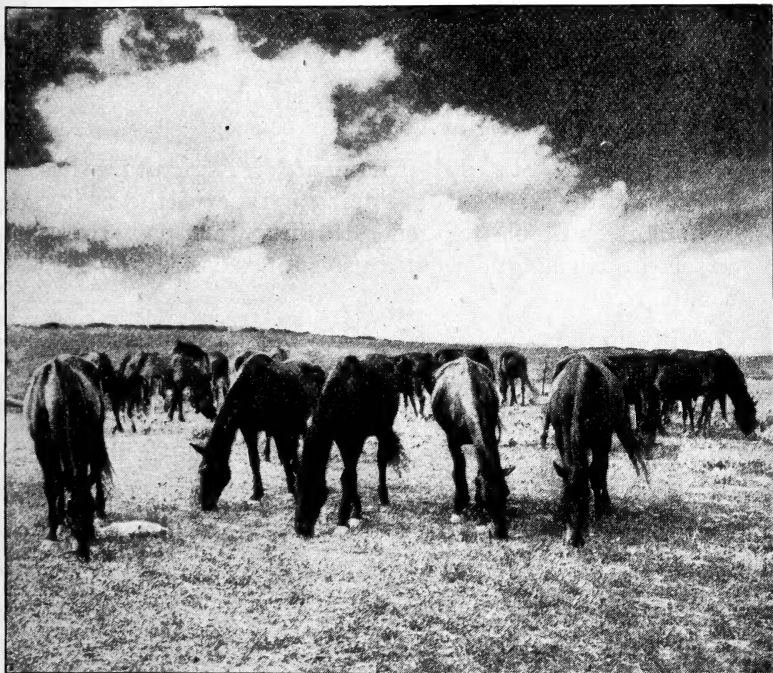


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DEVELOPING AN AMERICAN UTILITY HORSE



Some of the horses used in the breeding experiments

UNITED STATES DEPARTMENT OF AGRICULTURE
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Contribution from the Bureau of Animal Industry
JOHN R. MOHLER, Chief

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A MERICAN LIGHT HORSES have long been world-famous in several highly specialized lines—for example, the trotting and saddle breeds.

The United States Department of Agriculture has recognized the need of developing a type of the native light horse suitable for general utility work on farm or ranch. Such a type would also supply desirable horses for the Army.

With this end in view, cooperative experimental breeding work has been carried on for many years.

The ideals sought in this new type are a uniform combination of size, substance, soundness, endurance, and a sufficiency of speed.

Although the automobile, motor truck, and tractor undoubtedly will displace some horses, nevertheless the active, sizable, utility horse will be an increasingly important factor in American husbandry, especially in those sections where the heavy-draft breeds are not the most economical type to use.

The cooperative breeding work was begun in 1904 with several selected mares and the Standardbred stallion Carmon. This remarkable sire is still used in the development of the work.

The progress made in the experimental work is described in the following pages.

DEVELOPING AN AMERICAN UTILITY HORSE.

J. O. WILLIAMS,
Animal Husbandry Division.

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DEVELOPMENT OF AMERICAN LIGHT HORSES.

THE development of a breed of horses for utility purposes from native bloodlines is a problem which has engaged the attention of the United States Department of Agriculture since 1904, when the cooperative horse-breeding experiment was inaugurated with the Colorado Experiment Station at Fort Collins, Colo. Until this work was begun no definite effort had been made by the Government, State experiment stations, or individual breeders to incorporate in a specific breed the splendid qualities of the native light horse, which included uniformity of type, size, and action, that was so frequently found in individual specimens. Many such horses were produced, it is true, but the production of such truly great animals as Nala, Lord Brilliant, Carmon, Glorious Red Cloud, Eckersall, Glorious Bonnie, Lady de Jarnette, Tattersall, and numerous other outstanding specimens, was really by chance.

America has been notable for the production of light horses of exceptional merit, and the history of the American turf and show ring glistens with the dazzling performances of the product of the American breeder. Three distinct breeds have been evolved through selection and adaptation to American ideals, namely, the Morgan, the Standardbred, and the American Saddle Horse. In the development of these breeds, however, the work of the breeder has become more and more highly specialized, and the splendid type found in

some individual specimens was in danger of being sacrificed for the specialty striven for by the breeder. For example, the breeder of trotting horses depended on the production of speed in his progeny in order to meet the market demands and to compete favorably with other breeders. Consequently, speed in driving horses became the predominant consideration, and this situation is probably more notable to-day than it was 15 years ago, as the use of the automobile has practically nullified the demand for driving horses for pleasure.

The light, inefficient horse is undoubtedly destined to be discarded as a factor in American husbandry, and the indiscriminate breeding of small, unsound, scrubby animals will continue to be highly unprofitable if persisted in. It is this class of horses that constitutes the drag on the horse market to-day, and the production of such horses should be discouraged.

The automobile has practically displaced the light driving horse for pleasure purposes and in a large measure for business purposes. The type of horse which will be most seriously affected by tractor power on the farm remains to be fully determined, but it seems reasonable to believe that the greatest use of the tractor will be on large, level farms for heavy work, especially at peak periods. The function of the tractor will be to supplement and not displace the horse power on the average farm. For the average farm or ranch, especially in rolling and hilly sections, the active utility horse should become a more and more important factor as an economical power unit, and the advantages of this type are no doubt apparent to the average horseman and farmer.

The profitable light horse of the future, aside from those bred for special purposes, such as for speed and the saddle, will be the efficient horse that will successfully meet the demands of utility on the average farm or ranch, especially in those sections where the draft horse is not the most economical type to use. It is with a view of maintaining a foundation herd of well-bred light horses that will fill these requirements and to carry out breeding experiments for the development of a breed of this type that the United States-Wyoming horse-breeding station, at Buffalo, Wyo., was established.

HISTORY AND OBJECT OF THE HORSE-BREEDING EXPERIMENTS.

