.907	42.160	7.937

TABLE 24.—STEER 550. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	7,080	81.361	.....	2.867	0.608	0.031
Circulatory system.....	1,163	55.997	29.913	1.989	0.660	0.133
Respiratory system.....	1,460	77.875	3.987	2.478	0.997	0.199
Brain and spinal cord.....	443	75.197	10.097	1.581	1.440	0.351
Digestive and excretory system (partial).....	9,156	72.665	13.019	1.955	1.176	0.185
Offal fat.....	2,610	20.877	74.687	0.587	0.323	0.079
Liver.....	1,992	70.203	3.137	2.994	1.324	0.312
Spleen.....	291	76.774	2.659	2.941	1.480	0.325
Pancreas.....	200	66.906	15.542	2.442	1.338	0.320
Kidneys.....	379	75.957	6.259	2.503	1.173	0.252
Hair and hide.....	10,440	64.935	1.217	5.320	1.307	0.084
Head, tail, shin and shank, lean and fat.....	5,274	71.146	9.321	2.828	0.946	0.174
Flank and plate, lean and fat.....	7,896	61.653	19.406	2.857	0.888	0.164
Rump, lean and fat.....	1,662	59.888	20.746	2.688	0.918	0.178
Chuck and neck, lean and fat.....	15,814	67.239	14.099	2.685	0.950	0.180
Round, lean.....	11,720	75.505	2.653	3.418	1.063	0.213
Round, fat.....	944	32.441	57.921	1.439	0.416	0.069
Loin, lean.....	9,072	73.955	4.503	3.097	1.059	0.231
Loin, fat.....	2,134	21.819	71.450	0.918	0.326	0.065
Rib, lean and fat.....	4,408	69.082	11.035	2.924	0.996	0.187
Kidney, fat.....	756	10.430	86.878	0.455	0.229	0.057
Skeleton of feet, head, tail, shin and shank.....	9,839	45.940	15.646	2.949	18.669	3.461
Skeleton of flank and plate.....	1,540	52.599	12.791	3.242	12.161	2.167
Skeleton of rump.....	700	40.804	16.240	3.087	19.007	3.635
Skeleton of chuck and neck.....	4,956	44.877	16.362	3.097	18.062	3.294
Skeleton of round.....	2,100	36.994	28.692	2.629	16.908	3.207
Skeleton of loin.....	2,464	38.480	24.756	2.896	17.775	3.340
Skeleton of rib.....	1,740	41.987	17.627	3.296	18.509	3.404
Horns, hoofs and dewclaws.....	549	53.209	1.331	7.310	2.465	0.220
Teeth.....	228	32.500	0.680	2.200	51.200	9.550

TABLE 25.—STEER 552. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	5,219	79.774	.....	3.010	0.854	0.028
Circulatory system.....	1,056	64.067	20.784	2.167	0.788	0.130
Respiratory system.....	1,096	77.900	2.614	2.724	1.206	0.205
Brain and spinal cord.....	466	74.074	11.478	1.564	1.869	0.335
Digestive and excretory system (partial).....	5,936	75.009	9.539	2.159	1.058	0.174
Offal fat.....	1,784	28.924	67.756	0.924	0.380	0.069
Heart and neck sweetbreads.....	265	62.652	23.511	2.325	1.439	0.358
Liver.....	1,181	69.513	2.065	3.127	1.333	0.337
Spleen.....	284	77.867	1.297	3.100	1.340	0.279
Pancreas.....	101	73.221	9.258	2.422	1.292	0.301
Kidneys.....	316	72.871	12.099	2.305	1.128	0.221
Hair and hide.....	10,532	66.823	1.534	4.828	1.405	0.070
Head and tail, lean and fat.....	1,209	68.009	14.483	2.476	0.932	0.155
Shin and shank, lean and fat.....	2,976	74.470	4.636	3.211	0.976	0.172
Flank and plate, lean and fat.....	6,204	63.328	17.537	2.866	0.882	0.145
Rump, lean and fat.....	1,326	65.584	14.803	2.886	0.976	0.175
Chuck and neck, lean and fat.....	12,684	72.915	7.088	2.995	0.994	0.178
Round, lean.....	9,830	76.090	1.957	3.255	1.129	0.207
Round, fat.....	908	44.576	41.667	2.111	0.589	0.067
Loin, lean.....	7,034	74.559	3.588	3.131	1.101	0.194
Loin, fat.....	1,042	22.439	70.990	1.179	0.395	0.061
Rib, lean and fat.....	4,104	72.405	6.435	3.233	0.969	0.180
Kidney, fat.....	500	12.924	84.558	0.585	0.281	0.084
Skeleton of feet.....	2,861	43.452	12.823	3.478	19.568	3.480
Skeleton of head.....	3,052	54.140	6.234	2.016	18.311	3.453
Skeleton of tail.....	131	53.865	13.364	2.887	12.790	2.320
Skeleton of shin.....	1,550	39.817	17.664	3.563	18.794	3.352
Skeleton of shank.....	1,742	32.535	20.841	3.086	24.917	4.533
Skeleton of flank and plate.....	1,516	54.273	12.715	3.371	10.652	1.911
Skeleton of rump.....	640	39.791	17.248	3.300	20.750	3.671
Skeleton of chuck and neck.....	3,908	44.753	15.051	3.224	18.379	3.344
Skeleton of round.....	1,826	33.311	29.073	2.565	19.808	3.484
Skeleton of loin.....	2,192	41.054	20.912	2.874	18.374	3.457
Skeleton of rib.....	2,084	43.800	16.187	3.281	17.515	3.306
Horns, hoofs and dewclaws.....	550	57.684	1.828	6.410	2.692	0.261
Teeth.....	278	40.922	0.772	2.035	43.221	8.211

TABLE 26.—STEER 554. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	4,197	81.073	.....	2.890	0.801	0.031
Circulatory system.....	591	72.575	10.404	2.535	0.908	0.169
Respiratory system.....	907	79.018	2.438	2.691	1.209	0.227
Brain and spinal cord.....	395	76.826	8.780	1.774	1.581	0.350
Digestive and excretory system (partial).....	4,216	77.716	7.707	2.132	1.098	0.189
Offal fat.....	644	41.234	50.872	1.202	0.634	0.099
Heart and neck sweetbreads.....	336	80.688	2.135	2.651	2.125	0.474
Liver.....	1,166	70.740	2.587	2.813	1.688	0.343
Spleen.....	202	78.308	1.436	2.961	1.484	0.312
Pancreas.....	76	70.340	13.270	2.357	1.501	0.280
Kidneys.....	530	81.509	2.392	2.221	1.152	0.215
Hair and hide.....	7,400	66.018	1.615	4.976	1.442	0.096
Head and tail, lean and fat.....	883	72.777	8.344	2.812	1.253	0.191
Shin and shank, lean and fat.....	2,304	74.453	3.945	3.321	1.126	0.176
Flank and plate, lean and fat.....	4,232	70.739	8.896	2.995	0.980	0.170
Rump, lean and fat.....	1,052	70.442	9.091	3.057	1.166	0.178
Chuck and neck, lean and fat.....	10,530	74.853	4.416	3.102	1.245	0.189
Round, lean.....	7,918	75.950	2.163	3.286	1.271	0.215
Round, fat.....	520	51.440	32.679	2.668	0.762	0.083
Loin, lean.....	5,812	74.847	3.700	3.199	1.150	0.207
Loin, fat.....	428	29.732	57.870	1.394	0.536	0.079
Rib, lean and fat.....	2,914	74.793	3.459	3.261	1.138	0.198
Kidney, fat.....	240	18.564	75.417	0.727	0.344	0.057
Skeleton of feet.....	2,403	46.494	13.980	3.702	17.687	3.284
Skeleton of head.....	2,229	59.707	3.158	3.111	16.850	3.152
Skeleton of tail.....	125	56.788	11.330	3.423	11.074	2.065
Skeleton of shin.....	1,464	40.004	18.416	3.221	20.982	3.982
Skeleton of shank.....	1,918	40.266	19.360	3.248	17.454	3.124
Skeleton of flank and plate.....	1,278	60.681	9.953	3.288	7.753	1.374
Skeleton of rump.....	732	48.799	12.664	3.475	16.258	2.950
Skeleton of chuck and neck.....	3,732	51.461	10.035	3.153	16.389	2.945
Skeleton of round.....	1,702	40.198	24.701	2.669	15.953	2.707
Skeleton of loin.....	1,868	50.157	13.850	2.994	14.999	2.690
Skeleton of rib.....	1,354	50.983	12.314	3.175	15.340	2.660
Horns, hoofs and dewclaws.....	338	55.271	1.451	7.670	2.390	0.229
Teeth.....	225	46.326	0.098	2.946	38.711	6.360

TABLE 27.—STEER 555. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood.....	4,529	80.075	.....	3.124	0.738	0.035
Circulatory system.....	554	70.982	12.062	2.574	0.875	0.159
Respiratory system.....	937	79.445	2.779	2.693	1.115	0.208
Brain and spinal cord.....	353	76.371	9.945	1.705	1.555	0.354
Digestive and excretory system (partial).....	4,534	78.376	6.357	2.319	1.091	0.189
Offal fat.....	462	58.692	31.373	1.720	0.779	0.119
Heart and neck sweetbreads.....	159	75.984	6.375	2.732	1.347	0.274
Liver.....	1,240	74.635	2.536	2.933	1.493	0.349
Spleen.....	167	77.376	1.363	3.129	1.308	0.276
Pancreas.....	106	70.091	5.510	2.622	1.458	0.293
Kidneys.....	439	81.997	2.743	2.220	1.181	0.223
Hair and hide.....	6,580	69.051	0.785	5.200	1.476	0.089
Head and tail, lean and fat.....	956	72.679	9.234	2.630	1.055	0.162
Shin and shank, lean and fat.....	2,688	77.046	2.331	3.187	1.044	0.181
Flank and plate, lean and fat.....	4,068	75.514	3.424	3.179	1.038	0.175
Rump, lean and fat.....	876	71.979	7.274	2.915	1.070	0.187
Chuck and neck, lean and fat.....	9,402	77.450	2.143	3.130	1.041	0.185
Round, lean.....	7,126	77.949	1.347	3.059	1.194	0.207
Round, fat.....	376	58.987	23.814	2.589	0.747	0.080
Loin, lean.....	4,618	77.939	1.728	3.105	1.200	0.208
Loin, fat.....	274	44.153	42.967	2.179	0.822	0.100
Rib, lean and fat.....	2,512	77.614	2.536	3.101	1.174	0.189
Kidney, fat.....	130	32.970	57.414	1.209	0.549	0.091
Skeleton of feet.....	2,157	51.458	9.040	4.041	16.248	2.781
Skeleton of head.....	1,978	62.439	3.214	2.859	14.812	2.570
Skeleton of tail.....	74	63.368	6.593	3.646	9.138	1.523
Skeleton of shin.....	1,454	50.339	11.063	3.234	17.828	3.190
Skeleton of shank.....	1,704	49.701	13.806	2.882	14.863	2.656

TABLE 27.—STEER 555. ANALYSIS OF SAMPLES—Continued.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Skeleton of flank and plate	1,236	65.173	5.690	3.360	8.036	1.361
Skeleton of rump	506	57.102	5.911	3.496	16.138	2.764
Skeleton of chuck and neck	3,216	59.309	5.153	3.142	13.912	2.463
Skeleton of round	1,652	53.566	13.254	2.793	14.801	2.582
Skeleton of loin	1,264	59.306	7.164	3.098	13.007	2.313
Skeleton of rib	1,256	58.491	6.845	3.269	13.194	2.272
Horns, hoofs and dewclaws	293	48.852	0.914	7.582	2.662	0.133
Teeth	190	42.647	0.330	2.870	42.862	7.297

TABLE 28.—STEER 556. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood	6,124	81.472	.....	2.778	0.784	0.035
Circulatory system	993	62.355	23.955	2.146	0.856	0.148
Respiratory system	1,272	77.682	3.420	2.693	1.400	0.216
Brain and spinal cord	398	67.120	19.452	1.624	1.616	0.849
Digestive and excretory system (partial)	6,063	74.523	10.512	2.203	1.304	0.241
Offal fat	1,402	32.618	61.309	0.961	0.451	0.063
Heart and neck sweetbreads	328	76.405	6.378	2.590	2.052	0.452
Liver	1,760	71.112	3.500	3.060	2.295	0.866
Spleen	300	77.717	2.323	2.953	1.480	0.272
Pancreas	96	72.244	10.649	2.415	1.503	0.302
Kidneys	338	75.331	7.087	2.522	1.345	0.254
Hair and hide	10,314	66.284	2.153	5.157	1.377	0.088
Head and tail, lean and fat	914	68.740	13.192	2.729	0.897	0.165
Shin and shank, lean and fat	2,808	73.731	4.508	3.271	0.965	0.185
Flank and plate, lean and fat	6,174	67.267	13.359	3.143	0.935	0.168
Rump, lean and fat	1,244	69.396	10.388	3.015	1.036	0.191
Chuck and neck, lean and fat	12,406	72.316	7.615	3.016	1.248	0.180
Round, lean	9,472	75.179	3.195	3.289	1.251	0.210
Round, fat	656	44.562	43.541	2.104	0.577	0.069
Loin, lean	6,938	74.185	3.780	3.270	1.189	0.206
Loin, fat	820	26.114	66.035	1.300	0.542	0.064
Rib, lean and fat	3,300	71.440	7.223	3.184	1.153	0.184
Kidney, fat	420	15.362	80.619	0.587	0.355	0.037
Skeleton of feet	2,589	46.442	14.176	3.729	17.758	3.279
Skeleton of head	2,610	56.323	7.187	2.900	17.620	3.271
Skeleton of tail	92	56.900	9.965	3.538	13.365	2.303
Skeleton of fall	1,702	40.276	19.800	3.280	19.776	3.695
Skeleton of shin	1,052	37.454	22.610	3.289	19.971	3.787
Skeleton of shank	1,578	57.659	11.660	3.313	10.266	1.862
Skeleton of flank and plate	608	47.189	13.166	3.587	18.150	3.408
Skeleton of rump	3,734	47.104	12.535	3.488	18.545	3.545
Skeleton of chuck and neck	1,974	38.147	25.725	2.665	16.702	3.212
Skeleton of round	2,268	46.157	15.957	3.158	16.929	3.309
Skeleton of loin	1,646	46.368	12.349	3.310	18.157	3.720
Horns, hoofs and dewclaws	390	48.189	1.236	8.303	1.870	0.156
Teeth	218	41.753	0.042	2.938	43.927	6.910

TABLE 29.—STEER 557. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood	8.952	79.941	.....	3.136	0.842	0.027
Circulatory system	2.342	50.516	38.557	1.650	0.615	0.105
Respiratory system	1.972	77.053	5.258	2.598	1.119	0.203
Brain and spinal cord	551	72.578	12.435	1.790	1.410	0.338
Digestive and excretory system (partial)	9.981	73.851	11.446	2.007	1.051	0.176
Offal fat	6.757	13.945	83.471	0.435	0.229	0.029
Heart and neck sweetbreads	623	67.787	16.888	2.328	1.653	0.357
Liver	3,003	69.463	1.882	3.084	1.244	0.332
Spleen	485	76.934	3.341	2.888	1.372	0.281
Pancreas	225	64.844	17.153	2.276	1.068	0.251
Kidneys	649	76.753	5.885	2.376	1.151	0.218
Hair and hide	14,100	63.124	5.012	4.988	1.171	0.071
Head and tail, lean and fat	1,915	60.473	24.133	2.352	0.848	0.144
Shin and shank, lean and fat	4,196	68.205	11.827	2.933	0.927	0.153
Flank and plate, lean and fat	15,294	50.434	34.335	2.334	0.778	0.133
Rump, lean and fat	2,582	51.177	32.845	2.317	0.797	0.142
Chuck and neck, lean and fat	22,146	63.903	17.574	2.792	0.957	0.183
Round, lean	14,960	73.824	4.610	3.073	1.011	0.194
Round, fat	2,532	27.746	63.644	1.019	0.349	0.048
Loin, lean	11,714	71.155	7.826	2.956	1.098	0.192
Loin, fat	4,472	15.907	79.899	0.729	0.248	0.038
Rib, lean	6,372	67.831	11.987	2.905	0.958	0.170
Rib, fat	1,616	19.571	73.914	0.959	0.360	0.059
Kidney, fat	3,228	8.267	89.768	0.367	0.159	0.024
Skeleton of feet	3,558	44.384	11.995	3.601	18.856	3.488
Skeleton of head	3,969	53.816	6.263	2.751	18.265	3.294
Skeleton of tail	193	53.009	16.791	3.163	10.458	1.954
Skeleton of shin	2,246	36.792	18.013	3.351	21.238	3.961
Skeleton of shank	2,610	36.883	19.539	3.405	20.052	3.625
Skeleton of flank and plate	2,498	56.391	12.656	3.152	9.709	1.721
Skeleton of rump	960	42.749	13.401	3.441	19.159	3.710
Skeleton of chuck and neck	5,638	42.943	12.074	3.394	20.847	3.764
Skeleton of round	2,686	32.505	29.295	2.573	19.164	3.548
Skeleton of loin	2,478	33.626	20.143	2.959	19.381	3.655
Skeleton of rib	2,572	40.350	16.831	3.239	19.671	3.611
Horns, hoofs and dewclaws	695	53.666	1.415	6.956	2.569	0.279
Teeth	261	39.979	0.283	2.874	46.115	8.632

TABLE 30.—STEER 558. ANALYSIS OF SAMPLES.

Description of sample	Weight in animal, grams	Moisture %	Crude fat %	Nitrogen %	Ash %	Phosphorus %
Blood	4,666	83.665	.....	2.509	0.692	0.039
Circulatory system	971	66.245	19.036	2.219	0.726	0.143
Respiratory system	1,111	79.632	1.472	2.085	1.054	0.231
Brain and spinal cord	520	75.596	10.002	1.596	1.507	0.374
Digestive and excretory system (partial)	6,510	77.962	6.366	2.241	0.992	0.188
Offal fat	829	47.598	43.206	1.386	0.505	0.106
Liver	1,352	71.470	2.100	3.096	1.349	0.352
Spleen	193	75.805	1.099	3.298	1.537	0.278
Pancreas	153	76.282	5.186	2.553	1.452	0.374
Kidneys	318	76.794	4.347	2.595	1.193	0.247
Hair and hide	8,135	64.713	1.078	5.287	1.130	0.083
Head, tail, shin and shank, lean and fat	4,324	74.380	5.509	2.948	0.943	0.163
Flank and plate, lean and fat	4,192	70.650	7.311	3.229	0.923	0.172
Rump, lean and fat	1,030	69.840	9.636	3.089	1.011	0.196
Chuck and neck, lean and fat	11,682	75.244	4.121	3.041	0.927	0.187
Round, lean	9,664	77.152	1.113	3.116	1.049	0.213
Round, fat	644	44.994	41.335	2.308	0.611	0.095
Loin, lean	5,962	74.950	2.652	3.182	1.025	0.210
Loin, fat	600	30.204	59.420	1.549	0.446	0.080
Rib, lean and fat	3,242	74.678	3.490	3.157	0.990	0.197
Kidney, fat	220	18.408	75.158	0.936	0.283	0.055
Skeleton of feet, head, tail, shin and shank	9,785	45.737	16.814	3.097	17.541	3.252
Skeleton of flank and plate	1,092	54.633	12.549	3.306	10.416	1.885
Skeleton of rump	678	42.549	18.378	3.113	18.671	3.383
Skeleton of chuck and neck	4,056	43.212	18.090	3.089	17.848	3.240
Skeleton of round	2,094	34.269	33.809	2.285	16.162	2.982
Skeleton of loin	2,138	39.771	25.039	2.529	17.827	3.281
Skeleton of rib	1,516	46.885	16.047	3.348	15.188	2.747
Horns, hoofs and dewclaws	443	53.209	1.331	7.310	2.465	0.220
Teeth	274	32.500	0.680	2.200	51.200	9.550

TABLE 31.—STEER 500. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	21,269	16811.2	40.8	679.1	167.8	4.68
Circulatory system.....	1,562	756.8	587.9	29.2	8.5	0.95
Lean heart.....	1,284	995.7	45.7	35.0	14.2	2.67
Respiratory system.....	3,747	2866.5	101.2	106.4	42.9	6.45
Fat from thoracic cavity.....	568	96.8	450.9	2.8	1.4	0.14
Brain and spinal cord.....	852	522.2	180.7	13.9	14.5	3.09
Digestive and excretory system (partial).....	19,275	14385.9	1921.9	424.6	160.8	22.75
Offal fat.....	12,940	1747.0	10812.2	54.6	23.8	2.59
Heart and neck sweetbreads.....	538	285.2	182.6	9.9	5.6	1.21
Liver.....	4,634	3233.9	134.5	150.3	73.2	14.97
Gall.....	241	221.4	0.5	0.5	3.0	0.07
Spleen.....	1,054	783.9	56.4	31.4	12.6	2.31
Pancreas.....	625	369.6	156.8	13.4	7.5	1.60
Kidneys.....	1,019	755.6	49.0	24.7	11.4	2.11
Tongue, marketable.....	1,619	1123.7	192.2	45.8	14.8	2.49
Hair and hide.....	35,938	21320.9	474.0	2256.9	385.3	15.81
Head and tail, lean and fat.....	3,784	2410.9	603.9	119.4	33.4	5.07
Shin and shank, lean and fat.....	12,496	8854.9	823.6	420.2	123.6	20.49
Flank and plate, lean and fat.....	36,410	19948.3	10067.7	978.3	315.3	50.61
Rump, lean and fat.....	7,058	3892.4	1950.8	178.4	57.8	10.23
Chuck and neck, lean and fat.....	58,918	39825.0	6993.0	1995.6	537.3	93.09
Round, lean.....	39,898	29536.9	1390.5	1246.0	403.4	76.21
Round, fat.....	4,936	1370.6	3032.8	78.5	18.6	2.52
Loin, lean.....	29,092	20864.3	2296.4	924.3	299.9	54.93
Loin, fat.....	6,830	1124.5	5225.5	40.8	16.7	2.60
Rib, lean.....	13,602	9132.0	1676.2	434.7	126.4	23.12
Rib, fat.....	1,804	367.4	1282.4	23.3	6.7	1.08
Kidney, fat.....	2,432	170.9	2195.5	10.0	3.5	0.44
Skeleton of feet.....	6,838	2708.1	788.3	247.0	1707.5	309.69
Skeleton of head.....	8,953	4296.2	1216.2	312.2	1599.2	307.45
Skeleton of tail.....	386	151.7	92.7	10.2	61.4	10.75
Skeleton of shin.....	5,610	1485.9	1210.9	207.6	1651.6	292.34
Skeleton of snank.....	5,750	1508.8	1160.8	198.6	1448.0	254.67
Skeleton of flank and plate.....	6,350	2605.5	1143.5	204.7	1177.1	202.20
Skeleton of rump.....	2,988	727.3	914.6	91.6	749.8	132.37
Skeleton of chuck and neck.....	14,450	4302.5	3253.7	442.2	3746.3	661.09
Skeleton of round, (excl. marrow).....	6,438	2095.7	1789.3	166.7	1356.7	243.74
Marrow from skeleton of round.....	680	64.3	606.9	1.0	1.5	0.21
Skeleton of loin.....	7,772	1947.4	2438.5	228.1	1865.8	332.41
Skeleton of rib.....	5,192	1409.4	1158.2	165.2	1449.9	257.11
Hoofs and dewclaws.....	2,095	1059.7	17.5	162.2	54.6	2.45
Teeth.....	852	181.7	9.9	17.7	519.8	98.12

