

Animal pathology.

A CORRELATION OF SERUM-AGGLUTINATION REACTION,
FATE OF FETUS, CONDITION OF FETAL
MEMBRANES, AND BREEDING
HISTORY OF THE
BOVINE

THESIS

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Minor - Bacteriology

by

Donald Blaire Meyer

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THESIS

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INTRODUCTION

Early in the year 1926 advantage was taken of the opportunity to carry on extensive studies of the reproductive organs of cows in a Brucella abortus infected dairy herd consisting of approximately 150 animals. Dr. E. R. Carlson carried on the work until June, 1927, after which the author took up the studies and continued them through to June 1, 1929.

The work consisted of a regular monthly serum-agglutination test of the entire herd, recording of each breeding and calving or abortion date and history of the calves, culturing the organs of each fetal cadaver, gross examination of each fetal membrane and charting all that were of special interest, treatment of cases of retained membranes and sterility, and post mortem study of the genital organs of cows slaughtered.

Following are some of the many questions which were in the author's mind and which served as a stimulus and guide in carrying on the work:

What per cent of fetal membranes show indications of a pathological condition, and what conditions shall be considered as indicative of disease? What are the etiological factors involved in each of the various pathological conditions? Does each of these factors, or does any one of them, cause characteristic lesions? What is the significance of these various abnormalities with special reference to the fate of the fetus and subsequent health of the reproductive system of the cow?

Records of only the animals, sixty in number, which were of particular interest are included in this thesis. Of the total of 60, 28 were classed as negative, 12 as suspicious, and 20 as positive to the serum-agglutination test for Bang's disease. The proportion of positive and suspicious animals of the unrecorded group was about the same as given above.

TECHNICAL METHODS

For the diagnosis of Bang's disease the rapid or plate serum-agglutination test was used (The Huddleson method). In cases of questionable reaction or decided change in titer from the previous test the serum was also tested by the slow or tube method.

In order to be certain of securing all fetal membranes, the parturient cow was tied after the calf was delivered, and as soon as the membranes were expelled they were placed in a refrigerator until examined, which was usually done within 24 hours.

To facilitate a complete and systematic examination, the membranes were spread out on the floor and with a pair of scissors opened by cutting either way from the cervical region to the apex of both horns parallel and close to the two umbilical blood vessels. After examination of the amnion, the membranes were then turned with the chorion up so that the placental areas could readily be studied by the aid of a gentle stream of water. If the membranes proved to be of special interest, they were charted. A large framed glass was placed over the membranes which were carefully spread out on the floor, and then tracing paper was laid on the glass covering the membranes from end to end. By this means structures were recorded in their actual, relative position and size. Each structure and pathological condition was designated by a particular color. Photographs were made of these painted charts. The photographs were then painted for use in this thesis.

Material for histological study and guinea pig injection was taken from the membranes following the examination. The tissues were prepared for guinea pig inoculation by thorough washing in sterilized physiological salt solution and then ground with sterile quartz sand by means of mortar and pestle. The material was then washed with sterile salt solution and about one cubic centimeter injected subcutaneously. After six weeks the pigs were killed and an autopsy made; the lungs, liver, spleen, and kidneys were cultured; and the blood tested for Br. abortus agglutinins.

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TABLE III

SUMMARY OF BREEDING RECORD, LENGTH OF GESTATION, AND CONDITION OF FETAL MEMBRANES

Suspicious Group

Cow No.	No. of Serv.	No. of Part.	Length of Gestation in Days			281 or over	Condition of Fetal Membranes Examined
			260 or less	271 to 276	276 to 281		
47	22	7		(1)	(3) twins 5	2, 4, 6, 7	6 - one-half healthy, one half retained. 7 - healthy
128	15	9	(3), (6)	1, 5	2, 8	4, 7	6 & 7 - healthy
159	9	4		2	4	1, 3	1 & *3 - healthy. *2 - extensive necrosis. *4 - necrosis
179	12	4				3	2 & 3 - accessory cotyledons
184	7	4				1, 2, 3, 4	*2 - necrosis. 3 - healthy
209	12	4	(1), (3), (4)			2	3 & 4 - retained
214	9	4			2, (3)	4	1, 3, & 4 - retained. 2 - healthy
217	6	2				2	1 - healthy 2 - slight necrosis
218	9	4			3	1, 2, 4	1 & 2 - healthy
M227	4	4		2	1	3, 4	*2 - extensive necrosis. *3 - necrosis. *4 - naked apex.
M257	3	3			3	1	2 & 3 - healthy
M259		4	(1)			2, 3, 4	3 - healthy. 4 - retained.