The horses at the United States-Wyoming horse-breeding station were produced in connection with a project previously conducted by the United States Department of Agriculture and the Colorado Experiment Station, at Fort Collins, Colo., until transferred to the present location, in July, 1919. This project was established originally under an appropriation made by Congress providing for cooperative experiments in animal breeding and feeding. The work was begun at the Colorado Experiment Station in 1904 with a band of selected

mares and the Standardbred stallion Carmon 32917, a famous horse formerly owned by Thomas W. Lawson, of Boston, Mass. The mares selected for foundation stock were bred along lines known to be excellent for the production of horses of the utility type. The selections, however, were made on type rather than on breeding, although some of the mares were registered in the Standardbred and Saddle registers. An effort was made to obtain only those animals whose breeding was in lines that produced the utility type and which were of the desired type themselves. Since the beginning of the experiment in 1904 careful selection has been made of the progeny produced and only those adhering closely to the type desired were retained for breeding purposes.

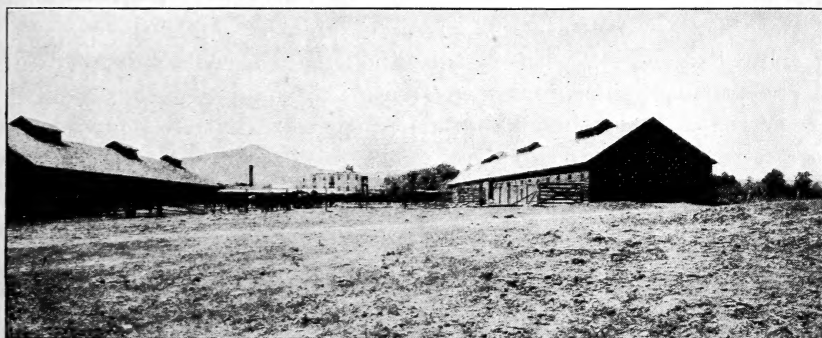


FIG. 1.—View of the United States-Wyoming horse-breeding station, Buffalo, Wyo.

The stallions used in this work have been Standardbred only, the stallions Carmon 32917, Cedar Red 01486, Loyal D. 50088, Wilmering 48569, and Harvest Aid 63908 having been used up to the present time. The latter stallion has just recently been added to the stud and a number of station mares were bred to him in 1919. The results of these matings will be observed with a great deal of interest, as it is hoped that this well-bred stallion will "nick" well with the mares at the station and prove to be a fitting successor to his illustrious predecessor, Carmon. The breeding of Harvest Aid 63908 will please the most fastidious, and as an individual this stallion combines size with speed and a marked degree of quality. This stallion should be prepotent, as he is richly bred in bloodlines of great producers. His sire is the famous champion trotting stallion The Harvester 43637 (2.01), and his dam Santos Maid (2.08 $\frac{3}{4}$) is one of the best-producing matrons by the most famous of living American trotting sires, Peter the Great 28944 (2.07 $\frac{3}{4}$).

TYPE OF HORSE SOUGHT TO BE FIXED.

The object of this horse-breeding experiment is to continue the study of the possibility of evolving a distinct breed of horses from foundation stock selected from our native breeds—the Standard-

bred, the Morgan, and the American Saddle Horse—that will be suitable for utility purposes. The Standardbred has been used as the basis and the two other native breeds have been used moderately to supply the desirable qualities they are known to possess. By judicious blending of these bloodlines and strict selection considerable progress has been made in the establishment of a type of large, useful light horses. The animals which are in the stud at present are uniform in type and a number of them which approximate the type desired have been matured. It is hoped ultimately to fix this type and thereby establish a breed that will breed true.

The qualities sought in the type of horse which is being developed in this work are a combination of size, substance, soundness, endurance, good temperament, well-balanced action, and a fair amount of speed at the walk and trot. If these qualities can be incorporated in a breed of horses without the infusion of draft blood the result will be a utility horse which can perform the many jobs on the farm, on the road, under the saddle, and, in case of national emergency, on the battlefield.

ESTABLISHMENT OF THE UNITED STATES-WYOMING HORSE-BREEDING STATION.

The United States-Wyoming horse-breeding station was established at Buffalo, Wyo., in July, 1919, in cooperation with the State of Wyoming. The station is situated near the city of Buffalo, on the Soldiers' and Sailors' Farm, formerly the site of Fort McKinney. This farm is in the heart of the horse-producing section of the State and is an ideal location for the production of horses.

The stud of breeding animals established at the station consisted of 13 stallions and 25 mares. Of these, 10 stallions and 19 mares were bred and developed by the Department of Agriculture in the work previously conducted in cooperation with the Colorado Experiment Station. Six of the mares are aged animals retained from the original stud because of their record in producing uniform offspring of the desired type. The three other animals are the Standardbred stallions Carmon 32917, Wilmering 48569, and Harvest Aid 63908. The stallion Carmon has headed the stud since the beginning of this breeding work, in 1904, and is still used in the stud in a limited way. The prepotency of this stallion has been the outstanding feature of the experiment, his progeny being remarkably uniform in type. Although Carmon is now over 25 years old, he still shows the wonderful vitality, vim, activity, and style which were so characteristic of him when he was in his prime.

The stallion Harvest Aid 63908 was purchased in 1919 for the purpose of following Carmon in the stud, and will be kept at the station for the purpose of having the mares in this experiment bred to

him. This stallion, along with those retained at the station, will be available for public service to breeders who desire to bring mares to the station, for which service a moderate fee will be charged.

The two stallions mentioned are retained as the premier stallions at this station, although some of the stallions matured in the experiment will be used in a limited way as occasion demands.

STALLIONS AVAILABLE FOR PUBLIC SERVICE.

As stated, the stallions at the United States-Wyoming horse-breeding station are available for public service. The stallions Carmon 32917 and Harvest Aid 63908 will be kept at the station and will be allowed to serve a limited number of mares brought to the station.