TABLE 32.—STEER 501. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	28,710	22387.2	50.5	944.6	246.0	7.18
Circulatory system.....	1,836	770.4	842.5	35.0	8.7	0.90
Lean heart.....	1,882	1460.7	70.4	48.4	18.7	3.78
Respiratory system.....	3,338	2939.0	128.5	110.3	40.0	6.60
Fat from thoracic cavity.....	2,459	463.1	1884.7	15.1	5.8	0.64
Brain and spinal cord.....	757	533.0	100.5	12.7	13.9	2.97
Digestive and excretory system (partial).....	24,235	17390.1	3119.0	519.4	196.1	29.81
Offal fat.....	38,625	2892.2	35172.3	79.2	39.4	4.64
Heart and neck sweetbreads.....	784	241.1	484.2	7.8	3.9	0.84
Liver.....	6,161	4282.7	178.6	199.2	87.7	20.58
Gall.....	176	161.8	0.1	0.4	2.2	0.06
Spleen.....	1,178	917.6	23.0	32.7	16.3	2.82
Pancreas.....	836	500.5	205.4	18.4	9.6	2.20
Kidneys.....	1,037	805.3	50.5	24.3	10.9	2.06
Tongue, marketable.....	2,153	1417.6	348.8	56.2	18.7	3.38
Hair and hide.....	50,090	25762.3	6629.4	2751.4	762.4	24.54
Head and tail, lean and fat.....	5,224	3156.4	1083.8	148.0	40.1	6.58
Shin and shank, lean and fat.....	17,420	10268.9	3932.2	471.6	134.5	23.17
Flank and plate, lean and fat.....	134,146	35964.5	88380.8	1408.5	458.8	76.46
Rump, lean and fat.....	22,226	6394.2	13949.0	253.4	87.8	15.33
Chuck and neck, lean and fat.....	110,990	52940.0	42652.4	1692.6	723.7	130.97
Round, lean.....	50,130	35041.9	4690.2	1549.0	479.7	92.74
Round, fat.....	22,284	3754.0	17434.3	148.6	48.6	5.79
Loin, lean.....	45,996	28778.7	8248.9	1316.9	391.4	74.97
Loin, fat.....	71,358	6444.3	63281.7	276.9	79.9	12.84
Rib, lean.....	20,834	12269.6	4668.7	574.8	164.8	31.04
Rib, fat.....	28,322	2746.4	24764.5	113.6	38.0	5.66
Kidney, fat.....	19,544	1067.5	18236.7	37.1	13.1	2.15
Skeleton of feet.....	7,744	2792.0	954.5	273.4	2023.7	390.68

TABLE 32.—STEER 501. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS—Cont.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Skeleton of head.....	10,462	4561.8	1232.0	343.9	2487.5	439.30
Skeleton of tail.....	304	124.3	58.3	10.6	54.9	9.59
Skeleton of shin.....	6,170	2018.3	875.4	214.5	1737.3	323.12
Skeleton of shank.....	7,128	1920.5	1581.5	238.7	1985.9	365.24
Skeleton of flank and plate.....	7,068	2842.3	1107.0	234.7	1328.9	240.52
Skeleton of rump.....	3,652	932.8	965.2	116.8	855.3	172.61
Skeleton of chuck and neck.....	15,778	4750.1	2444.8	576.8	4478.0	821.24
Skeleton of round, (excl. marrow).....	6,978	1859.4	1699.2	215.3	1901.7	345.27
Marrow from skeleton of round.....	286	29.1	252.8	0.6	1.5	0.24
Skeleton of loin.....	8,614	2214.8	1940.1	269.4	2447.3	436.90
Skeleton of rib.....	6,388	1816.0	1178.5	212.2	1780.2	350.96
Horns.....	3,354	1240.6	21.2	217.0	762.8	139.76
Hoofs and dewclaws.....	2,523	1186.1	16.6	213.3	43.3	8.61
Teeth.....	778	172.0	6.3	16.1	465.1	91.31

TABLE 33.—STEER 502. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	19,728	15276.0	.....	688.9	142.0	4.54
Circulatory system.....	3,440	2363.1	500.1	89.1	23.4	4.76
Respiratory system.....	3,696	2815.1	113.0	104.6	38.4	6.14
Fat from thoracic cavity.....	1,271	273.3	933.9	9.6	3.8	0.62
Brain and spinal cord.....	800	572.8	116.8	13.7	14.4	3.31
Digestive and excretory system (partial).....	20,933	16122.6	1263.3	522.3	264.6	28.47
Offal fat.....	11,377	1211.8	9804.7	53.2	21.1	2.62
Heart and neck sweetbreads.....	502	300.1	127.6	11.3	5.8	1.36
Liver.....	3,716	2561.9	64.2	122.8	51.7	12.41
Gall.....	241	224.2	0.1	0.5	2.5	0.07
Spleen.....	921	711.9	22.3	26.1	16.9	2.57
Pancreas.....	581	310.6	172.1	12.6	6.2	1.59
Kidneys.....	838	617.3	55.2	22.5	9.3	1.85
Hair and hide.....	39,556	22665.2	1190.6	2600.4	386.1	23.34
Head and tail, lean and fat.....	4,250	2745.5	600.2	136.0	35.1	6.33
Shin and shank, lean and fat.....	12,364	8444.0	1072.1	431.0	109.3	20.28
Flank and plate, lean and fat.....	35,594	18475.1	11113.2	919.4	247.7	42.36
Rump, lean and fat.....	8,100	4538.3	2059.5	211.5	64.6	11.91
Chuck and neck, lean and fat.....	70,744	46926.6	9004.3	2173.3	651.6	111.78
Round, lean.....	44,426	32054.7	1799.7	1468.7	431.4	86.63
Round, fat.....	4,620	1220.0	2903.1	71.6	14.9	1.76
Loin, lean.....	35,104	24529.6	2852.5	1120.9	342.3	69.86
Loin, fat.....	9,144	1416.4	7149.0	95.7	22.8	3.29
Rib, lean.....	18,256	12114.3	1846.8	560.1	163.0	29.94
Rib, fat.....	3,338	689.5	2336.4	49.5	9.4	1.70
Kidney, fat.....	2,916	215.4	2614.7	12.3	7.0	1.14
Skeleton of feet.....	6,982	2697.3	852.2	264.5	1666.5	296.04
Skeleton of head.....	9,577	4669.5	802.4	305.0	1934.2	331.36
Skeleton of tail.....	441	178.3	99.6	14.3	66.5	12.05
Skeleton of shin.....	5,940	1627.5	1147.6	209.8	1750.3	311.97
Skeleton of shank.....	5,978	1625.8	1469.7	206.5	1516.2	269.31
Skeleton of flank and plate.....	5,590	2300.6	726.5	189.1	1219.6	215.83
Skeleton of rump.....	2,362	600.8	702.3	71.5	559.4	99.96
Skeleton of chuck and neck.....	15,092	4643.4	2755.7	514.2	4158.3	742.22
Skeleton of round (excl. marrow).....	6,296	1667.0	1664.9	188.6	1653.3	294.72
Marrow from skeleton of round.....	408	32.1	369.8	0.8	1.7	0.30
Skeleton of loin.....	7,866	2068.0	2085.6	247.7	2032.5	359.40
Skeleton of rib.....	5,920	1801.6	1219.5	215.9	1472.0	260.54
Horns*.....	1,949	745.9	11.9	131.0	410.3	72.76
Hoofs and dewclaws.....	2,010	1179.6	11.5	133.2	23.8	2.41
Teeth.....	1,038	375.9	10.6	16.9	519.0	98.43

*This sample was lost before analysis. The average analysis of the horns of two mature steers in the same group was used.

TABLE 34.—STEER 503. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	13,058	10809.4	14.4	353.6	43.9	9.92
Circulatory system.....	1,782	645.9	978.6	22.3	5.9	1.07
Lean heart.....	1,063	830.6	39.7	27.5	10.1	2.20
Respiratory system.....	2,549	2006.2	80.4	67.7	24.9	5.28
Brain and spinal cord.....	666	486.9	107.3	11.2	10.3	2.62
Digestive and excretory system (partial).....	8,761	6370.1	964.9	208.1	88.7	18.22
Offal fat.....	7,385	1081.3	6049.8	38.5	13.4	2.58
Liver.....	3,646	2504.1	192.0	109.2	46.8	12.18
Kidneys.....	655	467.4	77.3	15.8	6.8	1.47
Stomach.....	5,765	4477.0	399.2	127.5	62.6	11.92
Tongue, marketable.....	789	547.0	104.7	20.0	6.5	1.34
Hair and hide.....	23,008	15591.4	591.3	1102.8	225.3	15.18
Shin, shank, head and tail, lean and fat.....	8,614	6004.6	880.6	275.3	72.9	14.46
Flank and plate, lean and fat.....	16,290	9206.8	4181.0	446.7	121.9	22.17
Chuck and neck, lean and fat.....	31,934	21883.1	4015.4	943.3	278.0	54.61
Round and rump, lean.....	25,022	18287.8	1202.3	843.2	256.1	51.14
Round and rump, fat.....	3,400	763.3	2384.4	41.2	9.8	1.62
Loin, lean.....	17,206	12215.2	1454.1	548.4	169.1	32.69
Loin, fat.....	5,746	904.9	4592.0	44.7	10.9	2.01
Rib, lean.....	8,932	6223.6	913.8	281.7	82.8	16.52
Rib, fat.....	840	195.7	562.3	12.4	2.7	0.51
Kidney, fat.....	2,126	184.5	1902.1	7.2	2.7	0.58
Skeleton.....	41,122	15740.3	6192.6	1276.4	9747.6	1800.32
Horns, hoofs and dewclaws.....	1,058	489.7	21.5	80.2	64.1	6.99
Teeth.....	253	59.0	1.3	5.7	149.0	28.54

TABLE 35.—STEER 504. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	21,005	16520.4	19.5	700.3	81.3	4.62
Circulatory system.....	1,637	470.0	1043.3	18.2	6.6	0.67
Lean heart.....	1,428	1094.6	61.6	39.6	14.5	2.90
Respiratory system.....	3,628	2445.6	540.6	104.6	35.3	6.57
Brain and spinal cord.....	724	501.2	109.2	13.0	9.8	2.53
Digestive and excretory system (partial).....	17,569	12041.8	3169.5	335.6	127.6	25.48
Offal fat.....	25,105	3203.4	21294.1	83.9	39.9	5.77
Liver.....	4,754	3280.7	115.8	155.7	64.3	17.02
Kidneys.....	877	609.3	112.3	21.5	9.3	1.92
Stomach.....	12,820	10213.7	1030.7	218.1	115.0	19.36
Tongue, marketable.....	1,587	964.1	372.6	34.6	12.1	2.24
Hair and hide.....	41,144	23982.8	3320.3	2272.0	434.9	17.69
Shin, shank, head and tail, lean and fat.....	16,070	9744.9	3304.0	474.2	129.0	23.46
Flank and plate, lean and fat.....	49,650	20674.3	22650.3	965.7	284.0	50.15
Rump, lean and fat.....	10,846	4416.5	5077.0	200.3	62.3	11.50
Chuck and neck, lean and fat.....	59,808	34886.0	14371.9	1567.0	453.3	87.32
Round, lean.....	37,238	25884.1	3429.6	1194.6	366.1	72.24
Round, fat.....	9,818	1630.8	7661.0	89.0	23.4	2.95
Loin, lean.....	33,676	22535.9	4115.2	1027.5	318.6	60.95
Loin, fat.....	18,340	2131.1	15572.5	97.6	29.7	4.59
Rib, lean.....	18,506	11710.6	3242.3	544.1	153.8	30.91
Rib, fat.....	6,770	976.2	5458.7	56.4	13.7	2.10
Kidney, fat.....	11,400	547.2	10709.2	24.5	14.4	1.94
Skeleton of feet, head, tail, shin and shank.....	23,568	8496.3	3214.7	762.9	6503.4	1196.31
Skeleton of flank and plate.....	4,572	2916.3	831.2	161.1	718.5	133.32
Skeleton of rump.....	2,428	624.5	631.3	74.6	664.8	125.87
Skeleton of chuck and neck.....	11,176	3372.9	1818.3	393.8	3259.2	597.25
Skeleton of round.....	4,808	1052.0	1320.8	150.0	1492.8	276.70
Skeleton of loin.....	5,850	1745.6	1292.9	186.3	1547.4	281.50
Skeleton of rib.....	5,092	1657.5	828.0	174.0	1415.1	259.49
Horns, hoofs and dewclaws.....	2,532	1759.1	13.0	117.0	61.5	3.98
Teeth*.....	338	86.2	3.6	6.4	196.8	37.57

*This sample was lost before analysis. The average analysis of the teeth of four steers of the same Group was used.

TABLE 36.—STEER 505. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	13,810	11360.1	48.5	376.5	45.4	3.18
Circulatory system.....	1,168	388.1	689.9	15.0	3.2	0.55
Lean heart.....	938	725.8	47.9	24.6	9.1	1.96
Respiratory system.....	2,498	1919.2	136.8	67.8	23.8	5.05
Brain and spinal cord.....	537	396.4	79.1	9.1	9.2	2.21
Digestive and excretory system (partial).....	8,258	5936.9	1058.3	204.5	87.0	18.66
Offal fat.....	12,781	1586.1	10912.9	43.5	15.0	2.81
Liver.....	3,983	2712.3	229.8	127.7	52.9	13.82
Kidneys.....	718	543.6	56.3	17.1	7.6	1.62
Stomach.....	8,818	6812.9	956.7	148.2	76.5	15.26
Tongue, marketable.....	1,115	714.3	224.8	26.2	8.5	1.74
Hair and hide.....	22,884	14219.7	1221.1	1212.2	159.3	15.10
Shin, shank, head and tail, lean and fat.....	9,386	6047.4	1445.3	301.9	76.8	15.40
Flank and plate, lean and fat.....	24,194	10577.6	10345.8	535.0	140.3	28.07
Chuck and neck, lean and fat.....	38,344	23886.0	7265.8	1106.6	318.3	63.27
Round and rump, lean.....	25,784	17808.0	2440.2	857.6	251.7	51.57
Round and rump, fat.....	5,970	844.2	4814.2	27.0	10.4	1.91
Loin, lean.....	19,686	13423.9	1965.3	637.0	189.6	38.58
Loin, fat.....	7,558	705.4	6616.8	40.4	9.6	1.83
Rib, lean.....	11,300	6979.1	2108.6	334.9	95.0	19.89
Rib, fat.....	2,640	288.1	2254.2	17.0	4.4	0.87
Kidney, fat.....	5,754	302.8	5381.5	13.6	4.8	0.92
Skeleton.....	37,745	13509.7	6626.2	1202.6	9002.9	1661.92
Horns, hoofs and dewclaws.....	1,206	555.9	12.2	93.2	64.4	7.37
Teeth.....	268	58.8	1.7	6.1	159.2	28.67

TABLE 37.—STEER 507. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	20,316	15881.8	.....	697.0	136.1	4.47
Circulatory system.....	4,278	2015.7	1765.7	72.5	22.9	4.45
Respiratory system.....	3,768	2919.0	148.0	108.8	35.9	8.37
Brain and spinal cord.....	744	526.8	102.2	11.2	13.0	3.11
Digestive and excretory system.....	27,417	19333.1	3860.0	574.9	226.2	41.13
Offal fat.....	11,307	1480.8	9493.6	46.6	15.8	3.28
Hair and hide.....	34,473	20975.1	2141.8	1960.8	367.1	16.89
Head and tail, lean and fat.....	4,038	2527.1	765.2	114.7	36.1	6.51
Shin and shank, lean and fat.....	11,860	8288.1	932.2	396.5	109.2	19.81
Flank and plate, lean and fat.....	36,130	18765.6	11692.4	904.7	250.4	44.81
Rump, lean and fat.....	7,736	3930.1	2448.0	176.0	55.8	10.75
Chuck and neck, lean and fat.....	62,530	41000.3	9483.3	1807.7	539.0	98.07
Round, lean.....	39,302	28583.2	2268.5	1269.5	385.6	75.46
Round, fat.....	5,378	1314.7	3693.1	58.8	14.8	2.10
Loin, lean.....	29,724	21013.7	2406.5	929.8	288.9	54.99
Loin, fat.....	10,188	1815.7	7812.6	84.2	22.7	3.97
Rib, lean.....	15,788	10647.1	1932.3	473.5	147.9	27.47
Rib, fat.....	2,432	426.9	1858.9	23.0	6.2	1.02
Kidney, fat.....	4,376	296.9	3995.3	12.4	6.4	1.09
Skeleton of feet, head and tail.....	15,275	6538.3	1798.8	527.0	3651.6	589.31
Skeleton of shin and shank.....	10,350	2479.9	2003.5	377.4	3489.7	479.62
Skeleton of flank and plate.....	6,278	2775.9	846.6	212.2	1159.7	178.99
Skeleton of rump.....	2,536	635.0	668.0	81.9	655.2	99.92
Skeleton of chuck and neck.....	13,202	4222.4	2012.6	469.3	3335.5	555.01
Skeleton of round.....	5,864	1530.1	1756.9	184.3	1360.7	244.00
Skeleton of loin.....	6,506	1732.6	1749.5	186.5	1698.2	242.28
Skeleton of rib.....	5,050	1448.0	910.1	169.8	1451.3	216.24
Horns.....	1,600	665.7	10.0	92.2	350.0	63.36
Hoofs and dewclaws.....	1,490	811.1	17.0	104.3	30.5	2.43
Teeth.....	712	188.9	7.3	14.0	403.8	77.53

TABLE 38.—STEER 509. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	18,291	14276.7	.....	627.2	125.5	4.21
Circulatory system.....	2,616	1829.8	320.8	67.8	24.1	4.37
Respiratory system.....	3,283	2529.0	94.5	98.6	33.2	5.78
Fat from thoracic cavity.....	1,248	247.2	949.7	9.0	3.7	0.54
Brain and spinal cord.....	739	494.2	130.5	12.4	11.7	2.80
Digestive and excretory system (partial).....	19,016	13883.8	2260.2	419.5	172.7	23.39
Offal fat.....	9,922	1127.1	8521.8	53.0	17.4	2.38
Heart and neck sweetbreads.....	630	316.9	234.0	11.4	6.6	1.60
Liver.....	3,875	2650.8	68.1	119.7	51.7	12.63
Gall.....	110	100.7	0.1	0.3	1.0	0.03
Spleen.....	1,304	1007.4	27.7	39.0	18.5	3.16
Pancreas.....	562	308.6	159.9	12.6	6.6	1.51
Kidneys.....	774	596.1	29.6	20.5	8.6	1.81
Hair and hide.....	37,614	22180.6	931.7	2358.4	385.2	17.30
Head and tail, lean and fat.....	3,212	2144.6	418.3	98.8	26.4	4.82
Shin and shank, lean and fat.....	11,782	8001.4	1150.5	398.2	107.3	19.68
Flank and plate, lean and fat.....	31,790	17051.8	9195.6	832.9	233.0	46.10
Rump, lean and fat.....	7,370	4113.4	1960.4	193.7	59.3	10.76
Chuck and neck, lean and fat.....	60,176	42126.4	5931.0	1851.0	538.6	99.89
Round, lean.....	40,376	29735.7	1688.9	1301.3	405.8	79.14
Round, fat.....	5,106	1305.0	3269.9	82.8	17.5	2.09
Loin, lean.....	30,836	21471.7	2778.3	956.8	293.3	55.50
Loin, fat.....	7,570	1230.8	5871.4	78.2	19.2	3.10
Rib, lean.....	16,360	11091.3	1774.1	478.9	149.7	27.81
Rib, fat.....	1,978	347.2	1503.7	20.9	5.5	0.89
Kidney, fat.....	1,576	86.1	1456.4	5.0	2.2	0.27
Skeleton of feet.....	6,144	2523.7	662.2	225.4	1441.2	260.81
Skeleton of head.....	8,247	3920.6	699.2	261.9	1745.4	311.08
Skeleton of tail.....	386	146.5	102.5	11.1	58.3	10.55
Skeleton of shin.....	5,046	1490.6	918.5	193.7	1480.5	260.78
Skeleton of shank.....	5,498	1560.7	1240.2	193.5	1437.4	276.38
Skeleton of flank and plate.....	5,124	2119.7	667.8	181.0	1146.9	209.16
Skeleton of rump.....	2,860	769.2	850.7	87.5	636.2	110.91
Skeleton of chuck and neck.....	13,682	4431.2	2366.0	506.8	3426.8	630.19
Skeleton of round (excl. marrow).....	5,442	1521.4	1342.0	161.5	1412.1	251.64
Marrow from skeleton of round.....	578	67.4	502.0	1.2	2.1	0.34
Skeleton of loin.....	6,872	1891.0	1763.4	215.1	1762.5	303.33
Skeleton of rib.....	4,986	1398.6	837.2	180.6	1524.2	271.44
Hoofs and dewclaws.....	1,590	1065.0	7.3	82.6	23.2	1.86
Teeth.....	838	239.1	4.5	14.6	469.3	88.27

TABLE 39.—STEER 512. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	24,176	19328.5	13.3	742.9	191.0	5.56
Circulatory system.....	2,432	985.7	1167.0	41.6	13.7	1.34
Lean heart.....	1,555	1202.3	54.0	43.6	19.7	3.34
Respiratory system.....	3,851	2929.7	131.2	108.8	41.9	6.36
Fat from thoracic cavity.....	1,171	143.2	1001.5	3.1	1.7	0.18
Brain and spinal cord.....	666	478.9	74.0	11.2	12.5	2.56
Digestive and excretory system (partial).....	20,735	15278.4	2133.2	452.7	157.8	24.67
Offal fat.....	17,454	1956.9	15058.1	64.4	25.1	3.32
Heart and neck sweetbreads.....	511	206.4	252.5	7.7	3.8	0.86
Liver.....	4,416	3046.3	115.9	144.1	70.1	14.75
Gall.....	212	197.5	0.1	0.5	2.2	0.06
Spleen.....	1,255	968.2	29.7	35.1	16.8	3.00
Pancreas.....	736	422.4	196.1	15.4	9.8	2.02
Kidneys.....	1,074	829.5	73.4	22.3	11.3	2.18
Tongue, marketable.....	1,766	1172.3	237.1	45.6	15.9	2.54
Hair and hide.....	41,268	23189.7	1490.6	2701.8	480.0	19.40
Head and tail, lean and fat.....	4,412	2715.8	841.5	127.6	37.9	6.13
Shin and shank, lean and fat.....	12,706	8717.1	1191.8	424.8	117.8	20.46
Flank and plate, lean and fat.....	48,946	20515.2	22190.7	934.9	279.0	46.01
Rump, lean and fat.....	10,484	4675.7	4385.4	212.5	69.9	12.48
Chuck and neck, lean and fat.....	73,512	46450.8	13372.6	2077.5	675.6	110.27
Round, lean.....	43,408	31805.9	1978.1	1405.1	444.5	83.34
Round, fat.....	9,940	2189.8	7023.4	76.0	30.9	3.98
Loin, lean.....	32,062	21676.2	3539.6	980.2	292.4	54.51
Loin, fat.....	15,308	1913.0	12759.8	89.7	27.6	3.98
Rib, lean.....	16,908	11010.3	2527.8	501.5	151.5	26.55
Rib, fat.....	5,398	806.4	4338.2	45.3	11.4	1.89
Kidney, fat.....	4,740	212.5	4451.6	8.7	6.2	0.95
Skeleton of feet.....	7,016	2627.6	1004.3	252.4	1709.5	309.05
Skeleton of head.....	9,665	4169.7	1252.1	312.1	2166.9	406.32
Skeleton of tail.....	416	153.8	101.0	13.0	75.3	13.58

TABLE 39.—STEER 512. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS—Cont.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Skeleton of shin.....	6,074	1649.6	1263.9	220.6	1821.2	327.27
Skeleton of shank.....	6,156	1968.6	1326.1	217.9	1401.6	252.03
Skeleton of flank and plate.....	7,783	2865.4	1640.2	236.2	1523.6	279.28
Skeleton of rump.....	3,264	772.9	1001.4	97.5	857.6	145.12
Skeleton of enuck and neck.....	16,536	4758.2	3139.5	536.4	5045.1	899.23
Skeleton of round (excl. marrow).....	7,430	2134.1	1986.3	209.7	1879.6	301.14
Marrow from skeleton of round.....	396	39.9	349.7	0.7	2.6	0.52
Skeleton of loin.....	8,748	2198.9	2134.8	261.3	2330.6	466.62
Skeleton of rib.....	6,938	2042.3	1132.6	241.1	1991.1	378.40
Horns.....	1,810	637.6	8.7	127.3	441.7	70.12
Hoofs and dewclaws.....	1,724	843.1	10.1	135.5	48.1	2.14
Teeth.....	710	141.4	5.6	15.3	452.4	85.42