BREEDING RECORD

Cow No. 19

Breed **Holstein**

Name

Date Born **Oct. 27, 1916**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		3/18/18		12/20/18	278	M	Died - Hernia
		3/ 7/19					
2		3/27/19		10/24/19	211	F	Aborted
		12/17/19					
3		4/ 1/20		1/ 2/21	277	M	*
4		5/ 1/21		2/ 7/22	283	F	151 ±
5		7/14/22		4/15/23	276	M	
6		10/30/23		7/27/24	271	F	202
7		1/15/25		10/10/25	269	F	10/21/25 Killed Blind & deformed
8		1/25/26		10/17/26	266	M	
		1/12/27					
		2/ 5/27					
		3/31/27					
		4/28/27					
	6/17/27						
9		8/ 5/27		5/ 1/28	269	F	
10		9/ 6/28		6/ 1/29	268	F	
		8/ 7/29					
		9/23/29					
		11/15/29					
		2/21/30					
	3/21/30	4/12/30		Pregnant at slaughter, 6/4/30			

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

* Unless otherwise recorded, the calf was normal.

* This number is the herd number given the animal.

PARTURITION RECORD

Cow No. 19

Parturition No. 9

Date of conception: 8/5/27

Date of calving: 5/1/28

Gest. in days: 269

RECORD OF FETAL MEMBRANES

Hours before passing: 2

Treatment for retention:

Description of membranes:

Date of examination: 5/2/28

Diffuse placentae over the entire membrane.

No apparent indications of necrosis.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

* Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

* Unless otherwise recorded the condition of the calf was normal.

PARTURITION RECORD

Cow No. 19

Parturition No. 10

Date of conception: 9/6/28

Date of calving: 6/1/29

Gest. in days: 268

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination: 6/3/29

One half of non pregnant horn covered with diffuse placental tufts in addition to usual number of placental areas.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 19

Year	1927	1928	1929	-----	-----
Jan.		++++P	+PT--		
Feb.		++++P	++P--		
Mar.		+PT--	+PPT-		
Apr.		++++-	+++PP		
May	+++T-	++P--	+++PT		
June	+++PT	+PT--			
July	+++--	++T--			
Aug.	++PTT	++P--			
Sept.	++PTT	+PT--			
Oct.	++PPT	+P---			
Nov.	++PP-	++P--			
Dec.	+↑+++T	++P--			

Remarks:

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. 47

Breed **Holstein**

Name

Date Born **Oct. 18, 1919**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		1/ 9/21		10/ 1/21	265	M	Aborted dead
2		11/19/21		8/25/22	280	M	94 lbs.
3		3/14/23		12/11/23	272	2 F twins	76 & 77 1/2 lbs. Retained afterbirth Both died.
		1/17/24					
		3/21/24					
		4/10/24					
		5/22/24					
		6/ 4/24					
4		7/25/24		4/30/25	279	M	117 lbs.
		12/ 1/24					
		12/17/24					
5		8/ 6/25		5/ 4/26	271	F	97 lbs.
		6/18/26					
		7/ 8/26					
		7/31/26					
		8/13/26					
		10/ 4/26					
		10/29/26					
6		11/18/26		8/25/27	280	F	88 lbs. Died, 9/1/27, enteritis
		10/ 6/27					
7		10/27/27		8/ 1/28	. 278	M	101 lbs.
		10/26/28					
	1/7/29						

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 47

Parturition No. 6

Date of conception: 11/18/26 Date of calving: 8/25/27 Gest. in days: 280

RECORD OF FETAL MEMBRANES

Hours before passing: 3

Treatment for retention:

Description of membranes:

Date of examination:

Normal

Reference to other records:

RECORD OF CALF

Sex: Female

Weight: 88 lbs.

Condition at birth: Normal

Date and cause of death: 9/1/27, Enteritis

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 47

Parturition No. 7

Date of conception: 10/27/27 Date of calving: 8/1/28 Gest. in days: 278

RECORD OF FETAL MEMBRANES

Hours before passing: 3

Treatment for retention:

Description of membranes:

Date of examination:

Part of non-gravid horn was absent. There were 50 large, uniform, healthy cotyledons arranged in four regular rows. 8/22/28, two small pieces of afterbirth were noticed as being passed.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight: 101 lbs.

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 47

Year	1927	1928	1929	-----	-----
Jan.		PT---	T----		
Feb.		-----			
Mar.		T----			
Apr.		PT---			
May	+T---	-----			
June	+-----	-----			
July	+-----	-----			
Aug.	+-----	T----			
Sept.	+-----	T----			
Oct.	P----	-----			
Nov.	P----	-----			
Dec.	T----	T----			

Remarks:

Jan. 11, 1929, the cow was slaughtered.

Post mortem findings:

Gross examination:

Cervix - 4 inches long.
 Right uterine horn - 22 inches long, 2 1/2 inches wide.
 Left uterine horn - 20 inches long, 1 1/4 inches wide.
 Uterine mucosa appeared normal.
 Upon the vaginal and cervical mucosa were numerous
 hemorrhagic areas indicating recent heat period.