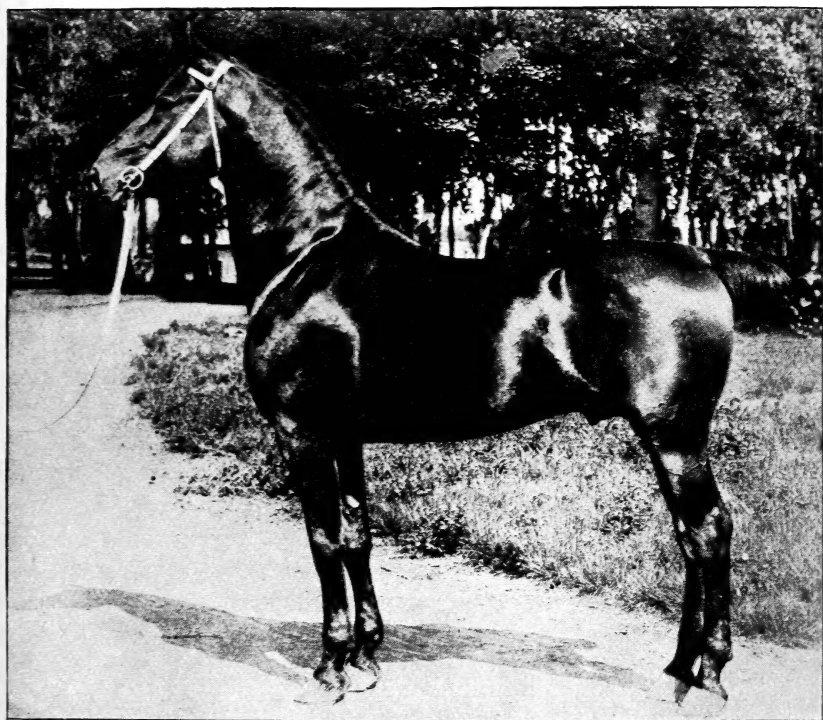


FIG. 2.—Carmon 32917, in his prime, at 12 years of age.

The remaining stallions, 11 in number, will be leased to responsible private citizens for use on private herds, or to a group of citizens who desire the services of a stallion for community breeding. The number available for the purpose of leasing will be increased as the work develops and stallions of the desired type are bred and matured in the experiment. In this way the station will be of direct practical benefit to the horse breeders of the range States in supplying them with high-class stallions for the purpose of improving the light-horse

stock of this section. Since the number of stallions available for distribution is limited, applications for them will be considered in the order in which they are received. The small income received by the station for service and lease fees will be used in developing this project, so that the benefits may accrue to those interested in the improvement of the light horse.

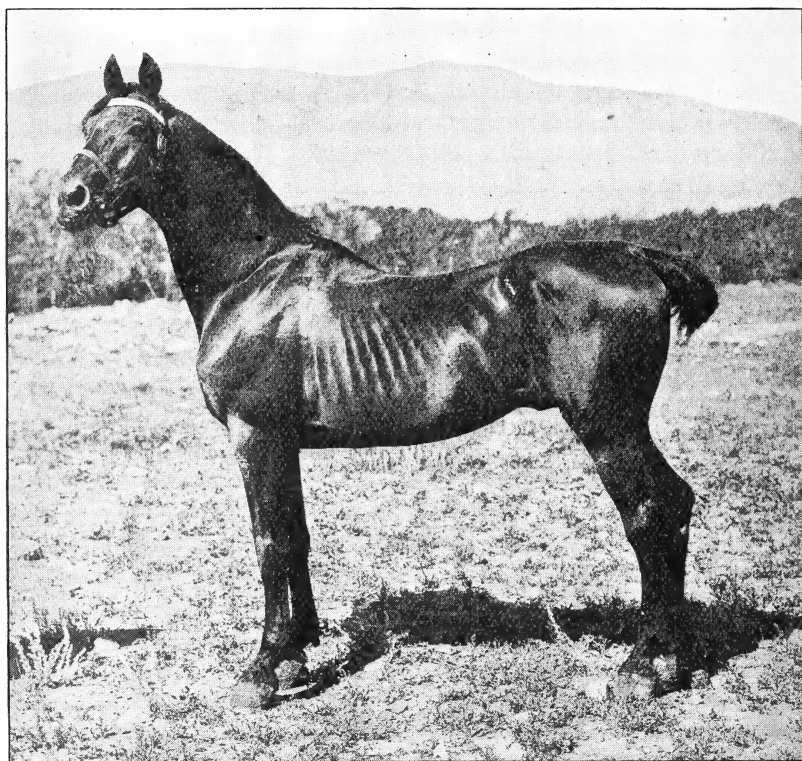


FIG. 3.—Carmon 32917 at 25 years of age. Carmon still shows the wonderful vitality, vim, activity, and style which were so characteristic of him when he was in his prime.

Persons interested in obtaining one of the stallions from the station are urged to visit the farm at Buffalo and inspect the stallions and breeding herd themselves in order to observe the methods which are followed in developing this work. To those unable to visit the station, information will be given in regard to the experiment and the stallions available by the officer in charge. Inquiries should be addressed to the United States-Wyoming Horse-Breeding Station, Buffalo, Wyo.

The following is the breeding¹ and description of the stallions in the stud at present which are available for public service.

PEDIGREE OF CARMON.

<p>CARMON 32917. [Breed, Standard-bred; sex, stallion; color, bay; height, 16 hands; weight, 1,250 pounds; date of birth, 1895; breeder, Norman J. Colman, St. Louis, Mo.]</p>	<p>Carnegie 8405.</p>	<p>Robert M c - Gregor 647.</p>	Major Edsall 211.	{ Abdallah 15.
			Nancy Whitman.	{ By Harris's Hambletonian 2.
		<p>Annie Nutwood (nonstandard) (Vol. VI, p. 376, A. T. R.).</p>	Nutwood 600.	{ American Star 14.
			Annie Watson.	{ Nance, by Young Messenger Duroc.
	<p>Monitor Maid (Vol. XI, p. 646, A. T. R.).</p>	<p>Monitor 1327.</p>	Merchant 599.	{ Belmont 64.
			Trojana.	{ Lady Mambrino, by Mambrino Chief No. 11.
		<p>Clara C (Vol. XI, p. 389, A. T. R.).</p>	Seth Warner.	{ Trojan 312.
			Grace.	{ By Hercules.
		<p>Walnut Hall 31641.</p>	Conductor 12256.	{ Ethan Allen 43.
			Maggie Yeager (vol. 10).	{ Sontag, by Harris's Hambletonian No. 2.
		<p>Notelet (vol. 15).</p>	Moka 27457.	{ Abdallah, Jr., 5720.
			Tablet (vol. 14).	{ Glencoe Belle, by Old Bull.