TABLE 40.—STEER 513. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	25,680	19947.2	.....	881.1	185.4	7.19
Circulatory system.....	3,485	2704.4	156.8	93.2	31.7	5.47
Respiratory system.....	4,858	3590.3	341.6	133.2	48.2	7.53
Fat from thoracic cavity.....	3,942	529.8	3299.7	14.4	7.3	0.95
Brain and spinal cord.....	748	510.1	115.9	12.9	12.0	3.07
Digestive and excretory system (partial).....	25,642	19310.7	1973.7	592.3	266.9	40.26
Offal fat.....	53,771	3055.8	49939.3	115.6	42.5	5.91
Heart and neck sweetbreads.....	1,334	538.0	674.3	18.7	11.0	2.64
Liver.....	5,920	4021.2	185.1	190.9	82.7	19.71
Gall.....	37	33.8	0.1	0.1	0.4	0.01
Spleen.....	1,114	842.7	50.6	32.7	14.0	2.70
Pancreas.....	873	437.5	302.6	16.5	9.5	2.11
Kidneys.....	1,015	772.1	58.9	25.4	11.5	2.23
Hair and hide.....	45,286	20069.3	4561.2	2344.9	426.1	24.45
Head and tail, lean and fat.....	5,390	3038.8	1417.1	131.5	41.5	6.90
Shin and shank, lean and fat.....	17,798	9924.0	4922.4	411.0	124.1	21.00
Flank and plate, lean and fat.....	115,774	38830.3	72079.7	1437.9	445.7	75.25
Rump, lean and fat.....	19,082	6025.1	11211.6	263.0	83.6	15.27
Chuck and neck, lean and fat.....	110,940	53117.0	41259.7	2337.4	697.8	128.69
Round, lean.....	50,782	33089.0	7280.6	1473.2	462.6	87.85
Round, fat.....	19,108	3394.2	14539.1	176.0	38.0	4.59
Loin, lean.....	44,510	26437.2	9612.8	1236.0	367.7	72.55
Loin, fat.....	49,928	4444.0	44182.3	182.7	57.4	8.99
Rib, lean.....	24,744	13754.9	6857.3	635.2	187.3	35.14
Rib, fat.....	23,608	4201.5	17813.4	96.3	32.6	4.96
Kidney, fat.....	14,490	566.9	13755.1	22.6	10.7	1.45
Skeleton of feet.....	7,598	2753.4	1128.8	207.6	1811.1	322.38
Skeleton of head.....	7,865	3201.6	742.5	259.6	1968.5	460.57
Skeleton of tail.....	297	116.7	58.7	10.0	51.2	0.00
Skeleton of shin.....	6,120	1792.6	1091.5	206.7	1672.3	294.43
Skeleton of shank.....	6,058	1582.6	1206.7	216.3	1792.6	317.02
Skeleton of flank and plate.....	7,438	3043.8	1121.7	243.8	1519.2	307.86
Skeleton of rump.....	3,464	845.8	1014.5	104.2	855.2	162.22
Skeleton of chuck and neck.....	15,526	4969.6	2760.7	544.7	3912.9	735.31
Skeleton of round (excl. marrow).....	6,564	1625.0	2011.1	194.8	1625.1	286.58
Marrow from skeleton of round.....	480	41.6	451.8	0.8	3.9	0.67
Skeleton of loin.....	8,536	2149.9	2543.6	258.2	2081.3	401.11
Skeleton of rib.....	7,096	1884.0	1328.4	238.6	2073.2	392.27
Horns.....	2,144	790.1	16.4	138.3	485.0	89.36
Hoofs and dewclaws.....	2,180	914.1	19.4	195.2	64.5	5.21
Teeth.....	874	278.8	9.6	15.8	459.5	87.04

TABLE 41.—STEER 515. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	27,856	22036.1	.....	896.1	165.5	6.69
Respiratory system.....	5,787	2432.4	2808.4	73.8	27.8	4.98
Respiratory system.....	3,653	2789.2	198.8	98.6	35.4	6.83
Brain and spinal cord.....	728	509.9	117.1	12.0	11.9	2.88
Digestive and excretory system.....	36,311	24025.9	6794.2	733.1	309.0	58.82
Offal fat.....	29,877	2250.3	26976.2	84.0	37.1	4.48
Hair and hide.....	49,943	27969.6	5267.9	2417.2	927.4	29.47
Head and tail, lean and fat.....	5,918	3169.8	1807.2	143.0	43.3	7.70
Shin and shank, lean and fat.....	16,676	9565.5	4461.3	417.2	119.4	20.51
Flank and plate, lean and fat.....	87,138	27115.6	52220.7	1185.1	338.1	61.87
Rump, lean and fat.....	15,810	5586.6	8569.7	238.1	75.3	13.44
Chuck and neck, lean and fat.....	88,134	46944.6	27399.1	2076.4	627.5	111.05
Round, lean.....	42,942	29067.9	4746.0	1332.1	396.8	76.01
Round, fat.....	19,058	3339.3	14807.3	149.4	41.0	4.96
Loin, lean.....	41,620	27036.8	6323.3	1248.2	413.7	75.33
Loin, fat.....	38,324	4053.2	33197.4	157.9	44.1	6.52
Rib, lean.....	19,016	11634.6	3976.8	527.9	161.5	28.90
Rib, fat.....	16,282	1476.9	14374.9	64.2	21.8	3.26
Kidney, fat.....	9,922	491.2	9369.6	17.7	8.0	1.49
Skeleton of feet, head and tail.....	18,179	7520.3	2029.0	551.2	4270.3	739.16
Skeleton of shin and shank.....	13,900	3852.1	3761.8	423.3	3429.1	560.45
Skeleton of flank and plate.....	6,368	2687.0	1016.6	217.2	1132.2	198.24
Skeleton of rump.....	4,074	1213.8	104.7	126.1	949.8	165.85
Skeleton of chuck and neck.....	14,528	4431.0	2254.3	484.2	4295.6	617.88
Skeleton of round.....	6,344	1499.9	1866.0	191.8	1825.0	310.22
Skeleton of loin.....	7,784	1969.9	2196.6	231.3	2040.7	350.05
Skeleton of rib.....	6,464	1686.2	1303.1	211.4	2015.2	282.74
Horns.....	1,804	733.2	10.7	101.3	427.1	76.18
Hoofs and dewclaws.....	1,893	1017.5	10.0	139.4	34.5	1.36
Teeth.....	786	214.8	6.8	14.0	499.1	86.40

TABLE 42.—STEER 523. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	15,287	12309.1	.....	426.5	100.7	3.36
Circulatory system.....	3,044	1615.0	1090.5	51.3	18.2	3.35
Respiratory system.....	3,371	2652.3	136.7	87.8	33.2	6.37
Brain and spinal cord.....	797	546.7	140.4	12.9	12.1	2.86
Digestive and excretory system.....	24,667	18548.1	2548.1	540.2	194.4	38.97
Hair and hide.....	33,097	20547.0	380.6	1854.4	340.9	16.88
Head and tail, lean and fat.....	3,100	2113.2	358.8	95.9	28.6	4.77
Shin and shank, lean and fat.....	8,684	6233.9	524.2	295.4	79.5	14.68
Flank and plate, lean and fat.....	26,984	16058.2	6184.7	726.7	199.4	37.51
Rump, lean and fat.....	5,418	2943.6	1585.8	137.2	40.5	8.34
Chuck and neck, lean and fat.....	50,320	35668.8	5176.9	1502.6	463.5	86.05
Round, lean.....	33,900	26078.9	783.1	1069.6	353.2	68.48
Round, fat.....	25,834	18020.3	2688.3	782.0	237.9	44.43
Loin, lean.....	12,032	8456.3	1118.6	375.3	111.5	21.42
Loin, fat.....	4,556	1346.0	2743.8	72.0	16.3	2.19
Rib, lean.....	6,376	1051.9	4969.1	55.0	17.9	2.87
Rib, fat.....	1,522	358.3	989.0	23.0	6.0	0.90
Kidney, fat.....	3,110	163.6	2883.8	14.5	5.6	0.47
Offal fat.....	7,915	1220.3	6433.6	39.2	16.2	2.37
Skeleton of feet, head and tail.....	13,120	5805.7	1065.3	467.5	2990.8	542.51
Skeleton of shin and shank.....	8,862	2611.1	1804.7	299.6	2449.0	454.80
Skeleton of flank and plate.....	3,882	1741.8	415.8	134.7	754.8	134.59
Skeleton of rump.....	1,770	478.5	358.6	57.9	523.8	96.11
Skeleton of chuck and neck.....	9,786	3314.1	1261.8	360.2	2376.5	527.56
Skeleton of round.....	4,630	1845.1	1231.5	89.9	1950.2	177.79
Skeleton of loin.....	5,322	1483.4	1260.6	167.4	1438.5	265.09
Skeleton of rib.....	3,844	1200.0	481.2	138.1	1219.1	221.76
Horns.....	1,167	539.5	7.3	65.5	218.7	39.87
Hoofs and dewclaws.....	1,063	575.1	7.8	76.5	21.6	1.31
Teeth.....	766	201.6	5.9	16.1	432.0	81.78

*This sample was lost before analysis. The analysis of the hoofs and dewclaws of four animals of the same Group was used.

TABLE 43.—STEER 524. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	17,019	13956.6	.....	474.3	127.0	3.74
Circulatory system.....	2,953	1833.5	662.0	66.2	22.7	3.90
Respiratory system.....	3,455	2682.3	89.9	96.5	37.1	6.15
Brain and spinal cord.....	758	555.0	77.7	12.1	10.8	2.56
Digestive and excretory system (partial).....	17,924	13280.6	1760.3	412.8	158.6	26.89
Offal fat.....	5,007	1255.2	3477.1	38.1	16.0	1.75
Heart and neck sweetbreads.....	541	406.4	40.3	14.1	10.1	2.50
Liver.....	3,019	2108.5	100.1	92.0	42.5	9.87
Gall.....	229	217.2	0.2	0.4	1.8	0.07
Spleen.....	757	596.2	13.8	20.8	10.1	1.97
Pancreas.....	435	285.5	69.1	11.1	5.4	1.24
Kidneys.....	766	588.5	43.9	18.6	8.9	1.59
Hair and hide.....	30,092	17832.2	545.6	1895.8	474.6	17.45
Head and tail, lean and fat.....	3,364	2229.0	441.6	105.2	34.5	6.02
Shin and shank, lean and fat.....	8,674	6335.2	485.8	253.7	84.5	14.40
Flank and plate, lean and fat.....	19,788	12607.1	3041.8	633.2	188.4	30.47
Rump, lean and fat.....	4,030	2563.5	691.0	119.2	39.2	7.05
Chuck and neck, lean and fat.....	46,386	33655.4	2918.6	1465.8	452.3	80.71
Round, lean.....	37,714	28988.5	1024.3	1228.3	393.4	72.41
Round, fat.....	2,526	915.9	1262.0	56.5	10.6	1.34
Loin, lean.....	24,200	17588.6	1099.7	801.0	255.8	46.95
Loin, fat.....	2,444	459.7	1791.9	30.2	8.6	1.30
Rib, lean and fat.....	13,144	9238.3	1044.8	435.1	129.1	23.92
Kidney, fat.....	766	87.6	644.9	3.4	1.4	0.24
Skeleton of feet.....	6,010	2434.5	781.4	215.9	1473.4	262.94
Skeleton of head and tail.....	8,318	3820.5	864.2	254.0	1985.3	354.60
Skeleton of shin and shank.....	10,262	3240.8	1982.3	345.3	2659.9	474.00
Skeleton of flank and plate.....	5,926	2569.4	905.0	190.3	1135.7	198.22
Skeleton of rump.....	2,424	831.6	520.0	72.7	542.9	98.34
Skeleton of chuck and neck.....	12,896	5197.0	2043.2	427.6	2809.5	514.03
Skeleton of round.....	5,878	1225.5	1665.9	156.7	1334.3	238.82
Skeleton of loin.....	6,586	1926.5	1771.7	187.4	1600.8	279.64
Skeleton of rib.....	5,310	1897.5	984.2	157.7	1324.9	235.18
Horns.....	1,227	506.9	9.1	78.7	237.5	44.07
Hoofs and dewclaws.....	1,494	750.6	12.4	112.8	47.7	3.27
Teeth.....	806	217.4	8.9	15.4	466.4	88.56

*This sample was lost before analysis. The analysis of the horns of a steer of the same age was used.

TABLE 44.—STEER 525. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	13,614	10061.2	.....	400.5	89.9	3.58
Circulatory system.....	1,320	846.0	324.0	22.5	9.4	1.59
Respiratory system.....	1,658	1303.4	43.7	46.8	18.4	3.20
Brain and spinal cord.....	711	605.2	99.1	12.4	10.7	2.63
Digestive and excretory system.....	23,001	17820.9	2103.2	459.8	203.1	35.95
Hair and hide.....	27,813	17354.2	138.5	1592.0	370.2	15.85
Head and tail, lean and fat.....	2,788	2072.0	364.7	51.8	27.5	4.40
Shin and shank, lean and fat.....	7,596	5535.6	404.9	253.5	73.3	13.44
Flank and plate, lean and fat.....	18,762	11412.4	3790.7	559.0	165.4	27.96
Rump, lean and fat.....	4,154	2432.3	869.2	114.7	35.9	6.73
Chuck and neck, lean and fat.....	35,824	25439.1	3024.6	1119.5	340.0	63.77
Round, lean.....	27,524	21202.8	661.4	858.8	292.9	56.42
Loin, lean.....	18,710	13964.0	649.1	605.6	196.1	37.42
Rib, lean.....	11,666	8226.2	1010.2	368.8	114.0	21.12
Round, fat.....	1,962	641.3	1114.9	31.4	8.5	1.10
Loin, fat.....	3,758	826.8	2615.2	41.3	11.1	1.50
Rib, fat.....	684	186.5	409.1	10.7	4.0	0.61
Kidney, fat.....	1,253	64.6	1134.5	5.9	2.0	0.25
Offal fat.....	4,961	1043.2	3504.5	63.8	14.5	2.53
Skeleton of feet, head and tail.....	10,782	4638.5	1077.1	402.8	2352.9	450.32
Skeleton of shin and shank.....	7,014	2127.6	1342.1	244.4	2071.0	293.89
Skeleton of flank and plate.....	3,454	1540.9	374.9	116.2	744.9	103.24
Skeleton of rump.....	1,542	474.9	307.3	49.9	379.5	65.01
Skeleton of chuck and neck.....	8,450	2885.3	1665.8	261.3	1935.1	363.43
Skeleton of round.....	4,046	1157.2	1322.5	107.3	881.3	114.34
Skeleton of loin.....	3,928	1123.2	994.1	118.6	959.8	144.47
Skeleton of rib.....	3,888	1233.9	701.8	139.7	961.9	169.21
Horns.....	1,298	634.4	7.1	73.2	217.0	40.77
Hoofs and dewclaws.....	640	487.9	5.4	74.2	11.8	1.26
Teeth.....	690	159.6	7.3	13.1	418.9	80.99

TABLE 45.—STEER 526. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood	18,957	15151.6	.....	585.2	147.3	4.74
Circulatory system	2,413	1527.8	517.2	56.5	19.6	3.50
Respiratory system	3,707	2909.1	124.9	106.3	38.9	5.92
Fat from the thoracic cavity	1,585	340.3	1159.3	11.9	4.5	0.54
Brain and spinal cord	660	483.2	67.7	11.5	11.4	2.77
Digestive and excretory system (partial)	20,541	14971.1	2510.5	437.5	157.8	26.09
Offal fat	11,551	1500.7	9719.5	47.4	20.2	2.08
Heart and neck sweetbreads	430	265.5	106.3	9.9	6.3	1.53
Liver	3,531	2398.3	150.2	114.7	51.9	12.29
Gall	143	132.1	0.2	0.3	1.7	0.04
Spleen	831	652.3	12.4	23.0	12.9	2.47
Pancreas	498	316.0	90.7	11.2	5.8	1.40
Kidneys	922	678.2	83.6	21.7	9.9	1.83
Hair and hide	35,732	20663.1	2041.7	2116.4	514.5	17.87
Head and tail, lean and fat	3,616	2234.4	710.2	105.2	30.1	5.13
Shin and shank, lean and fat	11,644	8261.4	877.6	384.4	104.8	19.10
Flank and plate, lean and fat	39,524	19561.2	13931.8	920.9	268.0	49.41
Rump, lean and fat	8,594	4611.8	2576.6	211.7	63.3	11.9
Chuck and neck, lean and fat	61,228	40068.2	8878.1	1789.7	555.3	101.64
Round, lean	44,614	29839.6	5303.3	1472.3	460.0	85.21
Round, fat	5,016	1136.9	3460.1	83.8	14.3	1.81
Loin, lean	31,440	22620.5	1679.2	1009.2	320.1	59.74
Loin, fat	11,634	1687.9	9298.9	98.9	24.2	3.49
Rib, lean	17,264	12022.8	1728.8	531.2	158.8	28.49
Rib, fat	3,720	641.4	2781.4	43.2	9.6	1.64
Kidney, fat	3,224	292.6	2831.7	11.0	4.4	0.68
Skeleton of feet	6,138	2358.5	850.3	226.0	1440.9	267.25
Skeleton of head and tail	9,165	4249.2	1173.6	274.8	1925.0	351.20
Skeleton of shin and shank	11,612	3228.4	2333.7	377.9	3333.0	608.24
Skeleton of flank and plate	6,588	2645.4	1084.8	209.2	1339.5	249.88
Skeleton of rump	2,838	832.8	726.8	88.2	672.8	121.38
Skeleton of chuck and neck	13,842	4740.6	2415.3	462.2	3405.3	620.40
Skeleton of round	6,352	1718.7	1922.9	171.1	1478.2	274.28
Skeleton of loin	6,844	1995.9	1939.1	193.4	1595.6	293.06
Skeleton of rib	5,690	1304.4	1142.2	188.6	1495.7	270.73
Horns	1,427	589.6	10.6	91.5	276.2	51.26
Hoofs and dewclaws	1,875	1019.9	11.7	136.8	39.0	1.59
Teeth	782	173.2	10.0	15.2	480.7	91.39

TABLE 46.—STEER 527. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood	27,382	21615.6	.....	899.0	208.7	6.30
Circulatory system	4,903	2645.2	1608.1	94.5	31.1	5.59
Respiratory system	4,326	3172.3	310.9	117.5	44.3	7.18
Fat from thoracic cavity	3,988	412.4	3405.3	13.4	5.1	0.60
Brain and spinal cord	701	490.4	98.6	11.1	10.8	2.58
Digestive and excretory system (partial)	23,818	15915.6	4412.8	494.7	169.1	28.34
Offal fat	43,517	2617.0	45247.0	88.8	57.3	6.31
Heart and neck sweetbreads	1,037	379.8	574.0	12.3	7.6	3.19
Liver	5,720	3882.3	198.6	188.4	90.1	10.52
Spleen	1,226	941.5	26.6	35.6	15.7	2.91
Pancreas	849	353.0	393.1	12.4	7.5	1.72
Kidneys	1,244	937.3	103.0	27.5	12.5	2.40
Hair and hide	46,240	25189.2	5483.6	2458.6	633.0	25.89
Head and tail, lean and fat	5,018	2705.8	1537.3	120.9	34.7	6.17
Shin and shank, lean and fat	17,358	9807.8	4582.2	446.1	130.9	22.57
Flank and plate, lean and fat	118,978	32362.0	77919.9	1305.2	371.2	70.20
Rump, lean and fat	24,020	6792.1	15123.5	296.2	75.7	14.17
Chuck and neck, lean and fat	112,440	32601.7	44206.9	2282.3	693.8	122.56
Round, lean	51,396	35977.4	7160.0	1538.3	444.1	89.94
Round, fat	21,486	3462.3	17027.5	161.6	43.8	4.72
Loin, lean	50,140	30631.7	10276.7	1402.4	425.7	80.73
Loin, fat	52,724	5018.8	46540.0	188.2	67.0	8.96
Rib, lean	25,260	14218.9	7266.1	658.7	203.5	36.46
Rib, fat	24,278	2297.4	21415.1	98.8	32.3	3.88
Kidney, fat	18,964	1028.4	17679.6	35.5	19.3	2.65
Skeleton of feet	7,442	2774.4	1199.3	250.9	1761.1	286.44
Skeleton of head and tail	8,822	3717.2	2189.8	279.2	1918.7	324.30
Skeleton of shin and shank	13,136	3580.4	2794.8	413.7	3726.6	597.69
Skeleton of flank and plate	6,082	2392.3	1121.3	182.2	1187.9	207.03
Skeleton of rump	3,260	810.0	1000.5	96.7	780.0	122.15
Skeleton of chuck and neck	14,870	4172.2	3653.6	453.3	3723.0	586.47
Skeleton of round	6,446	1353.5	2188.7	170.3	1742.5	319.98
Skeleton of loin	7,140	1850.7	1840.8	225.0	1924.2	368.14
Skeleton of rib	6,546	1762.2	1510.4	197.8	1873.6	380.23
Horns	1,266	451.5	9.8	88.0	250.8	46.31
Hoofs and dewclaws	2,174	958.3	20.9	193.8	44.8	3.15
Teeth	872	180.5	12.5	17.0	552.7	120.61

TABLE 47.—STEER 531. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	9,457	7743.6	.....	263.7	66.5	3.78
Circulatory system.....	1,971	1118.0	577.9	38.8	13.3	2.48
Respiratory system.....	1,915	1500.2	54.0	51.3	20.2	3.91
Brain and spinal cord.....	573	418.2	77.3	10.1	8.6	2.08
Digestive and excretory system (partial).....	11,807	9106.6	1089.8	233.4	79.0	14.29
Offal fat.....	2,899	751.7	2049.0	18.0	8.4	1.33
Heart and neck sweetbreads.....	472	320.9	69.8	11.8	8.1	2.02
Liver.....	2,205	1582.9	42.9	64.4	30.5	7.03
Gall.....	86	78.8	.....	0.2	0.8	0.04
Spleen.....	481	361.1	20.2	14.2	6.9	1.40
Pancreas.....	297	199.2	43.9	7.5	3.7	0.86
Kidneys.....	506	379.9	41.9	11.5	5.3	1.08
Hair and Hide.....	16,693	10627.6	135.4	957.0	189.6	12.52
Head and tail, lean and fat.....	1,722	1157.5	242.3	50.3	15.0	2.67
Shin and shank, lean and fat.....	5,480	3934.2	259.5	107.1	58.7	10.30
Flank and plate, lean and fat.....	10,854	6553.0	1865.9	331.6	109.1	19.10
Rump, lean and fat.....	2,506	1553.5	453.9	74.7	24.5	4.43
Chuck and neck, lean and fat.....	26,902	18808.4	2099.7	890.8	278.2	52.73
Round, lean.....	21,496	16145.9	393.6	703.4	236.9	44.71
Round, fat.....	1,490	424.3	904.2	22.7	7.1	1.02
Loin, lean.....	14,073	10278.5	602.3	466.3	156.9	28.72
Loin, fat.....	2,264	560.5	1468.5	31.4	9.9	1.70
Rib, lean and fat.....	6,612	4597.7	500.0	220.7	69.6	12.56
Kidney fat.....	726	44.0	655.3	4.3	1.7	0.23
Skeleton of feet.....	3,762	1496.3	540.0	121.6	927.0	166.73
Skeleton of head and tail.....	4,842	2376.4	390.8	147.3	1009.5	175.72
Skeleton of shin and shank.....	5,998	1903.2	1100.4	176.2	1644.4	306.68
Skeleton of flank and plate.....	2,546	1190.8	260.1	82.0	519.3	88.19
Skeleton of rump.....	1,060	333.0	225.1	34.7	270.7	48.47
Skeleton of chuck and neck.....	6,098	2286.3	976.6	215.6	1434.6	255.32
Skeleton of round.....	3,640	1275.1	943.2	97.5	777.0	138.54
Skeleton of loin.....	2,834	881.1	621.1	93.5	722.5	126.71
Skeleton of rib.....	2,230	738.4	381.7	85.2	375.2	104.58
Hoofs and dewclaws.....	790	411.6	6.5	59.9	15.5	0.99
Teeth.....	426	116.8	3.8	8.5	237.7	45.26