PEDIGREE OF HARVEST AID.

<p>HARVEST AID 63908. [Breed, Standard-bred; sex, stallion; color, brown; height 15.2 hands; weight, 1,100 pounds; date of birth, 1916; breeder, C. K. G. Billings, Richmond, Va.]</p>	<p>The Harvester 43637.</p>	<p>Walnut Hall 31641.</p>	Conductor 12256.	{ Electioneer 125.
			Maggie Yeager (vol. 10).	{ Sontag Mohawk (vol. 6).
		<p>Notelet (vol. 15).</p>	Moka 27457.	{ Red Wilkes 1749.
			Tablet (vol. 14).	{ Decie Payne (vol. 10, p. 315).
	<p>Santos Maid (vol. 21).</p>	<p>Peter the Great 28955.</p>	Pilot Medium 1597.	{ Barone Wilkes 4758.
			Santos (vol. 14).	{ Queen Ethel (vol. 7).
		<p>Patchen Maid (vol. 21, p. 695).</p>	Patchen Wilkes 3550.	{ Cuyler 100.
			Maydeen (vol. 9).	{ Prefix.
		<p>Patchen Maid (vol. 21, p. 695).</p>	Patchen Wilkes 3550.	{ Happy Medium 400.
			Maydeen (vol. 9).	{ Tackey.
		<p>Patchen Maid (vol. 21, p. 695).</p>	Patchen Wilkes 3550.	{ Grand Sentinel 865.
			Maydeen (vol. 9).	{ Shadow.

¹ The following abbreviations appear in the pedigrees in the succeeding pages:

A. T. R. = American Trotting Register.

M. = American Morgan Register.

S. = American Saddle Horse Register.

Th. = Thoroughbred.

When not otherwise noted, references to volume and page numbers are those of the American Trotting Register.

WILMERING 48569 A. T. R.

Description: Bay; foaled 1906; height, 15.2 hands; weight, 1,100 pounds.
 Sire: Boreal 21072, by Bow Bells 13073, by Electioneer, by Hambletonian 10.
 Dam: May Matthews, by Motor 7411, by Onward 1411, by George Wilkes 519.
 This stallion is now leased, and the lessee will be given first option for the season 1921.

ALBION.

Description: Bay; foaled 1906; star, snip, left hind pastern white; height, 16.2 hands; weight, 1,400 pounds.

Sire: Carmon (see pedigree of Carmon).

Dam: Arizona, by Emigrant, by Lord Winbeam, by Geo. Peabody; dam of Emigrant: Lady Spartan, by Spartan, by Ethan Allen 43 (Morgan).

This stallion is a proved sire, a grand foal getter, and is now available for lease. To date, it has been impossible to spare him for outside service.

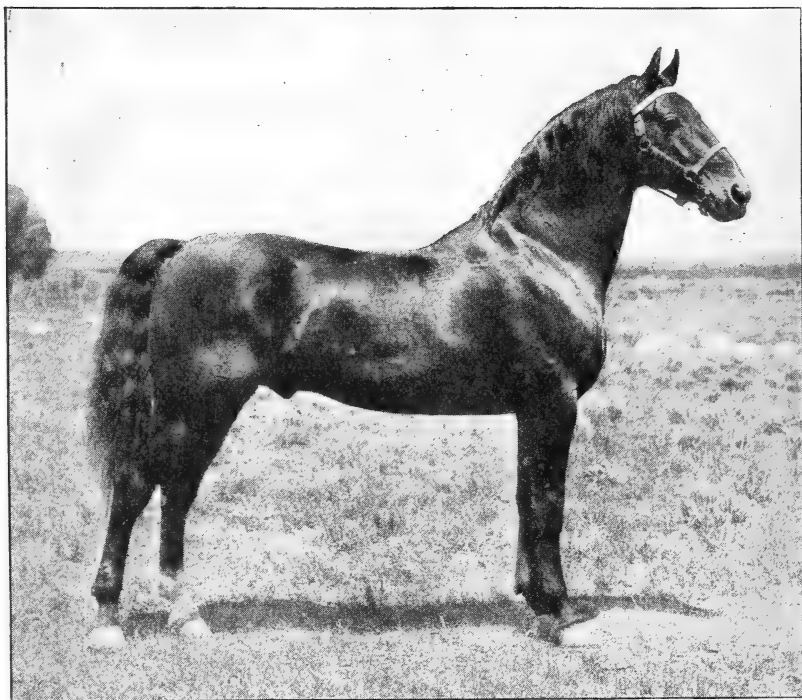


FIG. 4.—Bay stallion Albion, by Carmon 32917 (see description on page 9).

CARNAGIE.

Description: Bay; foaled 1908; hind ankles white; height, 15.2 hands; weight, 1,200 pounds.

Sire: Carmon (see pedigree of Carmon).

Dam: Montana, by Chappy, by Emigrant, by Lord Winbeam.

This stallion is a good foal getter, and is now available for lease.

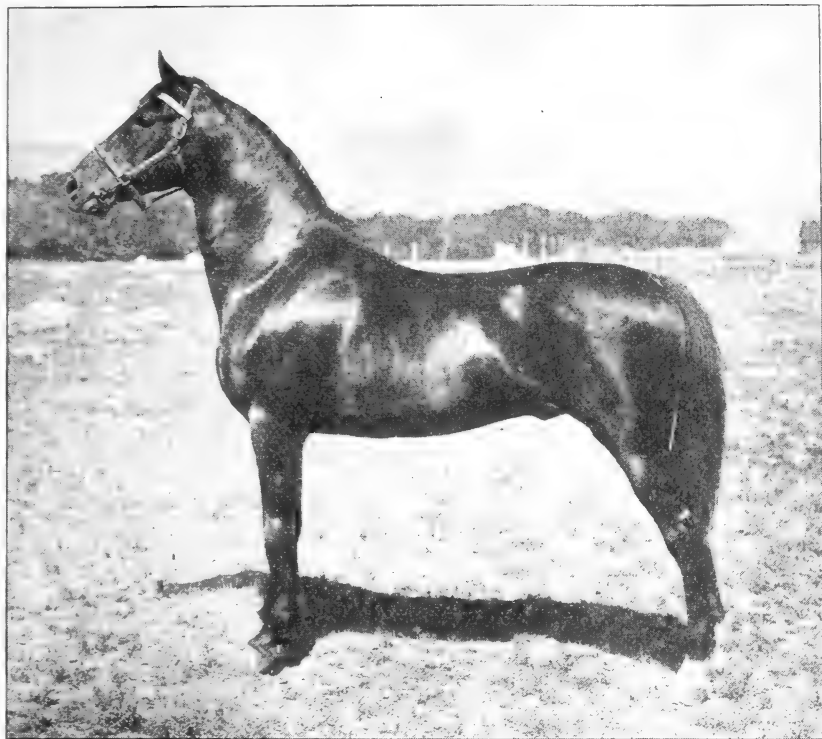


FIG. 5.—Bay stallion Carnegie, by Carmon 32917 (see description on page 10).



FIG. 6.—Bay stallion Defender, by Albion (see description on page 12).

DEFENDER.

Description: Bay; foaled 1909; snip, right hind pastern white; height, 15.2½ hands; weight, 1,325 pounds.

Sire: Albion (see pedigree of Albion).

Dam: Ada, by Carmon (see pedigree of Carmon).

This stallion is a tried sire and a good foal getter. He is now available for lease.

HIGHBALL.

Description: Bay; foaled 1913; black points; height, 15.3 hands; weight, 1,200 pounds.

Sire: Carmon (see pedigree of Carmon).

Dam: Indiana, by March Onward.

Highball is now available for lease.

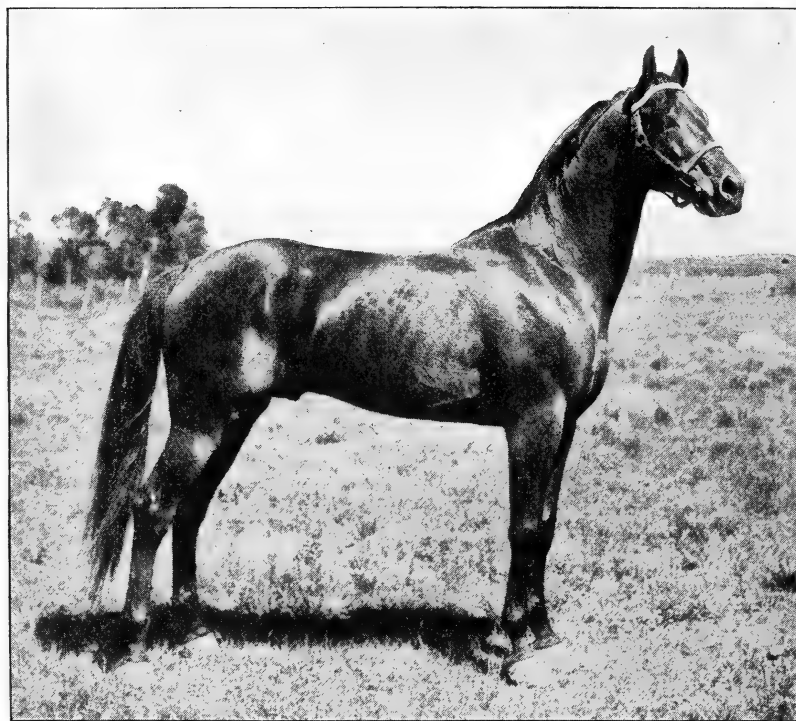


FIG. 7.—Bay stallion Highball, by Carmon 32917 (see description above).

HICKMAN.

Description: Bay; foaled 1913; left front and hind feet white; height, 15.3 hands; weight, 1,250 pounds.

Sire: Albion (see pedigree of Albion).

Dam: Michigan, by Prince L. 5947; second dam by Temperance 6819.

This stallion was leased for the 1920 season.

JEROME.

Description: Bay; foaled 1915; no marks; height, 15.2 hands; weight, 1,200 pounds.
Sire: Loyal D 50088 A. T. R. (record 2:09 $\frac{1}{4}$) by Boreal 21072 and out of Traitress, by Trevilian.

Dam: Alba, by Carmon; second dam Wyoming, by Red Bird (Th).

This stallion was leased for the 1920 season.

JAYWOOD.

Description: Bay; foaled 1915; no marks; height, 15.2 $\frac{1}{2}$ hands; weight, 1,225 pounds.

Sire: Loyal D 50088 A. T. R. (record 2:09 $\frac{1}{4}$) by Boreal 21072.

Dam: Alpha, by Carmon 32917.

This stallion was leased for the 1920 season.

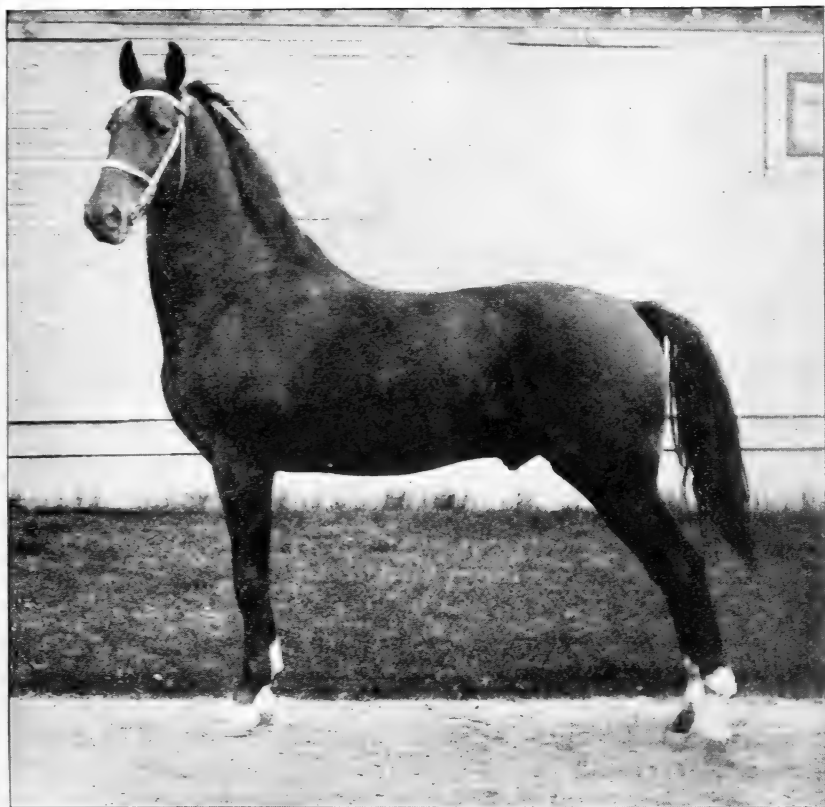


FIG. 8.—Bay stallion Hickman, by Albion (see description on page 12).