TABLE 48.—STEER 532. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	18,752	15090.3	.....	562.0	122.3	6.19
Circulatory system.....	4,843	2320.4	1949.6	77.7	27.4	5.09
Respiratory system.....	3,870	3001.2	132.1	102.0	40.7	7.47
Brain and spinal cord.....	643	465.9	93.0	10.7	10.4	2.52
Digestive and excretory system, partial.....	21,741	15805.9	3039.2	412.6	153.9	29.13
Offal fat.....	23,697	2263.5	21044.1	57.6	27.5	3.79
Heart and neck sweetbreads.....	441	218.1	169.6	7.2	4.4	1.05
Liver.....	5,694	4066.6	135.2	161.9	78.3	17.48
Gall.....	185	170.7	.....	0.4	1.9	0.08
Spleen.....	884	660.3	44.5	25.5	11.1	2.32
Pancreas.....	630	353.8	174.4	12.8	7.4	1.85
Kidneys.....	868	618.4	95.3	21.9	8.8	1.85
Hair and hide.....	33,988	20244.6	2324.4	1775.9	350.8	24.13
Head and tail, lean and fat.....	4,260	2571.8	935.1	114.5	34.4	6.21
Shin and shank, lean and fat.....	12,008	8109.7	1320.6	379.5	112.0	20.05
Flank and plate, lean and fat.....	44,636	19529.6	18635.1	998.5	292.4	51.78
Rump, lean and fat.....	8,053	3910.4	2891.5	189.0	57.7	10.72
Chuck and neck, lean and fat.....	66,204	40908.8	12261.0	1926.5	595.2	103.29
Round, lean.....	38,064	27369.5	1988.1	1257.6	405.4	76.13
Round, fat.....	6,064	1316.7	4264.3	67.5	17.9	2.55
Loin, lean.....	36,136	24719.2	3466.5	1175.1	362.8	66.49
Loin, fat.....	14,954	1872.2	12472.4	100.8	28.6	4.93
Rib, lean.....	17,356	11677.1	1993.0	547.8	169.9	30.55
Rib, fat.....	6,194	967.6	4855.7	52.8	16.6	2.48
Kidney, fat.....	11,734	383.8	11174.1	17.6	10.0	2.58
Skeleton of feet.....	6,490	2536.3	931.3	234.1	1547.5	273.94
Skeleton of head and tail.....	7,120	3304.3	910.4	212.5	1512.7	270.13
Skeleton of shin and shank.....	10,756	3107.4	2325.1	464.2	2512.3	472.94
Skeleton of flank and plate.....	5,478	2432.7	1037.9	165.8	819.4	149.99
Skeleton of rump.....	2,282	659.5	633.1	73.1	517.8	93.20
Skeleton of chuck and neck.....	13,014	3941.0	3074.4	438.2	3126.9	566.24
Skeleton of round.....	5,624	1511.0	1914.0	141.4	1169.5	208.82
Skeleton of loin.....	6,246	1754.9	1827.4	193.2	1377.4	254.46
Skeleton of rib.....	5,222	1826.1	1175.4	154.1	1163.5	209.35
Horns.....	228	124.8	1.2	14.4	17.3	3.28
Hoofs and dewclaws.....	1,406	730.2	9.1	107.6	27.4	2.15
Teeth.....	494	153.2	4.4	10.6	255.4	50.16

TABLE 49.—STEER 538. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	7,219	5948.5	7.0	197.4	56.7	2.02
Circulatory system.....	1,670	926.6	479.3	32.3	10.6	1.90
Respiratory system.....	1,825	1474.6	37.5	45.7	18.6	3.63
Brain and spinal cord.....	487	362.0	57.2	7.8	7.3	1.69
Digestive and excretory system (partial).....	10,290	7822.7	1009.8	217.2	89.2	15.54
Offal fat.....	3,452	731.2	2639.2	18.8	9.4	1.90
Heart and neck sweetbreads.....	481	335.8	70.2	11.2	8.0	1.95
Liver.....	1,978	1894.1	37.9	58.5	27.7	6.23
Gall.....	122	110.9	0.1	0.3	1.3	0.09
Spleen.....	331	259.6	5.1	9.5	4.7	0.90
Pancreas.....	208	144.9	24.2	5.3	3.1	0.73
Kidneys.....	487	356.6	54.9	11.2	5.2	1.02
Hair and hide.....	15,342	9870.9	205.9	853.6	163.1	9.67
Head and tail, lean and fat.....	1,496	991.9	231.0	40.4	13.4	2.21
Shin and shank, lean and fat.....	4,190	3008.9	241.9	138.0	42.0	7.50
Flank and plate, lean and fat.....	11,036	6367.8	2589.7	306.1	94.0	17.66
Rump, lean and fat.....	2,096	1252.3	442.6	55.9	18.7	3.23
Chuck and neck, lean and fat.....	22,284	15261.6	2665.8	662.1	207.5	38.77
Round, lean.....	16,324	12401.5	440.6	515.7	178.4	32.97
Round, fat.....	1,702	519.6	999.6	29.1	7.6	1.16
Loin, lean.....	12,732	9312.3	715.2	396.9	134.3	25.85
Loin, fat.....	2,360	470.5	1713.4	23.1	6.9	1.27
Rib, lean.....	5,196	3683.0	423.5	159.8	52.8	9.92
Rib, fat.....	426	128.6	240.4	6.2	3.1	0.49
Kidney, fat.....	622	42.0	565.8	2.1	1.1	0.21
Skeleton of feet.....	3,166	1350.6	491.6	104.3	589.4	105.81
Skeleton of head.....	4,001	1991.7	311.8	116.7	863.4	163.60
Skeleton of tail.....	135	70.8	19.1	4.3	15.2	2.63
Skeleton of shin.....	2,208	632.3	526.1	62.4	554.4	86.64
Skeleton of shank.....	2,608	792.0	585.2	88.4	616.9	95.71
Skeleton of flank and plate.....	2,144	1054.6	311.8	68.6	322.6	52.46
Skeleton of rump.....	732	250.9	173.8	22.3	162.7	27.79
Skeleton of chuck and neck.....	5,412	2064.1	917.4	180.6	1297.2	192.40
Skeleton of round.....	2,556	765.8	823.7	61.9	526.5	81.20
Skeleton of loin.....	2,696	942.7	625.4	79.3	573.1	112.23
Skeleton of rib.....	2,154	783.3	357.8	68.5	487.2	86.83
Horns.....	250	137.3	1.3	14.5	24.9	4.74
Hoofs and dewclaws*.....	635	423.1	3.0	34.0	6.5	0.43
Teeth†.....	240	68.83	2.7	4.7	130.0	24.48

TABLE 50.—STEER 540. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	6,967	5732.5	70.5	195.5	50.4	1.81
Circulatory system.....	1,436	834.8	398.2	29.3	9.7	1.82
Respiratory system.....	1,501	1194.9	34.7	38.9	15.5	2.97
Brain and spinal cord.....	512	377.1	61.1	8.3	8.1	1.92
Digestive and excretory system (partial).....	9,280	6982.2	998.2	185.1	65.2	11.97
Offal fat.....	2,307	582.4	1639.3	12.6	6.5	1.08
Heart and neck sweetbreads.....	408	280.7	63.0	9.2	6.2	1.52
Liver.....	1,593	1124.5	28.0	45.2	22.5	4.86
Gall.....	58	54.4	0.04	0.1	0.7	0.02
Spleen.....	331	257.5	4.5	10.3	4.7	0.90
Pancreas.....	180	130.0	17.3	4.6	2.6	0.62
Kidneys.....	363	261.9	38.1	8.6	3.9	0.81
Hair and hide.....	12,994	8399.6	305.8	666.2	163.2	8.71
Head and tail, lean and fat.....	1,274	866.2	170.8	34.9	11.3	2.13
Shin and shank, lean and fat.....	3,762	2793.8	151.9	127.8	39.1	6.96
Flank and plate, lean and fat.....	8,824	5375.9	1629.0	266.6	77.9	13.94
Rump, lean and fat.....	1,964	1108.9	384.8	54.1	18.1	3.26
Chuck and neck, lean and fat.....	17,978	12783.8	1500.6	532.3	177.3	32.00
Round, lean.....	13,456	10185.9	303.4	431.7	145.6	28.26
Round, fat.....	810	225.4	504.7	11.0	3.1	0.49
Loin, lean.....	10,700	7869.3	448.0	340.2	115.0	21.51
Loin, fat.....	2,308	452.3	1700.8	22.1	6.7	1.84
Rib, lean and fat.....	5,046	3503.4	488.3	156.2	51.1	9.14
Kidney fat.....	682	91.4	544.3	7.9	1.3	0.24
Skeleton of feet.....	2,784	1225.2	337.6	91.5	580.2	99.47
Skeleton of head.....	3,682	1903.2	259.8	101.4	788.6	149.34
Skeleton of tail.....	138	76.4	17.2	3.1	13.9	2.44
Skeleton of shin.....	1,952	618.5	432.5	68.3	472.0	89.03
Skeleton of shank.....	2,304	763.4	558.2	68.4	486.2	86.63
Skeleton of flank and plate.....	1,862	990.4	225.0	62.9	225.1	54.04
Skeleton of rump.....	622	219.0	127.2	18.9	201.9	26.25
Skeleton of chuck and neck.....	4,896	2021.3	721.7	159.8	962.8	172.93
Skeleton of round.....	2,350	829.2	643.2	59.3	392.6	65.82
Skeleton of loin.....	2,550	887.6	698.2	71.0	489.8	91.16
Skeleton of rib.....	1,824	623.3	342.4	60.1	417.0	74.58
Horns.....	304	165.0	1.8	16.6	37.9	7.33
Hoofs and dewclaws*.....	481	320.5	2.2	25.8	4.9	0.32
Teeth†.....	278	79.7	3.1	5.5	150.6	28.36

*Hoofs and dewclaws of steer 538 and steer 540 were analyzed together.

†Teeth of steer 538 and steer 540 were analyzed together.

TABLE 51.—STEER 541. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	12,470	10239.4	11.1	345.8	84.7	3.37
Circulatory system.....	2,646	1282.3	1055.2	43.6	15.1	2.78
Respiratory system.....	2,387	1890.9	47.2	65.4	24.8	5.08
Brain and spinal cord.....	568	411.6	77.3	9.4	8.7	2.11
Digestive and excretory system (partial).....	16,313	11628.7	2398.0	330.2	121.7	21.86
Offal fat.....	11,009	1289.6	9511.6	32.3	13.8	2.86
Heart and neck sweetbreads.....	740	484.3	141.7	16.9	10.8	2.72
Liver.....	3,832	2664.8	95.9	121.0	55.2	13.37
Gall.....	202	179.8	0.4	0.6	2.4	0.12
Spleen.....	596	463.0	10.8	17.1	7.9	1.66
Pancreas.....	390	233.7	91.4	7.9	4.7	1.11
Kidneys.....	645	473.9	63.9	14.3	6.9	1.38
Hair and hide.....	26,574	16057.3	970.0	1512.6	292.3	14.62
Head and tail, lean and fat.....	2,062	1370.6	299.4	60.6	21.0	3.38
Shin and shank, lean and fat.....	6,830	4693.9	616.1	199.6	65.3	12.16
Flank and plate, lean and fat.....	24,910	12405.7	8529.4	604.6	178.6	31.64
Rump, lean and fat.....	4,454	2250.7	1459.3	105.6	31.8	6.10
Chuck and neck, lean and fat.....	40,480	26418.5	5979.7	1190.9	369.6	66.79
Round, lean.....	27,000	19987.1	908.8	901.8	294.0	56.16
Round, fat.....	3,854	817.1	2828.8	38.0	10.9	1.77
Loin, lean.....	23,416	16848.3	1301.7	757.0	245.9	46.36
Loin, fat.....	8,088	1202.0	6521.7	63.1	16.5	3.15
Rib, lean.....	11,588	7956.0	1209.0	362.2	113.1	21.67
Rib, fat.....	2,434	432.9	1850.8	26.3	7.6	1.44
Kidney, fat.....	6,056	272.2	5713.8	12.2	5.2	1.21
Skeleton of feet.....	4,506	1872.3	578.6	154.9	973.7	168.66
Skeleton of head.....	5,400	2730.2	381.3	161.7	1085.8	197.48
Skeleton of tail.....	206	98.7	40.4	6.5	22.4	3.80
Skeleton of shin.....	2,946	851.4	690.0	91.4	799.5	111.89
Skeleton of shank.....	3,744	1222.7	778.5	109.8	1059.5	141.45
Skeleton of flank and plate.....	2,884	1437.0	439.0	65.2	339.1	51.52
Skeleton of rump.....	1,056	319.9	258.3	32.3	268.7	51.25
Skeleton of chuck and neck.....	7,296	2542.6	1341.7	245.7	1892.0	264.26
Skeleton of round.....	3,250	876.1	1054.9	105.7	631.5	136.86
Skeleton of loin.....	3,916	1344.9	968.6	125.9	786.4	152.32
Skeleton of rib.....	3,162	1091.5	632.3	101.0	807.5	117.82
Horns.....	468	243.3	3.1	25.0	64.8	12.59
Hoofs and dewclaws.....	869	505.1	5.2	52.3	10.9	0.53
Teeth.....	304	142.4	2.9	4.4	123.8	23.79

TABLE 52.—STEER 547. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	8,711	7042.8	.....	256.3	62.5	2.53
Circulatory system.....	1,624	949.1	451.7	31.9	11.1	2.01
Respiratory system.....	1,868	1474.0	52.6	47.6	21.5	3.64
Brain and spinal cord.....	459	354.2	41.1	7.1	6.7	1.68
Digestive and excretory system (partial).....	11,978	8883.2	1309.1	256.1	124.8	23.00
Offal fat.....	3,879	700.4	3059.8	23.5	10.0	2.06
Liver.....	2,851	2051.7	73.6	84.3	38.9	10.43
Spleen.....	391	301.4	8.7	11.8	5.3	1.17
Pancreas.....	200	142.8	20.2	4.9	2.9	0.75
Kidneys.....	450	329.7	38.5	11.5	5.2	1.08
Hair and hide.....	14,618	9435.3	267.4	779.1	189.3	10.52
Head, tail, shin and shank, lean and fat.....	8,590	5906.7	103.2	242.1	77.1	14.86
Flank and plate, lean and fat.....	14,226	7829.0	3915.4	355.9	112.8	20.91
Rump, lean and fat.....	2,256	1227.5	622.1	55.6	18.5	3.54
Chuck and neck, lean and fat.....	23,636	15975.1	2954.7	655.2	217.0	39.47
Round, lean.....	17,092	12723.3	612.6	550.9	184.4	35.89
Round, fat.....	2,150	642.3	1304.3	28.9	8.5	1.46
Loin, lean.....	13,576	9708.5	831.4	432.0	139.8	27.02
Loin, fat.....	3,972	837.4	2869.7	39.2	11.9	2.26
Rib, lean.....	6,560	4579.0	618.8	199.6	64.2	1.18
Rib, fat.....	1,102	276.4	730.5	15.9	5.5	0.83
Kidney, fat.....	1,630	128.6	1468.7	5.1	2.2	0.24
Skeleton of feet, head, tail, shin and shank.....	11,966	5383.9	1685.5	399.8	2272.2	418.93
Skeleton of flank and plate.....	1,958	1044.4	262.8	60.9	230.5	42.45
Skeleton of rump.....	760	286.6	121.0	25.0	180.0	33.77
Skeleton of chuck and neck.....	5,120	2252.3	715.9	164.9	1035.6	186.62
Skeleton of round.....	2,488	902.6	711.8	62.8	430.8	81.06
Skeleton of loin.....	3,132	1233.5	620.5	91.1	631.3	120.30
Skeleton of rib.....	2,172	902.1	368.2	72.1	423.0	78.89
Horns, hoofs and dewclaws.....	737	392.2	9.8	53.9	18.2	1.62
Teeth.....	310	100.8	2.1	6.8	158.7	29.61

TABLE 53.—STEER 548. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	4,603	3737.5	.....	142.7	32.9	0.97
Circulatory system.....	753	528.5	94.7	19.6	6.4	1.18
Respiratory system.....	1,084	833.4	33.9	31.5	2.0	2.19
Brain and spinal cord.....	526	392.6	58.2	8.6	7.5	1.84
Digestive and excretory system (partial).....	5,357	4230.5	228.6	127.8	7.1	9.59
Offal fat.....	845	444.2	310.8	12.4	6.1	1.03
Heart and neck sweetbreads.....	168	129.5	10.2	4.7	2.7	0.66
Liver.....	1,104	781.8	20.3	36.3	15.3	3.71
Spleen.....	215	166.1	2.9	6.7	2.9	0.60
Pancreas.....	85	64.1	5.3	2.4	1.2	0.28
Kidneys.....	353	277.3	12.0	8.8	4.4	0.87
Hair and hide.....	8,358	5466.8	78.0	466.8	112.8	6.52
Head and tail, lean and fat.....	967	693.2	87.0	25.9	9.2	1.69
Shin and shank, lean and fat.....	2,462	1842.7	109.5	80.4	24.6	4.81
Flank and plate, lean and fat.....	4,802	3279.8	366.3	159.4	46.5	8.36
Rump, lean and fat.....	1,042	756.3	60.4	34.9	11.5	2.13
Chuck and neck, lean and fat.....	11,136	8421.6	390.4	345.2	117.3	20.82
Round, lean.....	9,208	6953.3	154.7	309.7	103.0	19.71
Round, fat.....	520	279.9	149.4	14.2	3.6	0.45
Loin, lean.....	5,668	4269.4	114.5	186.6	63.9	11.85
Loin, fat.....	384	157.2	175.0	7.6	2.3	0.37
Rib, lean and fat.....	3,180	2412.0	87.1	99.6	34.8	6.20
Kidney, fat.....	284	78.5	182.4	3.9	1.4	0.17
Skeleton of feet.....	2,496	1138.7	345.1	83.5	459.6	80.25
Skeleton of head.....	2,989	1702.2	202.8	82.8	511.4	93.65
Skeleton of tail.....	94	53.3	10.3	3.2	10.0	1.82
Skeleton of shin.....	1,584	617.4	312.2	51.0	308.7	56.52
Skeleton of shank.....	1,712	615.7	362.9	61.9	319.6	59.34
Skeleton of flank and plate.....	1,514	875.8	163.2	48.4	136.0	23.41
Skeleton of rump.....	570	250.2	90.8	18.5	104.2	18.94
Skeleton of chuck and neck.....	3,630	1718.4	479.2	112.9	623.5	116.45
Skeleton of round.....	1,898	767.2	496.8	49.7	311.4	57.28
Skeleton of loin.....	1,652	726.8	312.9	51.7	281.3	53.86
Skeleton of rib.....	1,614	753.3	237.1	55.2	265.7	48.50
Horns, hoofs and dewclaws.....	435	241.8	5.0	30.1	11.3	1.15
Teeth.....	264	111.2	1.7	5.5	111.3	20.95

TABLE 54.—STEER 550. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	7,080	5760.4	.....	203.0	43.1	2.19
Circulatory system.....	1,163	651.3	347.9	23.1	7.7	1.55
Respiratory system.....	1,460	1137.0	58.2	36.2	14.6	2.91
Brain and spinal cord.....	443	333.1	44.7	7.0	6.4	1.55
Digestive and excretory system (partial).....	9,156	6653.2	1192.0	179.0	107.7	16.94
Offal fat.....	2,610	544.9	1949.3	15.3	8.4	2.06
Liver.....	1,992	1398.4	62.5	59.6	26.4	6.22
Spleen.....	291	233.4	7.7	8.6	4.3	0.95
Pancreas.....	200	133.8	31.1	4.9	2.7	0.64
Kidneys.....	379	285.6	23.7	9.5	4.5	0.96
Hair and hide.....	10,440	6779.2	127.1	555.4	136.5	8.77
Head, tail, shin, and shank, lean and fat.....	5,274	3752.2	491.6	149.2	49.9	9.18
Flank and plate, lean and fat.....	7,896	4868.1	1532.3	225.6	70.1	12.95
Rump, lean and fat.....	1,662	905.3	344.8	44.7	15.3	2.96
Chuck and neck, lean and fat.....	15,814	10633.2	2229.6	424.6	150.2	28.47
Round, lean.....	11,720	8849.2	310.9	400.6	124.6	24.96
Round, fat.....	944	806.2	546.8	13.6	3.9	0.65
Loin, lean.....	9,072	6709.2	408.5	281.0	96.1	20.96
Loin, fat.....	2,134	465.6	1524.7	19.6	7.0	1.39
Rib, lean and fat.....	4,408	3045.1	486.4	128.9	43.9	8.24
Kidney, fat.....	756	78.9	656.8	3.4	1.7	0.43
Skeleton of feet, head, tail, shin and shank.....	9,839	4520.0	1539.4	290.2	1896.8	340.53
Skeleton of flank and plate.....	1,540	810.0	197.0	49.9	187.3	33.37
Skeleton of rump.....	700	285.6	133.7	23.7	133.1	25.45
Skeleton of chuck and neck.....	4,956	2224.1	810.9	153.5	895.2	163.25
Skeleton of round.....	2,100	776.9	602.5	55.2	355.1	67.35
Skeleton of loin.....	2,464	948.2	610.0	71.4	438.0	82.30
Skeleton of rib.....	1,740	730.6	306.7	57.4	322.1	59.23
Horns, hoofs and dewclaws.....	549	292.1	7.3	40.1	13.5	1.21
Teeth.....	228	74.1	1.6	5.0	116.7	21.77

TABLE 55.—STEER 552. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	5,219	4163.4	.....	157.1	44.6	1.46
Circulatory system.....	1,056	676.6	219.5	22.9	8.3	1.37
Respiratory system.....	1,096	853.8	28.7	29.9	13.2	2.25
Brain and spinal cord.....	466	345.2	53.5	7.3	6.4	1.56
Digestive and excretory system (partial).....	5,936	4452.5	566.2	128.2	62.8	10.33
Offal fat.....	1,784	516.0	1208.8	16.5	6.8	1.23
Heart and neck sweetbreads.....	265	166.0	62.3	6.2	3.8	0.95
Liver.....	1,181	821.0	24.4	36.9	15.7	3.98
Spleen.....	284	221.1	3.7	8.8	3.8	0.79
Pancreas.....	101	74.0	9.4	2.5	1.3	0.30
Kidneys.....	816	230.3	38.2	7.3	3.6	0.70
Hair and hide.....	10,532	7037.8	161.6	508.5	148.0	7.37
Head and tail, lean and fat.....	1,209	822.2	175.1	29.9	11.3	1.87
Shin and shank, lean and fat.....	2,976	2216.2	138.0	95.6	29.1	5.12
Flank and plate, lean and fat.....	6,204	3028.9	1088.0	177.8	54.7	9.00
Rump, lean and fat.....	1,326	869.6	196.3	38.3	12.9	2.32
Chuck and neck, lean and fat.....	12,684	9248.5	899.0	378.9	126.1	22.58
Round, lean.....	9,830	7470.7	192.4	320.0	111.0	20.35
Round, fat.....	908	404.8	378.3	19.2	5.4	0.61
Loin, lean.....	7,034	5244.5	25.2	220.2	77.4	13.65
Loin, fat.....	1,042	233.8	739.7	12.3	4.1	0.64
Rib, lean and fat.....	4,104	2071.5	264.1	132.7	39.8	7.39
Kidney, fat.....	500	64.6	422.8	2.7	1.4	0.17
Skeleton of feet.....	2,861	1243.2	366.9	99.5	559.8	99.56
Skeleton of head.....	3,052	1652.4	190.3	89.0	574.1	105.89
Skeleton of tail.....	131	70.6	17.5	3.8	16.8	3.04
Skeleton of shin.....	1,550	617.2	273.8	55.1	201.3	51.65
Skeleton of shank.....	1,742	566.8	363.1	53.8	434.1	79.84
Skeleton of flank and plate.....	1,516	822.8	192.8	51.1	161.5	28.97
Skeleton of rump.....	640	254.7	110.4	21.1	132.8	23.49
Skeleton of chuck and neck.....	3,908	1740.0	588.2	126.0	718.3	130.68
Skeleton of round.....	1,626	541.6	482.5	41.7	322.1	56.65
Skeleton of loin.....	2,192	899.9	458.4	63.0	402.8	75.78
Skeleton of rib.....	2,084	912.8	337.4	68.4	365.0	68.90
Horns, hoofs and dewclaws.....	550	317.3	10.1	35.3	14.8	1.44
Teeth.....	278	113.8	2.2	5.7	120.2	22.83