KILLARNEY.

Description: Bay; foaled 1916; strip, right front and both hind ankles white; height, 15.2 hands; weight, 1,200 pounds.

Sire: Albion (see pedigree of Albion).

Dam: Ada, by Carmon.

This stallion is now available for lease.

LELAND.

Description: Bay; foaled 1917; black points; height, 15.2 hands; weight, 1,000 pounds.

Sire: Albion (see pedigree of Albion).

Dam: Glenrose, by Cedar Red, by Sir Walkill, jr., 32695; second dam, Bonita, by Carmon.

Leland is a promising young stallion and was leased for the 1920 season. This colt is a rich bay and has a splendid saddle conformation.

LINKWOOD.

Description: Bay; foaled 1917; strip in face; left hind cannon white halfway to hock; right hind pastern white; height, 15.2½ hands; weight, 1,100 pounds.

Sire: Albion (see pedigree of Albion).

Dam: Alba, by Carmon.

This stallion is a rugged, growthy individual with plenty of size. When mature he should be a great sire of useful horses. He is now available for lease.

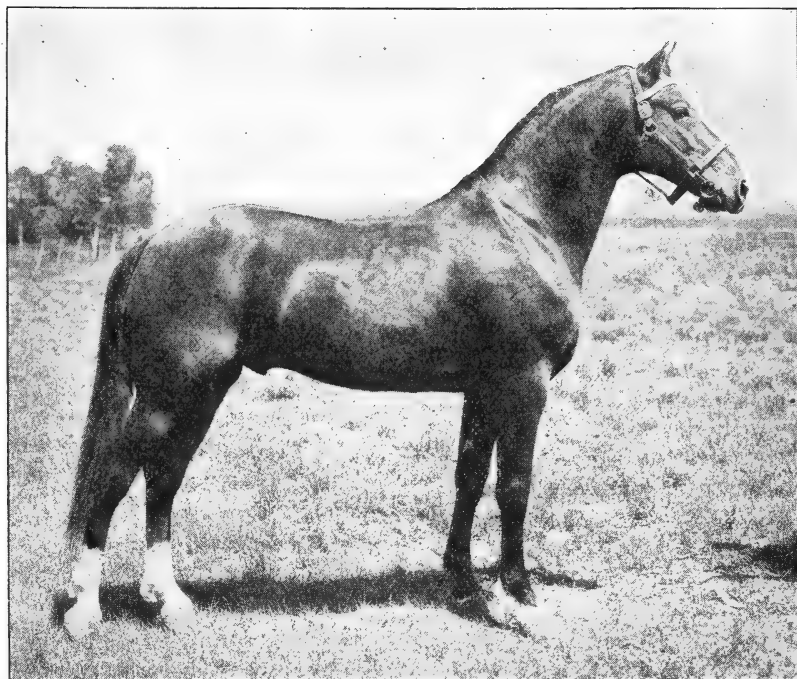


FIG. 9.—Bay stallion Killarney, by Albion (see description on page 13).

BREEDING RECORDS OF FOUNDATION MARES.

The breeding records of some of the principal producing matrons from which the animals in the stud are descended, together with the disposition made of their progeny, are appended herewith. By noting the number of the progeny retained for breeding purposes it will be observed that the selection of stock has been very strict. In many instances the animals discarded were very superior individuals, but

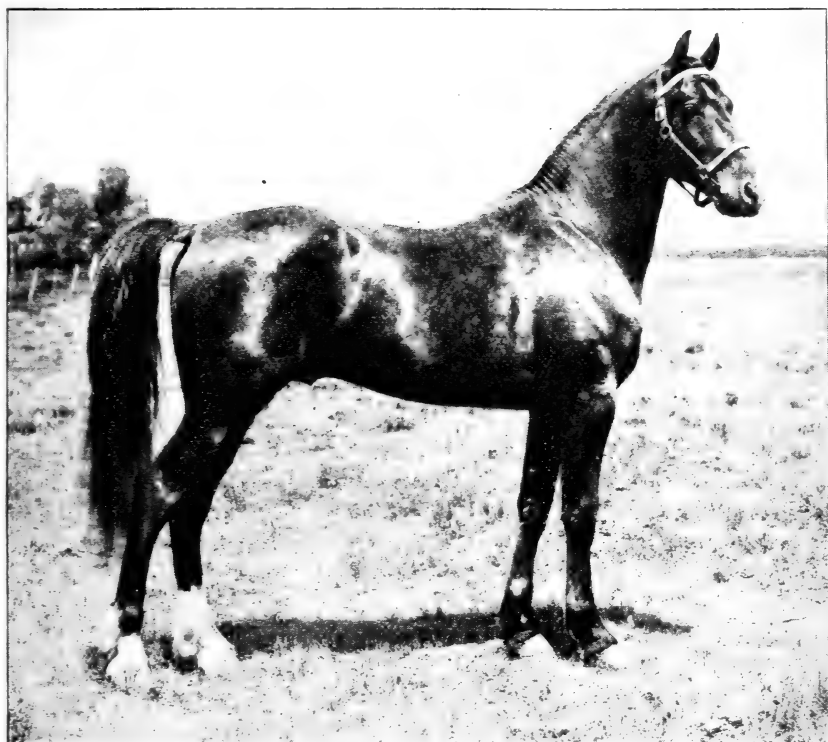


FIG. 10.—Bay stallion Linkwood, by Albion (see description on page 14).