TABLE 56.—STEER 554. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	4,197	3402.6	.....	121.3	33.6	1.30
Circulatory system.....	501	428.9	61.5	5.0	5.4	1.00
Respiratory system.....	907	716.7	21.1	24.4	11.0	2.06
Brain and spinal cord.....	395	303.5	34.7	7.0	6.2	1.38
Digestive and excretory system (partial).....	4,216	3276.5	324.9	89.9	46.3	7.97
Offal fat.....	644	265.6	327.6	7.7	4.1	0.64
Heart and neck sweetbreads.....	336	271.1	7.2	8.9	7.1	1.59
Liver.....	1,166	824.8	30.2	32.8	19.7	4.00
Spleen.....	202	158.2	2.9	6.0	3.0	0.63
Pancreas.....	76	53.5	10.1	1.8	1.1	0.21
Kidneys.....	530	482.0	12.7	11.8	6.1	1.14
Hair and hide.....	7,400	4885.3	119.5	368.2	106.7	7.10
Head and tail, lean and fat.....	883	642.6	73.7	24.8	11.1	1.69
Shin and shank, lean and fat.....	2,304	1715.4	90.9	76.5	25.9	4.06
Flank and plate, lean and fat.....	4,232	2993.7	376.5	126.8	41.5	7.19
Rump, lean and fat.....	1,052	741.1	95.6	32.2	12.3	1.87
Chuck and neck, lean and fat.....	10,530	7882.0	465.0	326.6	131.1	19.90
Round, lean.....	7,918	6013.7	171.3	260.2	100.6	17.02
Round, fat.....	520	267.5	169.9	13.9	4.0	0.43
Loin, lean.....	5,812	4350.1	215.0	185.9	66.9	12.03
Loin, fat.....	428	127.3	247.7	6.0	2.3	0.34
Rib, lean and fat.....	2,914	2179.5	100.8	95.0	33.2	5.77
Kidney, fat.....	240	44.6	181.0	1.7	0.8	0.14
Skeleton of feet.....	2,403	1117.3	335.9	89.0	425.0	78.91
Skeleton of head.....	2,229	1630.9	70.4	69.3	375.6	70.26
Skeleton of tail.....	125	71.0	14.2	4.3	13.8	2.58
Skeleton of shin.....	1,464	585.7	269.6	47.2	307.2	58.30
Skeleton of shank.....	1,918	772.3	371.3	62.3	324.8	59.92
Skeleton of flank and plate.....	1,278	775.5	127.2	42.0	99.1	17.56
Skeleton of rump.....	732	357.2	92.7	25.4	119.2	21.59
Skeleton of chuck and neck.....	3,732	1920.5	374.5	117.7	611.6	109.91
Skeleton of round.....	1,702	684.2	420.4	45.4	271.5	46.07
Skeleton of loin.....	1,868	963.9	258.7	55.9	280.2	50.25
Skeleton of rib.....	1,354	690.3	166.7	43.0	207.7	36.02
Horns, hoofs and dewclaws.....	338	186.8	4.9	25.9	8.1	0.77
Teeth.....	225	104.2	0.2	6.6	87.1	14.31

TABLE 57.—STEER 555. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood	4,529	3626.6	.....	141.5	33.4	1.59
Circulatory system	554	393.2	66.8	14.3	4.9	0.88
Respiratory system	937	744.4	26.0	25.2	10.5	1.95
Brain and spinal cord	353	269.6	35.1	6.0	5.4	1.25
Digestive and excretory system (partial)	4,534	3553.6	288.2	105.1	49.5	8.57
Offal fat	462	271.2	144.9	8.0	3.6	0.55
Heart and neck sweetbreads	159	120.8	10.1	4.3	2.1	0.44
Liver	1,240	925.5	31.5	36.4	18.5	4.33
Spleen	167	129.2	2.3	5.2	2.2	0.46
Pancreas	106	80.8	5.8	2.8	1.6	0.31
Kidneys	439	360.0	12.0	9.8	5.2	0.98
Hair and hide	6,580	4543.6	49.7	342.2	97.1	5.86
Head and tail, lean and fat	956	694.8	88.3	25.1	10.1	1.55
Shin and shank, lean and fat	2,688	2071.0	62.7	85.7	28.1	4.87
Flank and plate, lean and fat	4,068	3071.9	139.3	129.3	42.2	7.12
Rump, lean and fat	876	630.5	63.7	25.5	9.4	1.64
Chuck and neck, lean and fat	9,402	7281.9	201.5	294.3	97.9	17.39
Round, lean	7,126	5554.7	96.0	218.0	85.1	14.75
Round, fat	376	221.8	89.5	9.8	2.8	0.34
Loin, lean	4,618	3599.2	79.7	143.4	55.4	9.60
Loin, fat	274	121.0	117.7	6.0	2.3	0.27
Rib, lean and fat	2,512	1949.7	63.7	77.9	29.5	4.75
Kidney, fat	130	42.9	74.6	1.6	0.7	0.12
Skeleton of feet	2,157	1110.0	195.0	87.2	350.5	59.99
Skeleton of head	1,978	1235.0	63.6	56.6	293.0	50.83
Skeleton of tail	74	46.9	4.9	2.7	6.8	1.13
Skeleton of shin	1,454	731.9	160.9	47.0	259.2	46.38
Skeleton of shank	1,704	846.9	235.3	49.1	253.3	45.26
Skeleton of flank and plate	1,236	805.5	70.3	41.6	99.3	16.82
Skeleton of rump	506	288.9	29.9	17.7	81.7	13.99
Skeleton of chuck and neck	3,216	1907.4	165.7	101.1	447.4	79.21
Skeleton of round	1,652	884.9	219.0	46.1	244.5	42.65
Skeleton of loin	1,264	749.6	90.6	39.2	164.4	29.24
Skeleton of rib	1,256	734.7	79.7	41.1	165.7	28.54
Horns, hoofs and dewclaws	208	145.6	2.7	22.6	7.9	0.40
Teeth	190	81.0	0.6	5.5	81.4	13.86

TABLE 58.—STEER 556. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood	6,124	4989.4	.....	170.1	48.0	2.14
Circulatory system	993	619.2	237.9	21.3	8.5	1.47
Respiratory system	1,272	988.1	43.5	34.3	17.8	2.75
Brain and spinal cord	398	267.1	77.4	6.5	6.4	1.39
Digestive and excretory system (partial)	6,003	4473.6	631.0	132.3	78.3	14.47
Offal fat	1,402	457.3	859.6	13.5	6.3	0.88
Heart and neck sweetbreads	328	250.6	21.6	8.5	67.3	1.48
Liver	1,760	1251.6	61.6	53.9	40.4	6.44
Spleen	300	233.2	7.0	9.0	4.4	0.82
Pancreas	96	69.4	10.2	2.3	1.4	0.29
Kidneys	338	254.6	24.0	8.5	4.5	0.86
Hair and hide	10,314	6836.5	222.1	531.9	142.0	9.08
Head and tail, lean and fat	914	628.3	120.6	25.1	8.2	1.51
Shin and shank, lean and fat	2,808	2070.4	126.6	91.9	27.1	5.19
Flank and plate, lean and fat	6,174	4153.1	824.8	194.1	57.7	10.37
Rump, lean and fat	1,244	862.5	129.2	37.5	12.9	2.38
Chuck and neck, lean and fat	12,406	8971.5	944.7	374.2	154.6	22.33
Round, lean	9,472	7121.0	302.6	311.5	118.5	19.89
Round, fat	686	305.7	298.7	15.1	4.0	0.47
Loin, lean	6,938	5147.0	262.2	226.9	82.5	14.29
Loin, fat	820	214.1	541.5	11.5	4.4	0.52
Rib, lean and fat	3,300	2357.5	238.4	105.1	38.1	6.07
Kidney, fat	420	64.5	338.6	2.5	1.5	0.16
Skeleton of feet	2,589	1202.4	367.0	96.5	459.8	84.89
Skeleton of head	2,610	1478.0	187.6	78.0	460.1	85.37
Skeleton of tail	92	52.4	9.2	3.3	12.3	2.20
Skeleton of shin	1,702	685.5	337.0	55.8	336.6	62.89
Skeleton of shank	1,952	731.1	441.4	66.2	389.8	73.92
Skeleton of flank and plate	1,578	909.9	18.4	52.3	162.0	29.38
Skeleton of rump	608	286.9	80.1	21.5	110.4	20.72
Skeleton of chuck and neck	3,734	1758.9	468.1	130.2	692.5	132.37
Skeleton of round	1,974	753.0	507.8	52.6	329.7	63.40
Skeleton of loin	2,268	1046.8	361.9	71.6	384.0	75.05
Skeleton of rib	1,646	763.2	203.3	54.5	298.9	61.23
Horns, hoofs and dewclaws	390	187.9	4.8	32.4	7.3	0.60
Teeth	218	91.0	0.1	6.4	95.8	15.06

TABLE 59.—STEER 557. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	8,952	7156.3	.....	280.7	75.4	2.42
Circulatory system.....	2,342	1183.1	908.0	38.6	14.4	2.46
Respiratory system.....	1,972	1519.5	103.7	51.2	22.1	4.00
Brain and spinal cord.....	551	399.9	68.5	69.9	7.8	1.86
Digestive and excretory system (partial).....	9,981	7371.1	1142.4	200.3	104.9	17.57
Offal fat.....	6,757	942.3	5640.1	29.4	15.5	1.96
Heart and neck sweetbreads.....	623	422.3	105.2	14.5	10.3	2.22
Liver.....	3,003	2086.0	56.5	92.6	40.4	9.97
Spleen.....	485	373.1	16.2	14.0	6.7	1.36
Pancreas.....	225	145.9	38.6	5.1	2.4	0.56
Kidneys.....	649	498.1	38.2	15.4	7.5	1.41
Hair and hide.....	14,100	8900.5	706.7	703.3	165.1	10.01
Head and tail, lean and fat.....	1,915	1158.1	462.2	45.0	16.2	2.76
Shin and shank, lean and fat.....	4,196	2861.9	496.3	123.1	38.9	6.42
Flank and plate, lean and fat.....	15,294	7713.4	5251.2	357.0	119.0	20.34
Rump, lean and fat.....	2,582	1321.4	848.1	59.8	20.6	3.67
Chuck and neck, lean and fat.....	22,146	14152.0	3891.9	598.4	211.9	40.53
Round, lean.....	14,960	11044.1	689.7	459.7	151.3	29.02
Round, fat.....	2,532	702.5	1611.5	25.8	8.8	1.22
Loin, lean.....	11,714	8335.1	916.7	347.4	128.6	22.49
Loin, fat.....	4,472	711.4	3573.1	32.6	11.1	1.70
Rib, lean.....	6,372	4322.2	763.8	185.1	61.9	10.83
Rib, fat.....	1,616	316.3	1194.5	15.5	5.8	0.95
Kidney, fat.....	3,288	266.9	2897.7	11.9	5.1	0.77
Skeleton of feet.....	3,558	1579.2	426.8	128.1	670.9	124.10
Skeleton of head.....	3,969	2136.0	248.6	100.2	724.9	130.74
Skeleton of tail.....	193	102.3	32.4	6.1	20.2	3.77
Skeleton of shin.....	2,246	826.4	404.6	75.3	477.0	88.96
Skeleton of flank.....	2,610	982.7	510.0	88.9	523.4	94.61
Skeleton of flank and plate.....	2,498	1408.7	316.2	78.7	242.5	42.99
Skeleton of rump.....	960	410.4	128.7	33.0	183.9	35.62
Skeleton of chuck and neck.....	5,638	2421.1	680.7	191.4	1175.4	212.21
Skeleton of round.....	2,686	873.1	789.6	69.1	514.8	85.30
Skeleton of loin.....	2,478	957.2	499.1	73.3	480.3	90.57
Skeleton of rib.....	2,572	1037.8	432.9	89.3	505.9	92.87
Horns, hoofs and dewclaws.....	695	373.0	9.8	48.3	17.9	19.39
Teeth.....	261	104.4	0.7	7.5	120.4	22.53

TABLE 60.—STEER 558. WEIGHTS OF CONSTITUENTS IN SAMPLES, GRAMS.

Description of sample	Sample	Water	Crude fat	Nitrogen	Ash	Phosphorus
Blood.....	4,666	3902.8	.....	117.1	32.3	1.82
Circulatory system.....	971	643.2	184.8	21.6	7.1	1.39
Respiratory system.....	1,111	884.7	16.4	29.8	11.7	2.57
Brain and spinal cord.....	520	393.1	52.0	8.3	7.8	1.94
Digestive and excretory system (partial).....	6,510	5075.3	414.4	145.9	64.6	12.24
Offal fat.....	829	394.6	358.2	11.5	4.2	0.83
Liver.....	1,352	986.3	28.4	41.9	18.2	4.76
Spleen.....	193	146.3	2.1	6.4	3.0	0.54
Pancreas.....	153	116.7	7.9	3.9	2.2	0.57
Kidneys.....	318	244.2	13.8	8.3	3.8	0.79
Hair and hide.....	8,138	5266.3	87.7	430.3	92.0	6.75
Head, tail, shin, and shank, lean and fat.....	4,324	3216.2	238.2	127.5	40.8	7.05
Flank and plate, lean and fat.....	4,192	2961.7	306.5	135.4	38.7	7.21
Rump, lean and fat.....	1,030	719.4	99.3	31.8	10.4	2.02
Chuck and neck, lean and fat.....	11,682	8789.8	481.4	355.3	108.3	21.85
Round, lean.....	9,664	7456.0	107.6	301.1	101.4	20.58
Round, fat.....	644	289.8	266.2	14.9	3.9	0.61
Loin, lean.....	5,962	4468.5	158.1	189.7	61.1	12.52
Loin, fat.....	600	181.2	356.5	9.3	2.7	0.48
Rib, lean and fat.....	3,242	2421.1	113.1	102.4	32.1	6.39
Kidney fat.....	220	40.5	165.4	2.1	0.6	0.12
Skeleton of feet, head, tail, shin and shank.....	9,785	4475.4	1645.3	303.0	1716.4	318.21
Skeleton of flank and plate.....	1,092	596.6	137.0	36.1	113.7	20.58
Skeleton of rump.....	678	288.5	124.6	21.1	126.6	22.94
Skeleton of chuck and neck.....	4,050	1752.7	733.8	125.3	723.9	131.41
Skeleton of round.....	2,094	717.6	708.0	47.9	838.4	62.44
Skeleton of loin.....	2,138	850.3	535.3	54.1	381.4	70.15
Skeleton of rib.....	1,516	710.8	243.3	50.8	230.3	41.64
Horns, hoofs and dewclaws.....	443	235.7	5.9	32.4	10.9	0.98
Teeth.....	274	89.1	1.9	6.0	140.3	26.17

TABLE 61.—COMPOSITION OF CERTAIN PARTS AND OF THE TOTAL ANIMAL.
(3-Months-Old Cattle)

	Percent Water	Percent Fat	Percent Nitrogen	Percent Ash	Percent Phosphorus
Animal 556, Group I					
Lean and fat flesh.....	70.59	9.14	3.09	1.13	0.184
Bone.....	46.59	14.37	3.29	17.52	3.332
Blood.....	81.47	.....	2.78	0.78	0.035
Circulatory system.....	62.36	23.96	2.15	0.86	0.148
Respiratory system.....	77.68	3.42	2.70	1.40	0.216
Nervous system.....	67.12	19.45	1.62	1.62	0.349
Digestive and excretory system.....	74.03	8.56	2.43	1.54	0.276
Hair and Hide.....	66.28	2.15	5.16	1.38	0.088
Offal fat.....	32.62	61.31	0.96	0.45	0.063
Total animal.....	65.23	9.71	3.24	4.88	0.868
Animal 554, Group II					
Lean and fat flesh.....	73.19	5.94	3.12	1.17	0.191
Bone.....	49.29	13.30	3.20	16.20	2.932
Blood.....	81.07	.....	2.89	0.80	0.031
Circulatory system.....	72.58	10.40	2.53	0.91	0.169
Respiratory system.....	79.02	2.44	2.69	1.21	0.227
Nervous system.....	76.83	8.78	1.77	1.58	0.350
Digestive and excretory system.....	76.86	5.94	2.32	1.28	0.238
Hair and hide.....	66.02	1.62	4.98	1.44	0.096
Offal fat.....	41.23	50.87	1.20	0.63	0.099
Total animal.....	67.05	7.35	3.23	4.97	0.866
Animal 555, Group III					
Lean and fat flesh.....	76.42	3.26	3.08	1.10	0.189
Bone.....	56.63	7.97	3.21	14.34	2.510
Blood.....	80.08	.....	3.12	0.74	0.035
Circulatory system.....	70.98	12.06	2.57	0.88	0.159
Respiratory system.....	79.45	2.78	2.69	1.12	0.210
Nervous system.....	76.37	9.95	1.71	1.54	0.354
Digestive and excretory system.....	77.80	5.27	2.46	1.19	0.227
Hair and hide.....	69.05	0.76	5.20	1.48	0.089
Offal fat.....	58.69	31.37	1.72	0.78	0.119
Total animal.....	71.11	4.38	3.25	4.36	0.739

TABLE 62.—COMPOSITION OF CERTAIN PARTS AND OF THE TOTAL ANIMAL.
(5½-Months-Old Cattle)

	Percent Water	Percent Fat	Percent Nitrogen	Percent Ash	Percent Phosphorus
Animal 557, Group I.					
Lean and fat flesh.....	58.12	24.82	2.48	0.86	0.155
Bone.....	43.24	15.20	3.18	18.77	3.440
Blood.....	79.94	.....	3.14	0.84	0.027
Circulatory system.....	50.52	38.56	1.65	0.62	0.105
Respiratory system.....	77.05	5.26	2.60	1.12	0.203
Nervous system.....	72.58	12.44	1.79	1.41	0.338
Digestive and excretory system.....	72.81	9.34	2.29	1.15	0.221
Hair and hide.....	63.12	5.01	4.99	1.17	0.071
Offal fat.....	13.95	83.47	0.44	0.23	0.029
Total Animal.....	56.77	20.99	2.75	4.04	0.731
Animal 552, Group II.					
Lean and fat flesh.....	77.03	9.45	2.99	0.99	0.175
Bone.....	43.80	15.87	3.16	18.68	3.399
Blood.....	79.77	.....	3.01	0.85	0.023
Circulatory system.....	64.07	20.78	2.17	0.79	0.130
Respiratory system.....	77.90	2.61	2.72	1.21	0.205
Nervous system.....	74.07	11.48	1.56	1.37	0.335
Digestive and excretory system.....	73.80	8.71	2.35	1.13	0.210
Hair and hide.....	66.82	1.53	4.83	1.41	0.070
Offal fat.....	28.92	67.76	0.92	0.38	0.069
Total animal.....	63.97	10.48	3.13	5.00	0.850
Animal 548, Group III.					
Lean and fat flesh.....	73.75	4.73	3.20	1.05	0.192
Bone.....	46.67	15.25	3.13	16.87	3.086
Blood.....	81.20	.....	3.10	0.72	0.021
Circulatory system.....	70.18	12.58	2.61	0.84	0.157
Respiratory system.....	76.88	3.13	2.91	1.11	0.202
Nervous system.....	74.63	11.06	1.64	1.43	0.350
Digestive and excretory system.....	77.58	3.84	2.56	1.15	0.216
Hair and hide.....	65.41	0.93	5.35	1.35	0.078
Offal fat.....	52.57	36.78	1.46	0.72	0.122
Total animal.....	66.86	6.88	3.32	4.95	0.882

TABLE 63.—COMPOSITION OF CERTAIN PARTS AND OF THE TOTAL ANIMAL.
(8½-Months-Old Cattle)

	Percent Water	Percent Fat	Percent Nitrogen	Percent Ash	Percent Phosphorous
Animal 547, Group I.					
Lean and fat flesh.....	63.12	17.92	2.72	0.89	0.156
Bone.....	43.50	16.29	3.18	18.86	3.486
Blood.....	80.85	.....	2.94	0.72	0.029
Circulatory system.....	58.44	27.81	1.97	0.68	0.124
Respiratory system.....	78.91	2.82	2.55	1.15	0.195
Nervous system.....	77.16	8.96	1.54	1.46	0.367
Digestive and excretory system.....	73.78	9.14	2.32	1.12	0.230
Hair and hide.....	64.55	1.83	5.33	1.30	0.072
Offal fat.....	18.06	78.88	0.61	0.26	0.053
Total Animal.....	61.01	15.73	2.95	3.93	0.704
Animal 550, Group II.					
Lean and fat flesh.....	66.53	14.30	2.83	0.94	0.185
Bone.....	44.11	17.91	3.00	17.86	3.308
Blood.....	81.36	.....	2.87	0.61	0.031
Circulatory system.....	56.00	29.91	1.99	0.66	0.133
Respiratory system.....	77.88	3.98	2.48	1.00	0.199
Nervous system.....	75.20	10.10	1.58	1.44	0.351
Digestive and excretory system.....	72.35	10.96	2.18	1.21	0.214
Hair and hide.....	64.04	1.22	5.32	1.31	0.084
Offal fat.....	20.88	74.69	0.59	0.32	0.079
Total animal.....	62.40	13.94	2.97	4.39	0.798
Animal 558, Group III.					
Lean and fat flesh.....	73.49	5.52	3.05	0.96	0.190
Bone.....	43.97	19.32	2.99	17.00	3.125
Blood.....	88.67	.....	2.51	0.69	0.039
Circulatory system.....	66.25	19.04	2.22	0.73	0.143
Respiratory system.....	79.63	1.47	2.69	1.05	0.231
Nervous system.....	75.60	10.00	1.60	1.51	0.374
Digestive and excretory system.....	76.81	5.47	2.42	1.08	0.222
Hair and hide.....	64.71	1.08	5.29	1.13	0.083
Offal fat.....	47.60	43.21	1.39	0.51	0.106
Total animal.....	65.95	8.59	3.14	5.01	0.914

TABLE 64.—COMPOSITION OF CERTAIN PARTS AND OF THE TOTAL ANIMAL.
(11-Months-Old Cattle)