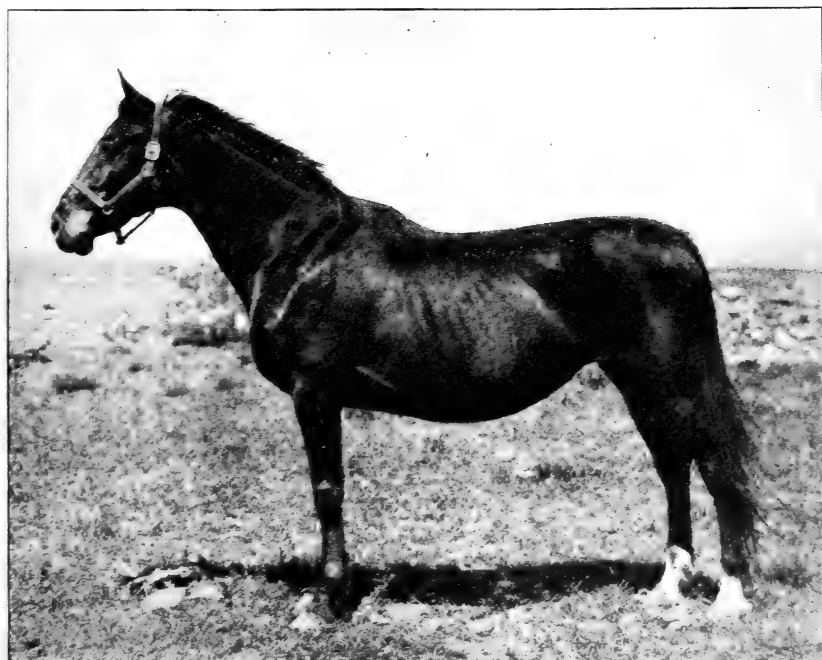


FIG. 11.—Brood mare Alba, by Carmon (see description on page 21). Note the breediness, depth and roominess of body, and other matronly qualities of this mare. The producing qualities of this family are illustrated in figures 12, 13, and 14, which are Alba's progeny.

did not quite approach the type and standard desired for breeding purposes in this project.

ARIZONA.

Description: Bay mare; foaled 1899; height 15.3½ hands; weight, 1,150 pounds.
Sire: Emigrant. Dam: Hoyden; by Red Bud (Th).

Progeny.

Year.	Color.	Sex.	Name.	Sire.	Disposition.
1906	Bay.....	Colt.....	Albion.....	Carmon.....	Retained.
1907	Missed.....				
1908	Missed.....				
1909	Bay.....	Filly.....	Died a few hours after birth.		
1910	Aborted.....				
1911	Bay.....	Filly.....	Fredonia.....	Carmon.....	Discarded.
1912	Bay.....	Filly.....	Gladys.....	Carmon.....	Discarded.
1913	Bay.....	Filly.....	Hazel.....	Carmon.....	Died 1919.
1914	Missed.....				
1915	Bay.....	Filly.....	Jewess.....	Carmon.....	Died.
1916	Bay.....	Filly.....		Carmon.....	Died 1916.
1917	Missed.....				
1918	Missed.....				
1919	Bay.....	Colt.....	Norton.....	Carmon.....	Retained.

INDIANA.

Description: Brown; age unknown; height, 15.1½ hands; weight, 1,080 pounds. Died August, 1915.

Sire: March Onward. Dam: Attica.

Progeny.

Year.	Color.	Sex.	Name.	Sire.	Disposition.
1906	Bay.....	Filly.....	Alpha.....	Carmon.....	Retained.
1907	Brown.....	Filly.....	Bonita.....	Carmon.....	Retained.
1908	Brown.....	Filly.....	Clara.....	Carmon.....	Discarded.
1909	Brown.....	Colt.....		Carmon.....	Died, 1909.
1910	Bay.....	Colt.....	Euclid.....	Carmon.....	Discarded.
1911	Bay.....	Colt.....	Forward.....	Carmon.....	Discarded.
1912	Missed.....				
1913	Bay.....	Colt.....	Highball.....	Carmon.....	Retained.
1914	Missed.....				
1915	Bay.....	Colt.....	Jasper.....	Carmon.....	Died, 1919.

The mare Alpha, foaled in 1906, is a large, rugged mare weighing 1,275 pounds and measuring 16 hands. She in turn produced the following animals which have been retained in the stud: Bay stallion Jaywood, by Loyal D 50088; bay mare Katinka, by Carnagie.

The mare Bonita, foaled in 1907, is also a large, rugged mare of splendid proportions, weighing 1,200 pounds and standing 15.2½ hands. Bonita is the dam of Glenrose, a beautiful mare 15.3 hands in height and weighing 1,150 pounds, which is in the Wyoming stud at the present time.



FIG. 12.—Bay mare Holly, by General Gates 666 (M) and out of Alba.

MICHIGAN.

Description: Bay; age indefinite; height, 16 hands; weight, 1,105 pounds. Died September 8, 1913.

Sire: Prince L. 5947. Dam: By Temperance 6819.

Progeny.

Year.	Color.	Sex.	Name.	Sire.	Disposition.
1906	Bay.....	Filly.....	Ada.....	Carmon.....	Retained.
1907	Bay.....	Filly.....	Barbara.....	Carmon.....	Discarded.
1908	Bay.....	Colt.....	Confusion.....	Carmon.....	Died, 1909.
1909	Missed.....				
1910	Bay.....	Colt.....	Estes.....	Albion.....	Died, 1910.
1911	Bay.....	Filly.....	Fanny.....	Balfour.....	Discarded.
1912	Missed.....				
1913	Bay.....	Colt.....	Hickman.....	Albion.....	Retained.

Michigan is the dam of Ada, one of the best matrons in the stud at present. Ada is a rather small mare standing but 15.2 hands and weighing 1,100 pounds, but her produce are uniformly large and include the stallions Defender and Killarney, now in the stud. Michigan is also the dam of the stallion Hickman, foaled in 1913.

WYOMING.

Description: Bay; foaled 1896; 15.3 $\frac{3}{4}$ hands; weight 1,180 pounds. Died September 9, 1910.

Sire: Red Bird (Th.). Dam: Lady Shepherd.

Progeny.

Year.	Color.	Sex.	Name.	Sire.	Disposition.
1906	Bay.....	Filly.....	Alba.....	Carmon.....	Retained.
1907	Bay.....	Filly.....	Bamba.....	Carmon.....	Retained.
1908	Bay.....	Filly.....	Cinderella.....	Carmon.....	Discarded.
1909	Missed.....				
1910	Bay.....	Colt.....	Elmer.....	Carmon.....	Discarded.

Wyoming is the dam of the best two matrons produced in this project, namely, Alba and Bamba. Alba approaches the ideal type desired in this work and combines this splendid conformation with matronly qualities, being the dam of the mares Holly, by General Gates, and Innocent, by Loyal D; also of the stallions Jerome, by Loyal D, Linkwood, by Albion, and Marigold, by Wilmering.



FIG. 13.—Bay mare Innocent, by Loyal D 50088 and out of Alba.



FIG. 14.—Bay filly Nancy Lee, by Wilmering 48569 and out of Alba.



FIG. 15.—A group of yearlings at the United States-Wyoming station.

Bamba is a 1,300-pound mare standing 16.1 hands in height and has been a very good producer of large, handsome progeny, such as Harriett, Mabel, and Near Beer, which are now in the stud.

BEATRICE 2079 (S).

Description: Bay; foaled, 1901; height, 15.2 hands; weight, 1,150 pounds.

Sire: Highland Denmark 730 (S). Dam: Lady Adams 2074 (S).

Progeny.

Year.	Color.	Sex.	Name.	Sire.	Disposition.
1907	Bay.....	Filly.....	Belladonna.....	Carmon.....	Died, 1916.
1908	Missed.....				
1909	Bay.....	Filly.....	Daisy Deane.....	Carmon.....	Discarded.
1910	Bay.....	Colt.....	Everette.....	Carmon.....	Discarded.
1911	Missed.....				
1912	Bay.....	Filly.....	Geneva.....	Cedar Red.....	Died, 1914.
1913	Missed.....				
1914	Aborted.....				
1915	Bay.....	Filly.....	Jeanette.....	Carmon.....	Discarded.
1916	Bay.....	Filly.....	Katydid.....	Carmon.....	Retained.
1917	Missed.....				
1918	Bay.....	Colt.....	Major Ball.....	Wilmering.....	Discarded.
1919	Brown.....	Filly.....	Nelson.....	Wilmering.....	Retained.



FIG. 16.—Mares of Carmon breeding, used in farm work.

BREEDING RECORDS OF MARES BRED IN THE EXPERIMENTAL WORK.

The following mares were bred and developed in this project and their breeding records in the stud are appended for the purpose of record and comparison. It will be observed that these mares have



FIG. 17.—A group of brood mares in pasture at the United States-Wyoming horse-breeding station.

been producers of animals that have been retained in the stud, this being especially notable in the case of Alba, whose progeny has been exceptionally uniform and of outstanding merit.

ADA.

Description: Bay; foaled, March 21, 1906; star, snip, both hind ankles white; height, 15.2 hands; weight, 1,100 pounds. This mare was bred in the project at Fort Collins, Colo.

Sire: Carmon. Dam: Michigan (foundation mare).

Progeny.

Year.	Color.	Sex.	Name.	Sire.	Disposition.
1909	Bay.....	Colt.....	Defender.....	Albion.....	Retained.
1910	Missed.....	.....	.....	.....	.....
1911	Missed.....	.....	.....	.....	.....
1912	Bay.....	Filly.....	Grace.....	General Gates.	Died, 1913.
1913	Bay.....	Colt.....	.....	General Gates.	Died, 1914.
1914	Bay.....	Colt.....	Ichabod.....	Loyal D....	Discarded.
1915	Missed.....	.....	.....	.....	.....
1916	Bay.....	Colt.....	Killarney.....	Albion.....	Retained.
1917	Bay.....	Filly.....	Lucille.....	Albion.....	Discarded.
1918	Bay.....	Colt.....	Mikado.....	Albion.....	Discarded.
1919	Missed.....	.....	.....	.....	.....

ALBA.

Description: Bay; foaled, May 28, 1906; star, both hind pasterns white; height, 16 hands; weight, 1,325 pounds. This mare was bred in the project at Fort Collins, Colo.

Sire: Carmon. Dam: Wyoming (foundation mare).

Progeny.

Year.	Color.	Sex.	Name.	Sire.	Disposition.
1913	Bay.....	Filly.....	Holly.....	General Gates.	Retained.
1914	Bay.....	Filly.....	Innocent.....	Loyal D....	Retained.
1915	Bay.....	Colt.....	Jerome.....	Loyal D....	Retained.
1916	Bay.....	Colt.....	Kinsman.....	Albion.....	Discarded.
1917	Bay.....	Colt.....	Linkwood.....	Albion.....	Retained.
1918	Bay.....	Filly.....	Marigold.....	Wilmering..	Retained.
1919	Bay.....	Filly.....	Nancy Lee.....	Wilmering..	Retained.

BAMBA.

Description: Bay; foaled, 1907; star; height, 16.1 hands; weight, 1,300 pounds. This mare was bred in the project at Fort Collins, Colo.

Sire: Carmon. Dam: Wyoming (foundation mare).

Progeny.

Year.	Color.	Sex.	Name.	Sire.	Disposition.
1911	Bay.....	Colt.....	Forrest.....	Cedar Red..	Discarded.
1912	Missed.....				
1913	Bay.....	Filly.....	Harriett.....	Carnegie....	Retained.
1914	Bay.....	Filly.....	Ileen.....	Loyal D....	Discarded.
1915	Bay.....	Filly.....	Julia.....	Wilmering..	Discarded.
1916	Missed.....				
1917	Brown.....	Colt.....	Lee.....	Carnegie....	Discarded.
1918	Bay.....	Filly.....	Mabel.....	Carnegie....	Retained.
1919	Brown.....	Colt.....	Near Beer.....	Wilmering..	Retained.

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