	Percent Water	Percent Fat	Percent Nitrogen	Percent Ash	Percent Phosphorus
Animal 541, Group I.					
Lean and fat flesh.....	58.71	23.09	2.68	0.84	0.156
Bone.....	37.42	18.81	3.13	22.39	3.646
Blood.....	82.11	.....	2.77	0.68	0.027
Circulatory system.....	48.46	39.88	1.65	0.57	0.105
Respiratory system.....	79.22	1.98	2.74	1.04	0.213
Nervous system.....	72.46	13.61	1.66	1.53	0.371
Digestive and excretory system.....	70.99	12.33	2.24	0.92	0.186
Hair and hide.....	60.43	3.65	5.69	1.10	0.055
Offal fat.....	11.71	86.40	0.29	0.13	0.026
Total animal.....	56.23	21.08	2.91	3.86	0.630
Animal 538, Group II.					
Lean and fat flesh.....	67.66	14.01	2.90	0.94	0.176
Bone.....	38.47	18.49	3.08	21.61	3.622
Blood.....	82.40	.....	2.74	0.79	0.028
Circulatory system.....	55.48	28.70	1.93	0.63	0.114
Respiratory system.....	80.80	2.06	2.50	1.02	0.199
Nervous system.....	74.33	11.75	1.61	1.50	0.348
Digestive and excretory system.....	75.01	8.65	2.25	1.00	0.180
Hair and hide.....	64.34	1.34	5.56	1.06	0.063
Offal fat.....	21.18	76.45	0.54	0.27	0.055
Total animal.....	61.65	13.73	3.08	4.79	0.799
Animal 540, Group III.					
Lean and fat flesh.....	67.88	11.72	2.97	0.97	0.179
Bone.....	40.69	17.48	3.06	19.90	3.692
Blood.....	82.28	.....	2.81	0.72	0.026
Circulatory system.....	58.13	27.73	2.04	0.68	0.127
Respiratory system.....	79.61	2.31	2.59	1.03	0.198
Nervous system.....	73.66	11.94	1.62	1.58	0.375
Digestive and excretory system.....	74.44	9.41	2.15	0.87	0.169
Hair and hide.....	64.64	2.35	5.13	1.26	0.067
Offal fat.....	25.24	71.06	0.55	0.28	0.047
Total animal.....	62.93	12.13	3.07	4.76	0.846

TABLE 65.—COMPOSITION OF CERTAIN PARTS AND OF THE TOTAL ANIMAL.
(11-Months-Old Cattle)

	Percent Water	Percent Fat	Percent Nitrogen	Percent Ash	Percent Phosphorus
Animal 505, Group I.					
Lean and fat flesh	53.69	29.68	2.57	0.73	0.148
Bone	35.79	17.56	3.19	23.85	4.403
Blood	82.26	.....	2.73	0.33	0.023
Circulatory system	52.90	35.03	1.88	0.59	0.119
Respiratory system	76.83	5.48	2.71	0.95	0.202
Nervous system	73.81	14.74	1.69	1.72	0.411
Digestive and excretory system	73.04	11.03	2.29	1.03	0.223
Hair and hide	62.14	5.34	5.30	0.70	0.066
Offal fat	12.41	85.38	0.34	0.12	0.022
Total animal	53.23	25.06	2.79	4.05	0.749
Animal 503, Group II.					
Lean and fat flesh	63.17	18.39	2.87	0.84	0.163
Bone	38.28	15.06	3.10	23.70	4.378
Blood	82.78	.....	2.71	0.34	0.076
Circulatory system	51.90	35.79	1.75	0.56	0.115
Respiratory system	78.71	3.16	2.65	0.98	0.207
Nervous system	73.11	16.11	1.68	1.55	0.394
Digestive and excretory system	73.23	8.86	2.45	1.03	0.230
Hair and hide	67.77	2.57	4.79	0.98	0.066
Offal fat	14.64	81.92	0.52	0.18	0.035
Total animal	59.56	16.36	2.98	4.97	0.913

TABLE 66.—COMPOSITION OF CERTAIN PARTS AND OF THE TOTAL ANIMAL.
(18-Months-Old Cattle)

	Percent Water	Percent Fat	Percent Nitrogen	Percent Ash	Percent Phosphorus
Animal 532, Group I.					
Lean and fat flesh	53.95	28.72	2.57	0.79	0.142
Bone	33.86	22.22	3.34	22.09	4.016
Blood	80.47	.....	3.00	0.65	0.033
Circulatory system	47.92	40.26	1.61	0.57	0.105
Respiratory system	77.55	3.41	2.64	1.05	0.193
Nervous system	72.48	14.46	1.66	1.62	0.392
Digestive and excretory system	71.92	12.02	2.11	0.87	0.177
Hair and hide	59.56	6.84	5.23	1.03	0.071
Offal fat	9.55	88.81	0.24	0.12	0.016
Total animal	51.70	26.74	2.75	3.81	0.680
Animal 531, Group III.					
Lean and fat flesh	68.05	10.03	3.17	1.03	0.189
Bone	38.05	16.48	3.19	23.84	4.268
Blood	81.88	.....	2.84	0.70	0.040
Circulatory system	56.72	29.32	1.87	0.68	0.126
Respiratory system	78.34	2.82	2.68	1.05	0.204
Nervous system	72.99	13.50	1.77	1.50	0.363
Digestive and excretory system	75.88	8.25	2.16	0.85	0.169
Hair and hide	63.67	0.81	5.73	1.14	0.075
Offal fat	25.93	70.63	0.62	0.29	0.046
Total animal	62.64	10.75	3.26	5.37	0.950

TABLE 68.—COMPOSITION OF CERTAIN PARTS AND OF THE TOTAL ANIMAL.
(3-Year-Old Cattle)

	Percent Water	Percent Fat	Percent Nitrogen	Percent Ash	Percent Phosphorus
Animal 515, Group I, 34 mos.					
Lean and fat flesh	42.28	45.22	1.89	0.57	0.103
Bone	32.02	18.72	3.14	25.71	4.153
Blood	79.11	.....	3.22	0.59	0.024
Circulatory system	42.03	48.53	1.28	0.48	0.086
Respiratory system	76.35	5.44	2.70	0.97	0.187
Nervous system	70.04	16.09	1.65	1.63	0.395
Digestive and excretory system	66.17	18.71	2.02	0.85	0.162
Hair and hide	56.00	12.55	4.84	1.86	0.059
Offal fat	7.53	80.29	0.28	0.12	0.015
Total animal	43.68	37.51	2.29	3.87	0.614
Animal 507, Group II, 34 mos.					
Lean and fat flesh	60.40	21.48	2.72	0.81	0.151
Bone	32.83	18.05	3.40	25.90	4.004
Blood	78.17	.....	1.70	0.67	0.022
Circulatory system	47.12	41.27	1.70	0.54	0.104
Respiratory system	77.47	3.93	2.73	0.95	0.159
Nervous system	70.81	13.74	1.50	1.75	0.418
Digestive and excretory system	70.52	14.08	2.10	0.87	0.150
Hair and hide	60.85	6.21	5.99	1.07	0.049
Offal fat	13.10	83.96	0.41	0.14	0.029
Total animal	56.10	19.61	3.03	5.07	0.792

TABLE 67.—COMPOSITION OF CERTAIN PARTS AND OF THE TOTAL ANIMAL.
(2-Year-Old Cattle)

	Percent Water	Percent Fat	Percent Nitrogen	Percent Ash	Percent Phosphorous
Animal 504, Group I, 21 mos.					
Lean and fat flesh	49.66	35.13	2.29	0.68	0.128
Bone	32.99	17.28	3.31	27.14	4.993
Blood	78.65	.....	3.33	0.39	0.022
Circulatory system	51.05	36.05	1.88	0.69	0.116
Respiratory system	67.41	14.90	2.88	0.97	0.181
Nervous system	69.23	15.08	1.79	1.36	0.350
Digestive and excretory system	72.08	12.76	2.04	0.87	0.178
Hair and hide	58.29	8.07	5.52	1.06	0.043
Offal fat	12.76	84.82	0.33	0.15	0.023
Total animal	49.76	29.42	2.64	4.02	0.724
Animal 523, Group II, 26 mos.					
Lean and fat flesh	65.17	16.50	2.83	0.86	0.161
Bone	36.08	15.39	3.35	25.78	4.725
Blood	80.52	.....	2.79	0.66	0.022
Circulatory system	53.05	35.82	1.68	0.60	0.110
Respiratory system	78.68	4.05	2.61	0.99	0.189
Nervous system	68.60	17.61	1.62	1.62	0.359
Digestive and excretory system	75.19	10.33	2.19	0.79	0.158
Hair and hide	62.80	1.15	5.60	1.03	0.051
Offal fat	15.42	81.28	0.50	0.20	0.030
Total animal	60.37	15.00	3.10	5.29	0.897
Animal 525, Group III, 26 mos.					
Lean and fat flesh	68.45	11.91	2.97	0.94	0.174
Bone	35.22	18.20	3.34	23.86	3.952
Blood	80.51	.....	2.94	0.66	0.026
Circulatory system	64.09	24.54	1.71	0.72	0.121
Respiratory system	78.61	2.63	2.82	1.11	0.193
Nervous system	71.05	13.93	1.74	1.50	0.370
Digestive and excretory system	77.48	9.14	2.00	0.88	0.156
Hair and hide	62.40	0.50	5.72	1.33	0.057
Offal fat	21.03	70.64	1.29	0.29	0.051
Total animal	62.44	11.87	3.23	5.09	0.838

TABLE 69.—COMPOSITION OF CERTAIN PARTS AND OF THE TOTAL ANIMAL.
(40-Months-Old Cattle)

	Percent Water	Percent Fat	Percent Nitrogen	Percent Ash	Percent Phosphorous
Animal 527, Group I.					
Lean and fat flesh	37.34	51.80	1.63	0.49	0.089
Bone	30.39	23.73	3.08	25.27	4.302
Blood	78.94	.....	3.28	0.76	0.023
Circulatory system	53.95	32.80	1.93	0.64	0.114
Respiratory system	73.33	7.19	2.72	1.02	0.166
Nervous system	69.96	14.06	1.58	1.54	0.368
Digestive and excretory system	66.12	16.84	2.27	0.89	0.145
Hair and hide	54.48	11.86	5.32	1.37	0.056
Offal fat	5.39	93.26	0.18	0.12	0.013
Thoracic fat	10.30	87.65	0.34	0.13	0.015
Total animal	38.63	45.45	2.02	3.03	0.507
Animal 526, Group II.					
Lean and fat flesh	59.20	22.38	2.76	0.83	0.152
Bone	34.14	19.67	3.17	24.16	4.425
Blood	79.93	.....	3.09	0.78	0.025
Circulatory system	63.32	21.43	2.34	0.81	0.145
Respiratory system	76.62	3.29	2.80	1.03	0.156
Nervous system	73.22	10.26	1.75	1.73	0.420
Digestive and excretory system	72.16	10.98	2.30	0.92	0.161
Hair and hide	57.83	5.71	5.92	1.44	0.050
Offal fat	12.99	84.14	0.41	0.18	0.018
Thoracic fat	21.47	73.14	0.75	0.29	0.034
Total animal	55.33	20.24	3.04	4.92	0.877
Animal 524, Group III.					
Lean and fat flesh	70.33	8.86	3.15	0.98	0.175
Bone	37.33	18.10	3.16	23.37	4.175
Blood	82.01	.....	2.79	0.75	0.022
Circulatory system	62.09	22.42	2.24	0.77	0.132
Respiratory system	77.64	2.60	2.79	1.07	0.178
Nervous system	73.22	10.26	1.60	1.42	0.338
Digestive and excretory system	73.86	8.57	2.41	1.00	0.186
Hair and hide	59.26	1.81	6.30	1.58	0.058
Offal fat	25.07	69.44	0.76	0.32	0.035
Thoracic fat	Not enough	h to separate.			
Total animal	62.43	10.50	3.35	5.79	1.008

TABLE 70.—COMPOSITION OF CERTAIN PARTS AND OF THE TOTAL ANIMAL.
(45-Months-Old Cattle)

	Percent Water	Percent Fat	Percent Nitrogen	Percent Ash	Percent Phosphorus
Animal 513, Group I.					
Lean and fat flesh.....	38.66	49.37	1.70	0.51	0.093
Bone.....	31.16	20.30	3.30	25.14	4.854
Blood.....	77.68	.....	3.43	0.72	0.028
Circulatory system.....	77.60	4.50	2.67	0.91	0.157
Respiratory system.....	73.91	7.03	2.74	0.99	0.155
Nervous system.....	68.19	15.50	1.72	1.60	0.410
Digestive and excretory system.....	72.23	9.03	2.44	1.10	0.194
Hair and hide.....	57.57	10.07	5.18	0.94	0.054
Offal fat.....	5.68	92.87	0.22	0.08	0.011
Thoracic fat.....	13.44	83.71	0.37	0.19	0.024
Total animal.....	39.91	42.85	2.10	3.20	0.599
Animal 502, Group II.					
Lean and fat flesh.....	61.63	18.22	2.91	0.84	0.156
Bone.....	33.00	19.18	3.35	24.89	4.408
Blood.....	77.43	.....	3.49	0.72	0.023
Circulatory system.....	68.29	14.51	2.59	0.68	0.138
Respiratory system.....	76.17	3.06	2.83	1.04	0.166
Nervous system.....	69.10	14.60	1.72	1.79	0.414
Digestive and excretory system.....	75.18	6.15	2.59	1.29	0.174
Hair and hide.....	57.30	3.10	6.57	0.98	0.059
Offal fat.....	10.65	86.18	0.47	0.19	0.023
Thoracic fat.....	21.50	73.48	0.75	0.30	0.041
Total animal.....	56.60	16.97	3.28	5.09	0.887
Animal 509, Group III.					
Lean and fat flesh.....	63.17	16.96	2.89	0.85	0.160
Bone.....	33.59	18.43	3.42	24.78	4.466
Blood.....	78.05	.....	3.43	0.69	0.023
Circulatory system.....	69.95	12.26	2.59	0.92	0.167
Respiratory system.....	77.03	2.88	3.00	1.01	0.176
Nervous system.....	66.87	17.66	1.68	1.58	0.379
Digestive and excretory system.....	71.81	10.58	2.37	1.01	0.168
Hair and hide.....	58.97	2.48	6.27	1.02	0.046
Offal fat.....	11.36	85.89	0.53	0.18	0.024
Thoracic fat.....	19.81	76.10	0.72	0.30	0.043
Total animal.....	57.72	16.27	3.23	5.01	0.887

TABLE 71.—COMPOSITION OF CERTAIN PARTS AND OF THE TOTAL ANIMAL.
(4-Year-Old Cattle)

	Percent Water	Percent Fat	Percent Nitrogen	Percent Ash	Percent Phosphorus
Animal 501, Group I.					
Lean and fat flesh.....	36.25	53.12	1.46	0.49	0.087
Bone.....	32.09	17.72	3.36	26.34	4.808
Blood.....	77.98	.....	3.29	0.86	0.025
Circulatory system.....	60.00	24.55	2.24	0.74	0.125
Respiratory system.....	76.58	3.35	2.87	1.04	0.172
Nervous system.....	70.40	13.27	1.67	1.84	0.392
Digestive and excretory system.....	70.34	12.06	2.35	0.95	0.169
Hair and hide.....	51.43	13.24	5.49	1.52	0.049
Offal fat.....	7.49	91.06	0.21	0.10	0.012
Thoracic fat.....	18.83	76.65	0.61	0.24	0.026
Total animal.....	38.75	44.34	2.00	3.33	0.587
Animal 512, Group II.					
Lean and fat flesh.....	54.96	28.29	2.48	0.77	0.133
Bone.....	31.56	20.31	3.23	25.62	4.698
Blood.....	79.95	.....	3.07	0.79	0.023
Circulatory system.....	54.88	30.62	2.14	0.84	0.117
Respiratory system.....	75.49	4.67	2.80	1.08	0.164
Nervous system.....	72.06	11.12	1.69	1.87	0.385
Digestive and excretory system.....	72.04	9.89	2.36	0.94	0.164
Hair and hide.....	56.19	3.61	6.55	1.16	0.047
Offal fat.....	11.21	86.27	0.37	0.14	0.019
Thoracic fat.....	12.23	85.52	0.26	0.14	0.015
Total animal.....	51.88	24.09	2.93	5.10	0.906
Animal 500, Group III.					
Lean and fat flesh.....	63.11	17.23	2.96	0.89	0.156
Bone.....	33.05	22.09	3.19	23.55	4.208
Blood.....	79.04	.....	3.19	0.79	0.022
Circulatory system.....	61.58	22.27	2.26	0.80	0.127
Respiratory system.....	76.50	2.70	2.84	1.15	0.172
Nervous system.....	62.77	21.72	1.67	1.75	0.371
Digestive and excretory system.....	73.06	9.29	2.41	1.00	0.164
Hair and hide.....	59.33	1.32	6.28	1.07	0.044
Offal fat.....	13.50	83.56	0.42	0.18	0.020
Thoracic fat.....	17.04	71.39	0.49	0.24	0.024
Total animal.....	57.25	17.21	3.20	5.08	0.884

TABLE 72.—COMPOSITION OF THE TOTAL BEEF ANIMAL ON ANALYTICAL, EMPTY, AND FAT-FREE BASES.

Group	Age	Basis	% Water	% Fat	% Nitro- gen	% Ash	% Phos- phorus
Embryo	185 days	Analytical.....	84.801	2.363	1.673	1.776	0.283
Embryo	185 days	Fat-free.....	86.853	.....	1.713	1.819	0.290
Embryo	232 days	Analytical.....	78.700	2.573	2.011	3.180	0.370
Embryo	232 days	Fat-free.....	80.778	.....	2.064	3.264	0.380
Embryo	279 days	Analytical.....	74.192	3.384	2.735	4.062	0.688
Embryo	279 days	Fat-free.....	76.791	.....	2.831	4.204	0.712
Calves	at birth	Analytical.....	72.807	3.648	2.926	4.523	0.841
Calves	at birth	Live weight.....	73.583	3.544	2.843	4.394	0.817
Calves	at birth	Fat-free empty.....	76.287	.....	2.947	4.555	0.847
I	3 months	Analytical.....	65.226	9.712	3.243	4.875	0.868
I	3 months	Empty.....	66.028	9.488	3.168	4.763	0.848
I	3 months	Fat-free empty.....	72.949	.....	3.500	5.262	0.937
II	3 months	Analytical.....	67.051	7.348	3.255	4.971	0.866
II	3 months	Empty.....	67.562	7.234	3.175	4.894	0.853
II	3 months	Fat-free empty.....	72.830	.....	3.422	5.276	0.919
III	3 months	Analytical.....	71.108	4.377	3.247	4.356	0.739
III	3 months	Empty.....	71.517	4.315	3.201	4.295	0.729
III	3 months	Fat-free empty.....	74.742	.....	3.345	4.488	0.761
I	5½ months	Analytical.....	56.771	20.988	2.753	4.039	0.731
I	5½ months	Empty.....	57.213	20.773	2.725	3.998	0.723
I	5½ months	Fat-free empty.....	72.214	.....	3.439	5.046	0.913
II	5½ months	Analytical.....	63.966	10.470	3.130	4.996	0.880
II	5½ months	Empty.....	64.388	10.356	3.093	4.937	0.870
II	5½ months	Fat-free empty.....	71.827	.....	3.451	5.508	0.970
III	5½ months	Analytical.....	66.863	6.884	3.315	4.947	0.882
III	5½ months	Empty.....	67.800	6.689	3.221	4.807	0.857
III	5½ months	Fat-free empty.....	72.661	.....	3.452	5.152	0.919
I	8½ months	Analytical.....	61.009	15.728	2.952	3.931	0.704
I	8½ months	Empty.....	61.233	15.637	2.935	3.908	0.700
I	8½ months	Fat-free empty.....	72.584	.....	3.479	4.633	0.830
II	8½ months	Analytical.....	62.402	13.936	2.974	4.389	0.798
II	8½ months	Empty.....	63.055	13.695	2.922	4.312	0.784
II	8½ months	Fat-free empty.....	73.060	.....	3.386	4.997	0.908
III	8½ months	Analytical.....	65.947	8.590	3.135	5.010	0.914
III	8½ months	Empty.....	66.509	8.437	3.079	4.921	0.897
III	8½ months	Fat-free empty.....	72.637	.....	3.363	5.374	0.980
I	11 months	Analytical.....	56.225	21.078	2.905	3.862	0.630
I	11 months	Empty.....	57.556	20.437	2.817	3.744	0.610
I	11 months	Fat-free empty.....	72.340	.....	3.540	4.706	0.767
I	11 months	Analytical.....	53.228	25.061	2.785	4.049	0.749
I	11 months	Empty.....	54.424	24.421	2.714	3.946	0.730
I	11 months	Fat-free empty.....	72.009	.....	3.591	5.220	0.966
II	11 months	Analytical.....	61.651	13.731	3.076	4.785	0.799
II	11 months	Empty.....	63.006	13.245	2.967	4.616	0.771
II	11 months	Fat-free empty.....	72.626	.....	3.420	5.320	0.889
II	11 months	Analytical.....	59.557	16.361	2.983	4.969	0.913
II	11 months	Empty.....	60.371	16.031	2.923	4.869	0.895
II	11 months	Fat-free empty.....	71.897	.....	3.481	5.799	1.066
III	11 months	Analytical.....	62.925	12.125	3.068	4.764	0.846
III	11 months	Empty.....	64.800	11.512	2.913	4.532	0.803
III	11 months	Fat-free empty.....	73.231	.....	3.291	5.111	0.908

TABLE 73.—COMPOSITION OF THE TOTAL BEEF ANIMAL ON ANALYTICAL, EMPTY, AND FAT-FREE BASES.

Group	Age	Basis	% Water	% Fat	% Nitrogen	% Ash	% Phosphorus
I	18 months	Analytical.....	51.695	26.740	2.748	3.808	0.680
I	18 months	Empty.....	53.038	25.997	2.672	3.702	0.661
I	18 months	Fat-free empty.....	71.671	.....	3.611	5.003	0.894
III	18½ months	Analytical.....	62.641	10.747	3.258	5.367	0.950
III	18½ months	Empty.....	65.411	9.951	3.017	4.969	0.879
III	18½ months	Fat-free empty.....	72.639	.....	3.350	5.518	0.976
I	21 months	Analytical.....	49.762	29.420	2.639	4.015	0.724
I	21 months	Empty.....	50.933	28.735	2.577	3.921	0.708
I	21 months	Fat-free empty.....	71.469	.....	3.616	5.502	0.993
II	26 months	Analytical.....	60.368	15.001	3.095	5.290	0.897
II	26 months	Empty.....	61.960	14.398	2.971	5.077	0.861
II	26 months	Fat-free empty.....	72.382	.....	3.470	5.931	1.006
III	26 months	Analytical.....	62.444	11.871	3.231	5.088	0.838
III	26 months	Empty.....	64.115	11.344	3.087	4.861	0.801
III	26 months	Fat-free empty.....	72.318	.....	3.482	5.483	0.903
I	34 months	Analytical.....	43.684	37.509	2.286	3.873	0.614
I	34 months	Empty.....	46.601	35.566	2.167	3.672	0.582
I	34 months	Fat-free empty.....	72.324	.....	3.364	5.699	0.904
II	34 months	Analytical.....	56.102	19.613	3.031	5.071	0.792
II	34 months	Empty.....	58.014	18.759	2.899	4.850	0.758
II	34 months	Fat-free empty.....	71.408	.....	3.568	5.970	0.933
I	39½ months	Analytical.....	38.628	45.446	2.019	3.026	0.507
I	39½ months	Empty.....	39.827	44.558	1.980	2.967	0.497
I	39½ months	Fat-free empty.....	71.836	.....	3.571	5.352	0.897
II	40 months	Analytical.....	55.333	20.242	3.039	4.924	0.877
II	40 months	Empty.....	56.556	19.688	2.956	4.789	0.853
II	40 months	Fat-free empty.....	70.421	.....	3.680	5.963	1.062
III	40½ months	Analytical.....	62.430	10.499	3.353	5.794	1.008
III	40½ months	Empty.....	63.491	10.202	3.258	5.630	0.979
III	40½ months	Fat-free empty.....	70.705	.....	3.628	6.270	1.091
I	44½ months	Analytical.....	39.912	42.850	2.103	3.201	0.599
I	44½ months	Empty.....	41.396	41.792	2.051	3.122	0.585
I	44½ months	Fat-free empty.....	71.117	.....	3.524	5.363	1.004
II	44½ months	Analytical.....	56.599	16.972	3.281	5.086	0.887
II	44½ months	Empty.....	57.625	16.571	3.203	4.966	0.866
II	44½ months	Fat-free empty.....	69.071	.....	3.840	5.952	1.038
III	45 months	Analytical.....	57.715	16.266	3.234	5.005	0.887
III	45 months	Empty.....	58.369	16.015	3.184	4.928	0.873
III	45 months	Fat-free empty.....	69.498	.....	3.791	5.867	1.040
I	47 months	Analytical.....	38.752	44.340	1.999	3.329	0.587
I	47 months	Empty.....	39.836	43.556	1.963	3.270	0.577
I	47 months	Fat-free empty.....	70.576	.....	3.478	5.793	1.022
II	48 months	Analytical.....	51.879	24.091	2.927	5.098	0.906
II	48 months	Empty.....	52.666	23.697	2.879	5.014	0.891
II	48 months	Fat-free empty.....	69.022	.....	3.773	6.572	1.167
III	48 months	Analytical.....	57.254	17.209	3.200	5.078	0.884
III	48 months	Empty.....	58.142	16.852	3.134	4.972	0.866
III	48 months	Fat-free empty.....	69.926	.....	3.769	5.980	1.041

TABLE 74.—COMPOSITION OF BEEF FLESH ON FAT-FREE BASIS.

Group	Age months	Animal	Sample	% Water	% Nitrogen	% Ash	% Phosphorus
III	48	500	Round, lean	76.704	3.236	1.048	0.198
III	48	500	Loin, lean	76.159	3.374	1.095	0.201
III	48	500	Rib, lean	76.573	3.645	1.060	0.194
III	48	500	Lean and fat composite	76.709	3.511	1.117	0.196
I	47	501	Round, lean	77.117	3.409	1.056	0.204
I	47	501	Loin, lean	76.228	3.489	1.037	0.199
I	47	501	Rib, lean	75.900	3.556	1.019	0.192
I	47	501	Lean and fat composite	76.537	3.331	1.182	0.183
II	44½	502	Round, lean	75.199	3.446	1.012	0.203
II	44½	502	Loin, lean	76.057	3.475	1.061	0.217
II	44½	502	Rib, lean	73.826	3.413	0.994	0.182
II	44½	502	Lean and fat composite	76.098	3.616	1.029	0.195
II	11	503	Round and rump lean	76.776	3.540	1.076	0.214
II	11	503	Loin, lean	77.548	3.481	1.074	0.208
II	11	503	Rib, lean	77.618	3.513	1.033	0.206
I	21	504	Round, lean	76.561	3.533	1.033	0.214
I	21	504	Loin, lean	76.236	3.476	1.078	0.206
I	21	504	Rib, lean	76.722	3.565	1.008	0.202
I	11	505	Round and rump, lean	76.286	3.674	1.078	0.221
I	11	505	Loin, lean	75.752	3.595	1.070	0.218
I	11	505	Rib, lean	76.430	3.688	1.041	0.218
II	34	507	Round, lean	77.182	3.428	1.041	0.204
II	34	507	Loin, lean	76.924	3.040	1.058	0.201
II	34	507	Rib, lean	76.843	3.417	1.068	0.198
III	45	509	Round, lean	76.862	3.364	1.049	0.205
III	45	509	Loin, lean	76.527	3.410	1.045	0.198
III	45	509	Rib, lean	76.041	3.283	1.026	0.091
III	45	509	Lean and fat composite	76.359	3.718	1.039	0.194
II	48	512	Round, lean	76.770	3.392	1.073	0.201
II	48	512	Loin, lean	75.997	3.458	1.025	0.191
II	48	512	Rib, lean	76.566	3.489	1.053	0.185
II	48	512	Lean and fat composite	76.136	3.496	1.074	0.188
I	44½	513	Round, lean	76.064	3.387	1.063	0.202
I	44½	513	Loin, lean	75.757	3.542	1.054	0.208
I	44½	513	Rib, lean	76.900	3.551	1.047	0.196
I	44½	513	Lean and fat composite	77.369	3.345	1.088	0.194
I	34	515	Round, lean	76.102	3.487	1.039	0.199
I	34	515	Loin, lean	76.599	3.536	1.172	0.213
I	34	515	Rib, lean	76.851	3.487	1.066	0.191
II	26	523	Round, lean	78.748	3.230	1.067	0.207
II	26	523	Loin, lean	77.856	3.379	1.028	0.192
II	26	523	Rib, lean	77.486	3.439	1.022	0.196

TABLE 75.—COMPOSITION OF BEEF FLESH ON FAT-FREE BASIS.

Group	Age months	Animal	Sample	% Water	% Nitrogen	% Ash	% Phosphorus
III	40½	524	Round, lean.....	79.010	3.348	1.072	0.197
III	40½	524	Loin, lean.....	76.140	3.468	1.107	0.203
III	40½	524	Rib lean and fat.....	76.354	3.596	1.067	0.198
III	40½	524	Lean and fat of animal.....	75.735	3.509	1.102	0.201
III	26	525	Round, lean.....	78.931	3.197	1.090	0.210
III	26	525	Loin, lean.....	77.316	3.353	1.086	0.207
III	26	525	Rib, lean.....	77.199	3.461	1.070	0.198
II	40	526	Round, lean.....	75.907	3.745	1.170	0.217
II	40	526	Loin, lean.....	76.008	3.391	1.075	0.201
II	40	526	Rib, lean.....	77.391	3.419	1.022	0.183
II	40	526	Lean and fat of animal.....	76.605	3.595	1.093	0.186
I	39½	527	Round, lean.....	76.903	3.477	1.004	0.203
I	39½	527	Loin, lean.....	76.967	3.518	1.068	0.203
I	39½	527	Rib, lean.....	76.471	3.542	1.095	0.196
I	39½	527	Lean and fat of animal.....	76.535	3.390	1.073	0.191
I*	38	529	Rib, lean.....	76.958	3.474	1.023	0.192
III	18½	531	Round, lean.....	76.503	3.333	1.123	0.212
III	18½	531	Loin, lean.....	76.274	3.460	1.149	0.213
III	18½	531	Rib lean and fat.....	75.222	3.611	1.138	0.206
III	18½	531	Lean and fat of carcass.....	74.007	3.686	1.218	0.227
I	18	532	Round, lean.....	75.867	3.486	1.124	0.211
I	18	532	Loin, lean.....	75.664	3.597	1.111	0.204
I	18	532	Rib, lean.....	76.008	3.565	1.106	0.199
I	18	532	Lean and fat of carcass.....	74.809	3.747	1.157	0.209
II	11	538	Round, lean.....	78.078	3.247	1.123	0.208
II	11	538	Loin, lean.....	77.494	3.303	1.118	0.215
II	11	538	Rib, lean.....	77.170	2.348	1.107	0.208
II	11	538	Lean and fat of carcass, excl. kidney fat.....	77.379	3.379	1.136	0.205
III	11	540	Round, lean.....	77.444	3.282	1.107	0.215
III	11	540	Loin, lean.....	76.759	3.318	1.122	0.210
III	11	540	Rib lean and fat.....	76.867	3.428	1.122	0.200
III	11	540	Lean and fat of carcass, excl. kidney fat.....	76.910	3.304	1.102	0.191
I	11	541	Round, lean.....	76.490	3.456	1.127	0.215
I	11	541	Loin, lean.....	76.187	3.423	1.112	0.210
I	11	541	Rib, lean.....	76.654	3.490	1.090	0.209
I	11	541	Lean and fat of carcass, excl. of kidney fat.....	76.264	3.686	1.129	0.212
I	8½	547	Round, lean.....	77.207	3.343	1.119	0.218
I	8½	547	Loin, lean.....	76.177	3.390	1.097	0.212
I	8½	547	Rib, lean.....	77.071	3.360	1.081	0.199
I	8½	547	Lean and fat composite.....	76.768	3.348	1.094	0.197
III	5½	548	Round, lean.....	76.804	3.420	1.137	0.218
III	5½	548	Loin, lean.....	76.878	3.360	1.151	0.213
III	5½	548	Rib lean and fat.....	77.983	3.221	1.124	0.200
III	5½	548	Lean and fat composite.....	77.576	3.238	1.095	0.198
III	55	549	Rib, lean.....	77.060	3.542	1.164	0.206

*Maintenance one year. Then full feed.

TABLE 76.—COMPOSITION OF BEEF FLESH ON FAT-FREE BASIS.

Group	Age months	Animal	Sample	% Water	% Nitrogen	% Ash	% Phosphorus
II	8½	550	Round, lean	77.563	3.511	1.092	0.219
II	8½	550	Loin, lean	77.442	3.243	1.109	0.242
II	8½	550	Rib lean and fat	77.651	3.287	1.120	0.210
II	8½	550	Lean and fat composite	77.704	3.194	1.056	0.207
II	5½	552	Round, lean	77.609	3.320	1.152	0.211
II	5½	552	Loin, lean	77.334	3.248	1.142	0.201
II	5½	552	Rib, lean and fat	77.385	3.455	1.036	0.192
II	5½	552	Lean and fat composite	77.421	3.237	1.135	0.187
II	3	554	Round, lean	77.629	3.359	1.299	0.220
II	3	554	Loin, lean	77.723	3.322	1.194	0.215
II	3	554	Rib, lean and fat	77.473	3.378	1.179	0.205
II	3	554	Lean and fat composite	77.986	3.231	1.257	0.201
III	3	555	Round, lean	79.013	3.101	1.210	0.210
III	3	555	Loin, lean	79.308	3.160	1.221	0.212
III	3	555	Rib, lean and fat	79.634	3.182	1.205	0.194
III	3	555	Lean and fat composite	79.372	3.150	1.087	0.193
I	3	556	Round, lean	77.660	3.398	1.292	0.217
I	3	556	Loin, lean	77.099	3.398	1.236	0.214
I	3	556	Rib, lean and fat	77.002	3.432	1.243	0.198
I	3	556	Lean and fat composite	77.809	3.333	1.283	0.196
I	5½	557	Round, lean	77.392	3.222	1.060	0.203
I	5½	557	Loin, lean	77.196	3.218	1.191	0.208
I	5½	557	Rib, lean	77.069	3.301	1.088	0.193
I	5½	557	Lean and fat composite	77.549	3.345	1.292	0.200
III	8½	558	Round, lean	78.020	3.151	1.061	0.215
III	8½	558	Loin, lean	76.992	3.269	1.053	0.216
III	8½	558	Rib, lean and fat	77.379	3.271	1.026	0.204
III	8½	558	Lean and fat composite	77.830	3.203	1.006	0.204
Jersey	6 days	22A	Flesh	78.477	3.743	1.062	0.204
High Plane	Newborn	562B	Flesh	79.108	3.118	1.110	0.175
High Plane	Newborn	562C	Flesh	80.539	2.724	1.031	0.180
Medium Plane	Newborn	565A	Flesh	80.318	2.760	0.951	0.176
Medium Plane	Newborn	563A	Flesh	79.401	2.921	1.047	0.163
Medium Plane	Newborn	564B	Flesh	79.925	2.926	0.989	0.178
Medium Plane	Newborn	565B	Flesh	79.874	2.909	1.091	0.187
Medium Plane	Newborn	564C	Flesh	79.302	2.897	1.071	0.191
Low Plane	Newborn	568B	Flesh	82.931	2.272	0.896	0.146
Low Plane	Newborn	567B	Flesh	80.332	2.746	1.119	0.180
Low Plane	Newborn	566B	Flesh	82.039	2.806	1.049	0.150
Low Plane	Newborn	568C	Flesh	79.293	2.841	1.057	0.186
High and Medium Plane	Newborn	Average	Flesh	79.794	2.902	1.051	0.179
Low Plane	Newborn	Average	Flesh	81.149	2.666	1.030	0.166

TABLE 77.—EMPTY WEIGHT AT START.

Animal	Age at first feeding (days)	Live Weight at first feeding (pounds)	Live weight (kilograms)	Empty weight (per cent)	Empty weight (kilograms)
500.....	32	118.5	53.750	0.950	51.1
501.....	10	98.0	44.452	0.967	43.0
502.....	15	110.6	50.167	0.953	47.8
503.....	23	158.6	71.939	0.920	66.2
504.....	21	147.7	66.995	0.927	62.1
505.....	21	127.1	57.651	0.943	54.4
507.....	19	93.2	42.275	0.970	41.0
509.....	15	107.8	48.897	0.957	46.8
512.....	28	168.5	76.430	0.912	69.7
513.....	14	106.7	48.398	0.957	46.3
515.....	19	114.0	51.709	0.950	49.1
523.....	23	132.2	59.965	0.940	56.4
524.....	19	145.4	65.952	0.930	61.3
525.....	36	154.6	70.125	0.922	64.7
526.....	41	150.6	68.311	0.926	63.3
527.....	27	167.8	76.112	0.913	69.5
531.....	73	230.2	104.416	0.866	90.4
532.....	54	187.5	85.048	0.897	76.3
538.....	25	132.2	59.965	0.940	56.4
540.....	32	140.3	63.639	0.933	59.4
541.....	20	137.6	62.414	0.936	58.4
547.....	12	95.5	43.318	0.969	42.0
548.....	20	147.5	66.905	0.928	62.1
550.....	21	148.5	67.358	0.927	62.4
552.....	18	140.0	63.503	0.934	59.3
554.....	18	130.0	58.967	0.941	55.5
555.....	21	147.0	66.678	0.928	61.9
556.....	19	148.0	67.131	0.927	62.2
557.....	23	132.6	60.146	0.939	56.5
558.....	13	112.6	51.074	0.951	48.6
549.....	18	117.0	53.070	0.951	50.5
551.....	21	149.5	67.812	0.927	62.9
559.....	19	117.4	53.251	0.950	50.6

TABLE 78.—AMOUNT AND COMPOSITION OF GAIN FROM START TO SLAUGHTER.

Group	Age months	Animal	Condition	Empty Weight	Percent Water	Weight Water	Percent Fat	Weight Fat	Percent Nitrogen	Weight Nitrogen	Percent Ash	Weight Ash	Percent Phosphorus	Weight Phosphorus
I	3	556	At slaughter.....	98,133	66.028	64,795	9.488	9,310.6	3.168	3,108.8	4.763	4,673.7	0.848	832.33
			At start.....	62,200	70.100	43,602	5.200	3,234.4	3.180	1,078.0	4.750	2,954.5	0.839	521.86
			Gain.....	35,933	58.980	21,193	16.101	6,076.2	3.150	1,130.8	4.780	1,719.2	0.864	310.47
II	3	554	At slaughter.....	78,071	67.562	52,746	7.234	5,647.5	3.175	2,478.4	4.894	3,820.9	0.853	665.91
			At start.....	55,500	71.100	39,461	4.800	2,664.0	3.140	1,742.7	4.710	2,614.1	0.834	462.87
			Gain.....	22,571	58.860	13,285	13.220	2,983.5	3.260	735.7	5.350	1,206.8	0.900	203.04
III	3	555	At slaughter.....	71,078	71.517	50,833	4.315	3,067.3	3.201	2,274.9	4.295	3,052.6	0.729	517.87
			At start.....	61,900	70.200	43,454	5.100	3,156.9	3.180	1,968.4	4.750	2,940.3	0.838	518.72
			Gain.....	9,178	80.400	7,379	-0.980	-89.6	3.340	306.5	1.220	112.3	-0.009	-0.85
I	5½	557	At slaughter.....	172,797	57.213	98,862	20.773	35,895.9	2.725	4,708.5	3.098	6,908.3	0.723	1,250.16
			At start.....	56,500	71.000	40,115	4.800	2,712.0	3.150	1,779.8	4.710	2,661.2	0.885	471.78
			Gain.....	116,297	50.510	58,747	28.530	33,183.9	2.520	2,928.7	3.650	4,247.1	0.669	778.38
II	5½	552	At slaughter.....	99,349	64.388	63,969	10.356	10,288.8	3.003	3,073.2	4.937	4,905.1	0.870	864.21
			At start.....	59,300	70.600	41,866	5.000	2,965.0	3.170	1,879.8	4.740	2,810.8	0.837	496.34
			Gain.....	40,049	55.190	22,103	18.290	7,323.8	2.980	1,193.4	5.230	2,094.3	0.919	367.87
III	5½	548	At slaughter.....	85,988	67.800	58,300	6.689	5,751.6	3.221	2,770.1	4.807	4,133.4	0.857	737.10
			At start.....	62,100	70.100	43,532	5.200	3,229.2	3.180	1,074.8	4.750	2,049.8	0.899	521.02
			Gain.....	23,888	61.820	14,768	10.560	2,522.4	3.330	795.3	4.950	1,183.6	0.859	216.08
I	8½	547	At slaughter.....	171,488	61.233	104,983	15.637	26,810.7	2.935	5,031.8	3.908	6,700.4	0.700	1,199.78
			At start.....	42,000	72.400	30,408	4.000	1,680.0	2.980	1,251.6	4.550	1,911.0	0.824	346.08
			Gain.....	129,488	57.610	74,575	19.410	25,130.7	2.920	3,780.2	3.700	4,789.4	0.659	853.70
II	8½	550	At slaughter.....	121,112	63.055	76,367	13.695	16,585.7	2.922	3,539.2	4.812	5,222.8	0.784	949.39
			At start.....	62,400	70.100	43,742	5.200	3,244.8	3.180	1,084.3	4.760	2,970.2	0.839	523.54
			Gain.....	58,712	55.570	32,625	22.720	13,340.9	2.650	1,554.9	3.840	2,252.6	0.725	425.85
III	8½	558	At slaughter.....	89,939	66.509	59,857	8.437	7,593.1	3.079	2,771.2	4.921	4,428.8	0.897	807.60
			At start.....	48,600	71.900	34,943	4.400	2,138.4	3.080	1,066.9	4.650	2,259.9	0.828	402.41
			Gain.....	41,339	60.180	24,914	13.180	5,454.7	3.080	1,274.3	5.240	2,168.9	0.979	405.19
I	11	541	At slaughter.....	288,297	57.556	165,933	20.437	58,918.3	2.817	8,120.8	3.744	10,794.1	0.610	1,759.79
			At start.....	58,400	70.700	41,289	4.900	2,861.6	3.160	1,845.4	4.730	2,763.2	0.856	488.22
			Gain.....	229,897	54.220	124,644	24.380	56,056.7	2.730	6,275.4	3.490	8,031.8	0.593	1,271.57
I	11	505	At slaughter.....	274,357	54.424	149,316	24.421	66,999.9	3.714	7,445.3	3.946	10,824.9	0.730	2,002.23
			At start.....	54,400	71.200	38,733	4.700	2,556.8	3.130	1,702.7	4.700	2,556.8	0.830	453.15
			Gain.....	219,957	50.270	110,583	29.300	64,443.1	2.610	5,742.6	3.760	8,268.1	0.704	1,549.08
II	11	538	At slaughter.....	158,911	63.006	100,124	13.245	21,048.5	2.967	4,714.7	4.616	7,334.7	0.711	1,225.46
			At start.....	56,400	70.000	40,044	4.800	2,707.2	3.150	1,776.6	4.710	2,656.4	0.835	470.04
			Gain.....	102,511	58.610	60,080	17.890	18,341.3	2.870	2,938.1	4.560	4,678.3	0.736	754.52
II	11	503	At slaughter.....	236,429	60.371	142,735	16.031	37,903.0	2.923	6,910.6	4.869	11,512.8	0.895	2,116.15
			At start.....	66,200	69.700	46,144	5.300	3,508.6	3.200	2,118.4	4.770	3,157.7	0.842	557.40
			Gain.....	170,229	56.740	96,591	20.200	34,394.4	2.820	4,792.2	4.910	8,355.1	0.915	1,558.75
III	11	540	At slaughter.....	137,726	64.800	89,247	11.512	15,855.4	2.913	4,011.3	4.523	6,229.2	0.803	1,105.98
			At start.....	59,400	70.600	41,936	5.000	2,970.0	3.170	1,883.0	4.740	2,815.6	0.837	497.18
			Gain.....	78,326	60.400	47,311	16.450	12,885.4	2.720	2,128.3	4.360	3,413.6	0.777	608.80
I	18	532	At slaughter.....	459,025	53.038	243,459	25.997	119,332.5	2.672	12,264.6	3.702	16,994.9	0.661	3,035.87
			At start.....	76,300	68.300	52,113	6.000	4,578.0	3.200	2,441.6	4.810	3,670.0	0.850	648.55
			Gain.....	382,725	50.000	191,346	29.980	114,754.5	2.570	9,823.0	3.480	13,324.9	0.624	2,386.82

TABLE 78.—AMOUNT AND COMPOSITION OF GAIN FROM START TO SLAUGHTER—Continued.

Group	Age months	Animal	Condition	Empty Weight	Percent Water	Weight Water	Percent Fat	Weight Fat	Percent Nitrogen	Weight Nitrogen	Percent Ash	Weight Ash	Percent Phosphorus	Weight Phosphorus
III	18½	531	At slaughter.....	192,005	65.411	125,592	9.951	19,105.6	3.017	5,792.2	4.969	9,540.5	0.879	1,688.27
			At start.....	90,400	66.400	60,026	8.200	2,892.8	3.200	4,384.4	4.850	4,384.4	0.860	777.44
			Gain.....	101,605	64.530	65,566	11.510	11,692.8	2.850	2,899.4	5.070	5,156.1	0.896	910.83
I	21	504	At slaughter.....	475,854	50.933	242,365	28.735	136,735.0	2.577	12,264.1	3.921	18,658.4	0.708	3,366.90
			At start.....	62,100	70.100	43,532	5.200	3,229.2	3.180	1,974.8	4.750	2,949.8	0.839	521.02
			Gain.....	413,754	48.060	198,834	32.270	133,505.8	2.490	10,289.3	3.800	15,708.6	0.688	2,845.88
II	26	523	At slaughter.....	337,803	61.960	209,304	14.398	48,636.5	2.971	10,034.9	5.077	17,150.6	0.861	2,909.44
			At start.....	56,400	71.000	40,044	4.800	2,707.2	3.150	1,776.6	4.710	2,656.4	0.835	470.94
			Gain.....	281,403	60.150	169,260	16.320	45,929.3	2.930	8,258.3	5.150	14,494.2	0.867	2,438.50
III	26	525	At slaughter.....	265,587	64.115	170,280	11.344	30,126.9	3.087	8,199.5	4.861	11,911.0	0.801	2,126.98
			At start.....	64,700	69.900	45,225	5.300	3,429.1	3.190	2,063.9	4.760	3,079.7	0.841	544.13
			Gain.....	200,887	62.250	125,055	13.290	26,697.8	3.050	6,135.6	4.890	9,831.3	0.788	1,582.85
I	34	515	At slaughter.....	671,917	46.601	313,119	35.566	238,975.5	2.167	14,563.2	3.672	24,673.2	0.582	3,913.72
			At start.....	49,100	71.800	35,254	4.400	2,160.4	3.080	1,512.3	4.660	2,288.1	0.828	406.55
			Gain.....	622,817	44.610	277,865	38.020	236,815.1	2.100	13,050.9	3.590	22,385.1	0.563	3,507.17
II	34	507	At slaughter.....	418,896	58.014	243,018	18.759	78,579.9	2.899	12,142.4	4.850	20,316.2	0.758	3,174.44
			At start.....	41,000	72.800	29,848	4.000	1,640.0	2.970	1,217.7	4.530	1,857.3	0.822	337.02
			Gain.....	377,896	56.110	213,170	20.360	76,939.9	2.890	10,924.7	4.880	18,458.9	0.751	2,837.42
I	39½	527	At slaughter.....	786,005	39.827	313,045	44.558	350,228.8	1.980	15,561.1	2.967	23,320.7	0.497	3,909.04
			At start.....	69,200	69.300	47,956	5.500	3,806.0	3.200	2,214.4	4.780	3,307.8	0.844	584.05
			Gain.....	716,805	36.980	265,089	48.330	346,422.8	1.860	13,346.7	2.790	20,012.9	0.464	3,324.99
II	40	526	At slaughter.....	427,995	56.566	242,058	19.688	84,263.0	2.956	12,649.9	4.789	20,498.4	0.853	3,651.97
			At start.....	63,300	70.000	44,310	5.200	3,291.6	3.190	2,019.3	4.760	3,013.1	0.840	581.72
			Gain.....	364,695	54.220	197,748	22.200	80,971.4	2.910	10,630.6	4.790	17,485.3	0.856	3,120.25
III	40½	524	At slaughter.....	322,234	63.491	204,591	10.202	32,874.7	3.258	10,498.9	5.630	18,141.7	0.979	3,156.16
			At start.....	61,300	70.300	43,094	5.100	3,126.3	3.180	1,989.3	4.750	2,911.8	0.838	513.69
			Gain.....	260,934	61.890	161,497	11.400	29,748.4	3.280	8,549.6	5.840	15,229.9	1.013	2,642.47
I	44½	513	At slaughter.....	771,142	41.396	319,219	41.792	322,276.3	2.051	15,819.3	3.122	24,073.7	0.585	4,507.90
			At start.....	46,300	72.100	33,382	4.200	1,944.6	3.050	1,412.2	4.160	2,134.4	0.826	382.44
			Gain.....	724,842	39.450	285,837	44.190	320,331.7	1.990	14,407.1	3.030	21,939.3	0.569	4,125.46
II	44½	502	At slaughter.....	444,424	57.625	256,101	16.571	73,645.3	3.203	14,286.6	4.966	22,008.9	0.866	3,847.63
			At start.....	47,800	72.000	34,416	4.350	2,079.3	3.070	1,467.5	4.640	2,217.9	0.827	395.31
			Gain.....	396,624	55.890	221,685	18.040	71,566.0	3.220	12,769.1	5.000	19,851.0	0.870	3,452.32
III	45	509	At slaughter.....	391,461	58.369	228,400	16.015	62,609.6	3.184	12,464.4	4.928	19,290.4	0.873	3,418.30
			At start.....	46,800	72.100	33,743	4.300	2,012.4	3.050	1,427.4	4.620	2,162.2	0.827	387.04
			Gain.....	344,661	56.500	194,747	17.580	60,597.2	3.200	11,037.0	4.970	17,128.2	0.879	3,031.26
I	47	501	At slaughter.....	814,914	39.826	324,632	44.556	354,940.0	1.963	15,999.4	3.270	26,645.1	0.577	4,701.00
			At start.....	43,000	72.300	31,059	4.100	1,763.0	3.000	1,290.0	4.570	1,965.1	0.824	354.32
			Gain.....	771,914	38.030	293,543	45.750	353,177.0	1.910	14,709.4	3.200	24,680.0	0.563	4,346.68
II	48	512	At slaughter.....	493,877	52.666	260,103	23.697	117,034.5	2.879	14,210.6	5.014	24,764.9	0.891	4,399.23
			At start.....	69,300	69.300	48,302	5.500	3,833.5	3.200	2,230.4	4.790	3,338.6	0.845	588.97
			Gain.....	424,577	49.930	211,801	26.690	113,201.0	2.830	11,987.2	5.050	21,426.3	0.898	3,810.26
III	48	500	At slaughter.....	407,833	58.142	237,124	16.852	68,726.2	3.134	12,781.0	4.872	20,279.1	0.866	3,529.88
			At start.....	50,900	71.600	36,444	4.500	2,290.5	3.100	1,577.9	4.680	2,382.1	0.830	422.47
			Gain.....	356,933	56.220	200,680	18.610	66,436.1	3.140	11,203.1	5.010	17,897.0	0.871	3,107.41

TABLE 79.—EMPTY WEIGHT AT AGE PREVIOUS ANIMAL WAS SLAUGHTERED.

Animal	Age			Live weight at end feeding		Empty weight at slaughter	Per cent empty weight	Weight at age previous animal was slaughtered	
	Yrs.—Mos.—Days	lbs.	kgs.	kgs.	Live kgs.			Empty kgs.	
Group 1									
556.....	0	3	0	247.6	112.31	98.13	87.38	.....	34.830
557.....	0	5	17	443.2	201.03	172.80	85.96	109.41	95.599
547.....	0	8	5	450.2	204.21	171.45	83.96	142.93	122.859
541.....	0	10	22	724.0	328.40	288.30	87.79	250.38	210.221
505.....	0	10	18	690.6	313.25	274.36	87.58	255.37	214.409
532.....	1	5	20	1133.0	513.92	459.03	89.32	324.00	284.439
504.....	1	8	26	1170.0	530.70	475.85	89.67	488.74	436.545
515.....	2	9	19	1632.2	740.35	671.92	90.76	539.05	483.363
527.....	3	3	15	1869.0	847.76	786.01	92.72	777.45	705.616
513.....	3	8	15	1898.4	861.10	771.14	89.55	782.17	725.229
501.....	3	11	0	1964.8	891.21	814.91	91.44	873.71	782.403
Group 2									
554.....	0	3	0	196.0	88.90	78.07	87.81	.....	34.830
552.....	0	5	7	256.2	116.21	99.35	85.49	88.09	77.349
550.....	0	8	14	323.8	146.87	121.11	82.46	104.10	88.994
538.....	0	10	26	403.0	182.80	158.91	86.93	146.78	121.036
503.....	0	11	11	608.4	275.96	236.43	85.67	209.11	172.428
523.....	2	2	6	864.2	391.99	337.80	86.18	221.58	192.619
507.....	2	9	16	1014.4	460.12	418.90	91.04	440.12	379.294
526.....	3	4	0	1088.2	493.60	428.00	86.71	441.12	401.592
502.....	3	8	19	1138.6	516.46	444.42	86.05	491.69	426.346
512.....	3	11	21	1250.4	567.17	493.88	87.08	562.54	484.067
Group 3									
555.....	0	3	0	188.4	85.46	71.08	83.17	.....	34.830
548.....	0	5	9	222.0	100.70	85.99	85.39	79.02	65.717
558.....	0	8	12	237.8	107.86	90.00	83.44	94.12	86.369
540.....	0	11	2	341.8	155.04	137.73	88.83	135.90	113.392
531.....	1	6	12	479.6	217.54	192.01	88.26	153.99	136.793
525.....	2	2	8	694.6	315.06	265.59	84.30	240.49	212.259
524.....	3	4	13	806.2	365.68	322.23	88.12	299.60	252.559
509.....	3	8	22	1004.2	455.50	391.46	85.94	416.26	366.808
500.....	3	11	26	1061.8	481.62	407.83	84.68	438.30	376.678

TABLE 80.—AMOUNT AND COMPOSITION OF GAIN BETWEEN EACH SUCCEEDING AGE.

Group I.													
Age, months	Animal	Condition	Empty Weight	Per cent. Water	Weight Water	Per cent. Fat	Weight Fat	Per cent. Nitrogen	Weight Nitrogen	Per cent. Ash	Weight Ash	Per cent. Phosphorus	Weight Phosphorus
			Grams.		Grams.		Grams.		Grams.		Grams.		Grams.
0 — 3	556	At slaughter.....	98,133	66.028	64,795	9.488	9,310.6	3.168	3,108.8	4.763	4,673.7	0.848	832.93
		At birth.....	73,830	73.583	25,629	3.544	1,234.4	2.843	990.2	4.394	1,830.4	0.817	284.56
		Gain.....	63,303	61.870	39,166	12.760	8,076.2	3.350	2,118.6	4.970	3,143.3	0.865	547.77
3 — 5½	557	At slaughter.....	172,797	57.213	98,862	20.778	35,895.9	2.725	4,708.5	2.098	6,908.3	0.723	1,250.16
		At 3 mo.....	95,599	66.028	63,122	9.488	9,070.4	3.168	3,028.6	4.763	4,553.4	0.848	310.68
		Gain.....	77,198	46.300	35,740	34.750	26,825.5	2.180	1,679.9	3.050	2,354.9	0.569	439.48
5½ — 8½	547	At slaughter.....	171,448	61.233	104,983	15.637	26,810.7	2.935	5,031.8	3.908	6,700.4	0.700	1,199.78
		At 5½ mo.....	122,859	57.213	70,291	20.778	25,521.5	2.725	3,247.9	3.098	4,911.9	0.723	888.27
		Gain.....	48,589	71.400	34,692	2.650	1,289.2	3.470	1,683.9	3.680	1,788.5	0.641	311.51
8½ — 11	541	At slaughter.....	288,297	57.556	165,933	20.437	58,918.3	2.817	8,120.8	3.744	8,215.4	0.610	1,471.55
		At 8½ mo.....	210,221	61.233	128,725	15.637	32,872.3	2.935	6,170.0	3.908	8,215.4	0.700	1,759.79
		Gain.....	78,076	47.660	37,208	33.360	26,046.0	2.500	1,950.8	3.300	2,578.7	0.369	288.24
8½ — 11	505	At slaughter.....	274,357	54.424	149,316	24.421	66,999.9	2.714	7,445.3	3.946	10,824.9	0.730	2,002.23
		At 8½ mo.....	214,409	61.233	131,289	15.637	33,527.1	2.935	6,292.9	3.908	8,379.1	0.700	1,500.86
		Gain.....	59,948	30.070	18,027	55.840	33,472.8	1.920	1,152.4	4.080	2,445.8	0.836	501.37
11 — 18	532	At slaughter.....	459,025	53.038	243,459	25.997	119,332.5	2.672	11,932.5	3.702	16,994.9	0.661	3,035.37
		At 11 mo (541).....	284,439	57.556	163,712	20.437	58,130.8	2.817	8,012.6	3.744	10,649.4	0.610	1,735.08
		Gain.....	174,586	45.680	79,747	35.060	61,201.7	2.440	4,252.0	3.630	6,345.5	0.745	1,300.29
18 — 21	504	At slaughter.....	475,854	50.933	242,366	28.735	136,735.0	2.577	12,204.1	3.921	18,658.4	0.707	3,366.90
		At 18 mos.....	436,545	53.038	231,535	25.997	113,488.6	2.672	11,664.5	3.702	16,160.9	0.661	2,885.56
		Gain.....	39,309	27.500	10,831	50.140	23,246.4	1.550	559.6	6.350	2,497.5	1.225	481.34
21 — 34	515	At slaughter.....	671,917	46.600	313,119	35.566	238,975.5	2.167	14,563.2	3.672	24,673.2	0.582	3,913.72
		At 21 mos.....	483,363	50.933	246,191	28.735	138,894.4	2.577	12,456.3	3.921	18,952.7	0.708	3,422.21
		Gain.....	188,554	35.500	66,928	53.080	100,081.1	1.120	2,106.9	3.030	5,720.5	0.261	491.51
34 — 39½	527	At slaughter.....	786,005	39.827	313,045	44.558	350,228.8	1.980	15,561.1	2.967	23,320.7	0.497	3,909.04
		At 34 mos.....	705,616	46.601	328,824	35.566	250,959.4	2.167	15,920.7	3.672	25,910.2	0.582	4,106.69
		Gain.....	80,389	-19.630	-15,779	123.490	99,269.4	0.340	-270.4	-3.220	-2,589.5	-0.246	-197.65
39½ — 44½	513	At slaughter.....	771,142	41.386	319,219	41.792	322,276.3	2.051	15,819.3	3.122	24,073.7	0.585	4,507.90
		At 39½ mos.....	725,229	39.827	288,897	44.558	323,147.5	1.980	14,359.5	2.967	21,517.5	0.497	3,604.39
		Gain.....	45,913	66.170	30,322	-1.900	-871.2	3.180	1,459.8	5.570	2,556.2	1.968	903.51
44½ — 47	501	At slaughter.....	814,914	39.836	324,632	43.556	354,940.0	1.963	15,999.4	3.270	26,645.1	0.577	4,701.00
		At 21 mos.....	782,403	41.386	323,884	41.792	326,981.9	2.051	16,047.1	3.122	24,426.6	0.585	4,577.06
		Gain.....	32,511	2.300	748	86.000	27,958.1	-0.150	-47.7	6.820	2,218.5	0.381	123.94
34 — 39½	527	At slaughter.....	786,005	43.480	341,755	38.500	302,611.9	2.210	17,370.7	3.380	26,567.0	0.615	4,833.93
		At 34 mos.....	705,616	46.601	328,824	35.566	250,959.4	2.167	15,290.7	3.672	25,910.2	0.582	4,106.69
		Gain.....	80,389	16.090	12,931	64.250	51,652.5	2.590	2,080.0	0.820	656.8	0.905	727.24
39½ — 44½	513	At slaughter.....	771,142	41.386	319,219	41.792	322,276.3	2.051	15,819.3	3.122	24,073.7	0.585	4,507.90
		At 39½ mo.....	725,229	43.480	315,330	38.500	279,213.2	2.210	16,027.6	3.380	24,512.7	0.615	4,460.16
		Gain.....	45,913	8.470	3,889	93.790	43,063.1	-0.450	-208.3	-0.960	-439.0	0.104	47.74

TABLE 80.—AMOUNT AND COMPOSITION OF GAIN BETWEEN EACH SUCCEEDING AGE—Continued.

Group II.

Age, months	Animal	Condition	Empty Weight	Per cent. Water	Weight Water	Per cent. Fat	Weight Fat	Per cent. Nitrogen	Weight Nitrogen	Per cent. Ash	Weight Ash	Per cent. Phosphorus	Weight Phosphorus
			Grams.		Grams.		Grams.		Grams.		Grams.		Grams.
0 — 3	554	At slaughter.....	78,071	67.562	52,746	7.234	5,647.5	3.175	2,478.4	4.894	3,820.9	0.853	665.91
		At birth.....	34,830	73.583	25,629	3.544	1,234.4	2.843	990.2	4.394	1,530.4	0.817	284.56
		Gain.....	43,241	62.710	27,117	10.210	4,413.1	3.440	1,488.2	5.300	2,290.5	0.882	381.35
3 — 5½	552	At slaughter.....	99,349	64.388	63,969	10.356	10,288.8	3.093	3,073.2	4.937	4,905.1	0.870	864.21
		At 3 mo.....	77,349	67.562	52,259	7.234	5,595.4	3.175	2,455.8	4.894	3,785.5	0.853	659.79
		Gain.....	22,000	53.230	11,710	21.330	4,693.4	2.810	617.4	5.090	1,119.6	0.929	204.42
5½ — 8½	550	At slaughter.....	121,112	63.055	76,367	13.695	16,585.7	2.922	3,539.2	4.312	5,222.8	0.784	949.39
		At 5½ mo.....	88,994	64.388	57,301	10.356	9,216.2	3.093	2,752.6	4.397	4,393.6	0.870	774.25
		Gain.....	32,118	59.360	19,066	22.950	7,369.5	2.450	786.6	2.580	829.2	0.545	175.14
8½ — 11	538	At slaughter.....	158,911	63.006	100,124	13.245	21,048.5	2.967	4,714.7	4.616	7,334.7	0.771	1,225.46
		At 8½ mo.....	121,036	63.055	76,319	13.695	16,575.9	2.922	3,536.7	4.312	5,219.1	0.784	948.92
		Gain.....	37,875	62,850	23,805	11.810	4,472.6	3.110	1,178.0	5.590	2,115.6	0.730	276.54
8½ — 11	503	At slaughter.....	236,429	60.371	142,735	16.031	37,903.0	2.923	6,910.6	4.869	11,512.8	0.895	2,116.15
		At 8½ mo.....	172,428	63.055	108,724	13.695	23,614.0	2.922	5,038.3	4.312	7,435.1	0.784	1,351.84
		Gain.....	64,001	53.140	34,011	22.330	14,289.0	2.930	1,872.3	6.370	4,077.7	1.194	764.31
11 — 26	523	At slaughter.....	337,803	61.960	209,304	14.398	48,636.5	2.971	10,034.9	5.077	17,150.6	0.861	2,909.44
		At 11 mo. (538)...	192,619	63.006	121,362	13.245	25,512.4	2.967	5,715.0	4.616	8,891.3	0.771	1,485.09
		Gain.....	145,184	60.570	87,942	15.930	23,124.1	2.980	4,319.9	5.690	8,259.3	0.981	1,424.35
26 — 34	507	At slaughter.....	418,896	58.014	243,018	18.759	78,579.9	2.899	12,142.4	4.850	20,316.2	0.758	3,174.44
		At 26 mo.....	379,294	61.960	235,011	14.398	54,610.8	2.971	11,268.8	5.077	19,268.8	0.861	3,265.72
		Gain.....	39,602	20.220	8,007	60.520	23,969.1	2.210	873.6	2.680	1,059.4	-0.230	-91.28
34 — 40	526	At slaughter.....	427,995	56.556	242,058	19.688	84,263.0	2.956	12,649.9	4.789	20,498.4	0.853	3,651.97
		At 34 mo.....	401,592	58.014	232,950	18.759	75,334.6	2.899	11,642.2	4.850	19,477.2	0.758	3,044.07
		Gain.....	26,403	34.380	9,078	33.820	8,928.4	3.820	1,007.7	3.870	1,021.2	2.302	607.90
40 — 44½	502	At slaughter.....	444,424	57.625	256,101	16.571	73,645.3	3.203	14,236.6	4.966	22,068.9	0.866	3,847.63
		At 40 mo.....	426,346	56.556	241,124	19.688	83,939.0	2.956	12,602.8	4.789	20,417.7	0.853	3,636.73
		Gain.....	18,078	82.850	14,977	-56.940	-10,293.7	9.040	1,633.8	9.130	1,651.2	1.167	210.90
44½ — 48	512	At slaughter.....	493,877	52.666	260,103	23.697	117,034.5	2.879	14,217.6	5.014	24,764.9	0.891	4,399.23
		At 44½ mo.....	484,067	57.625	278,944	16.571	80,214.7	3.203	15,504.7	4.966	24,038.8	0.866	4,192.02
		Gain.....	9,810	-192.100	-18,841	375.300	36,819.8	-13.120	-1,287.1	7.400	726.1	2.112	207.21
40 — 44½	502	At slaughter.....	444,424	56.030	249,011	20.300	90,218.1	2.870	12,755.0	4.460	19,821.3	0.797	3,542.06
		At 40 mos.....	426,346	56.556	241,124	19.688	83,939.0	2.956	12,602.8	4.789	20,417.7	0.853	3,636.73
		Gain.....	18,078	43.630	7,887	34.730	6,279.1	0.840	152.2	-3.300	-596.4	-0.524	-94.67
44½ — 48	512	At slaughter.....	493,877	52.666	260,103	23.697	117,034.5	2.879	14,217.6	5.014	24,764.9	0.891	4,399.23
		At 44½ mo.....	484,067	56.030	271,223	20.300	98,265.6	2.870	13,892.7	4.460	21,589.4	0.797	3,858.01
		Gain.....	9,810	-113.350	-11,120	191.320	18,768.9	3.310	324.9	32.370	3,175.5	5.517	541.22

TABLE 80.—AMOUNT AND COMPOSITION OF GAIN BETWEEN EACH SUCCEEDING AGE—Continued.

Group III.													
Age, months	Animal	Condition	Empty Weight	Per cent. Water	Weight Water	Per cent. Fat	Weight Fat	Per cent. Nitrogen	Weight Nitrogen	Per cent. Ash	Weight Ash	Per cent. Phosphorus	Weight Phosphorus
			Grams.		Grams.		Grams		Grams.		Grams.		Grams.
0 — 3	555	At slaughter.....	71,078	71.517	50,833	4.315	3,067.3	3.201	2,274.9	4.295	3,052.6	0.729	517.87
		At birth.....	34,830	73.583	25,629	3.544	1,234.4	2.843	990.2	4.394	1,530.4	0.817	284.56
		Gain.....	36,248	69.530	25,204	5.060	1,832.9	3.540	1,284.7	4.200	1,522.2	0.644	233.31
3 — 5½	548	At slaughter.....	85,988	67.800	58,300	6.689	5,751.6	3.221	2,770.1	4.807	4,133.4	0.857	737.10
		At 3 mo.....	65,717	71.517	46,999	4.315	2,835.7	3.201	2,103.6	4.295	2,822.5	0.729	479.08
		Gain.....	20,271	55.750	11,301	14.380	2,915.9	3.297	666.5	6.470	1,310.9	1.273	258.02
5½ — 8½	558	At slaughter.....	89,999	66.509	59,857	8.437	7,593.1	3.079	2,771.2	4.921	4,428.8	0.897	807.60
		At 5½ mo.....	80,369	67.800	54,490	6.689	5,375.9	3.221	2,588.7	4.807	3,863.3	0.857	688.76
		Gain.....	9,630	55.730	5,367	23.020	2,217.2	1.900	182.5	5.870	565.5	1.234	118.84
8½ — 11	540	At slaughter.....	137,726	64.800	89,247	11.512	15,855.4	2.913	4,011.3	4.523	6,229.2	0.803	1,105.98
		At 8½ mo.....	113,392	66.509	75,416	8.437	9,566.9	3.079	3,491.3	4.921	5,580.0	0.897	1,017.13
		Gain.....	24,334	56.840	13,831	25.840	6,288.5	2.140	520.0	2.670	649.2	0.365	88.85
11 — 18½	531	At slaughter.....	192,005	65.411	125,592	9.951	19,105.6	3.017	5,792.2	4.969	9,540.5	0.879	1,688.27
		At 11 mo.....	136,793	64.800	88,642	11.512	15,747.6	2.913	3,984.8	4.523	6,187.1	0.803	1,098.45
		Gain.....	55,212	66.920	36,950	6.080	3,358.0	3.270	1,807.4	6.070	3,353.4	1.068	589.82
18½ — 26	525	At slaughter.....	265,587	64.115	170,280	11.344	30,126.9	3.087	8,199.5	4.861	12,911.0	0.801	2,126.98
		At 18½ mo.....	212,259	65.411	138,841	9.951	21,121.9	3.017	6,403.9	4.969	10,547.1	0.879	1,865.76
		Gain.....	53,328	58.950	31,439	16.890	9,005.0	3.370	1,795.6	4.430	2,363.9	0.490	261.22
26 — 40½	524	At slaughter.....	322,234	63.491	204,591	10.202	32,874.7	3.258	10,498.9	5.630	18,141.7	0.979	3,156.16
		At 26 mo.....	252,559	64.115	161,928	11.344	28,650.3	3.087	7,796.5	4.861	12,276.9	0.801	2,023.00
		Gain.....	69,675	61.230	42,663	6.060	4,224.4	3.880	2,702.4	8.420	5,864.8	1.626	1,133.16
40½ — 45	509	At slaughter.....	391,461	58.369	228,490	16.015	62,690.6	3.184	12,464.4	4.928	19,290.4	0.873	3,418.30
		At 40½ mo.....	366,808	63.491	232,890	10.202	37,421.8	3.258	11,950.6	5.630	20,651.3	0.979	3,591.05
		Gain.....	24,653	—17.850	—4,400	102.500	25,268.8	—2.080	513.8	—5.520	—1,360.9	—0.701	—172.75
45 — 48	500	At slaughter.....	407,833	53.142	237,124	16.852	68,726.6	3.134	12,781.0	4.972	20,279.1	0.866	3,529.88
		At 45 mo.....	376,678	58.369	219,863	16.015	60,325.0	3.184	11,993.4	4.928	18,562.7	0.873	3,288.40
		Gain.....	31,155	55.400	17,261	26.970	8,401.6	2.520	787.6	5.510	1,716.4	0.775	241.48
26 — 40½	524	At slaughter.....	322,234	60.000	193,340	15.000	48,335.1	3.060	9,860.4	4.700	15,145.0	0.850	2,738.99
		At 26 mo.....	252,559	64.115	161,928	11.344	28,650.3	3.087	7,796.5	4.861	12,276.9	0.801	2,023.00
		Gain.....	69,675	45.080	31,412	28.250	19,684.8	2.960	2,063.9	4.120	2,868.1	1.028	715.99
40½ — 45	509	At slaughter.....	391,461	58.369	228,490	16.015	62,690.6	3.184	12,464.4	4.928	19,290.4	0.873	3,418.30
		At 40½ mo.....	366,808	60.000	220,085	15.000	55,021.2	3.060	11,224.3	4.700	17,240.0	0.850	3,117.87
		Gain.....	24,653	34.090	8,405	31.110	7,669.4	5.030	1,240.1	8.320	2,050.0	1.219	300.43