The cultural findings for the right and left horn were negative.

BREEDING RECORD

Cow No. 71

Breed **Jersey**

Name

Date Born **Aug. 30, 1920**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		12/ 6/21		9/16/22	284	M	
2		3/27/23		1/ 4/23	283	M	
3		4/26/24		1/28/25	277	F	Died 3/10/25, pneumonia
4		5/31/25		3/ 8/26	281	M	
		4/12/26					
		5/ 5/26					
5		6/ 4/26		3/10/27	279	M	
6		5/12/27		2/18/28	282	M	
7		4/13/28		1/20/29	282	F	
8		3/18/29		12/27/29	282	F	
9		2/25/30		12/ 1/30	279	M	
		2/17/31					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 71

Parturition No. 6

Date of conception: 5/12/27

Date of calving: 2/18/28

Gest. in days: 282

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Placental areas arranged in four very regular rows.

Pregnant in right horn.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 71

Parturition No. 7

Date of conception: 4/13/28

Date of calving: 1/20/29

Gest. in days: 282

RECORD OF FETAL MEMBRANES

Hours before passing: 2

Treatment for retention:

Description of membranes:

Date of examination:

Healthy.

Placental areas arranged in four very straight rows.

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition: **Parturient paresis.**

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 71

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	P---		
Feb.		PT----	PT---		
Mar.		T----	-----		
Apr.		PT---	-----		
May	T-----	-----	T-----		
June	-----	-----			
July	-----	-----			
Aug.	T-----	-----			
Sept.	-----	-----			
Oct.	-----	PT---			
Nov.	-----	T-----			
Dec.	-----	+T---			

Remarks:

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. 83

Breed **Guernsey**

Name

Date Born **Dec. 28, 1916**

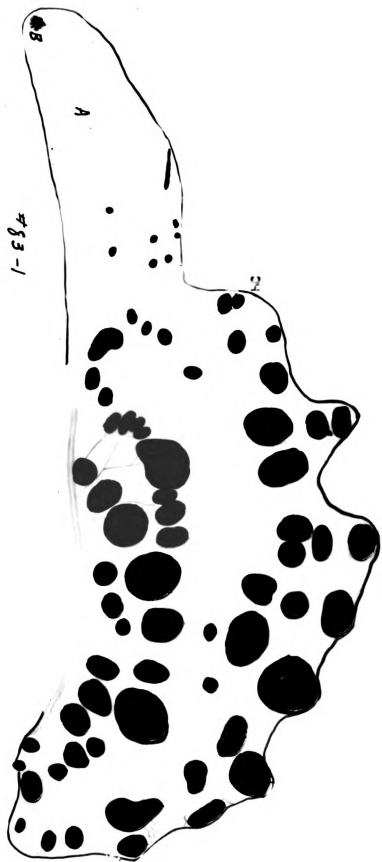
Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		4/22/18		2/ 2/19	287	F	Normal
2		3/19/19		1/21/20	305	F	"
3		5/ 3/20		2/10/21	285	M	"
4		6/26/21		4/ 7/22	280	M	"
5		5/31/22		3/11/23	285	M	"
6		6/11/23 9/ 3/23		6/16/24	287	F	Died 6/29/24
		7/ 2/24					
7		8/13/24		6/ 1/25	293	M	Normal
		6/24/25					
		8/ 5/25					
8		10/21/25		8/13/26	297	M	Normal
9		10/13/26		8/ 1/27	292	F	
		9/11/27					
		12/10/27					
10		2/11/28		11/26/28	288	F	
		1/23/29					
		2/14/29					
		3/ 5/29					
		7/26/29					
		8/20/29					
	9/10/29						

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.



PARTURITION RECORD

Cow No. 83

Parturition No. 8

Date of conception: 10/21/25 Date of calving: 8/13/26 Gest. in days: 297

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 83 - 1

Reduced to 1/10 the size of the membrane.

A. Naked area of non-gravid horn.

B. Necrotic tip.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Note: Chart for photograph and data for this parturition were furnished by Dr. E.R. Carlson



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#83-2

PARTURITION RECORD

Cow No. **83**

Parturition No. **9**

Date of conception: **10/13/26** Date of calving: **8/1/27** Gest. in days: **292**

RECORD OF FETAL MEMBRANES

Hours before passing: **1**

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 83 - 2

Reduced to 1/9 the size of the membrane.

A. Naked chorion of non-gravid horn. Yellow indicates areas in which the villi are short-tufted and of a dull opaque appearance indicating necrosis.

Reference to other records: **Guinea pig inoculation - see remarks.**

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

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PARTURITION RECORD

Cow No. 83

Parturition No. 10

Date of conception: 2/11/28 Date of calving: 11/26/28 Gest. in days: 288

RECORD OF FETAL MEMBRANES

Hours before passing: 5

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 82 - 3

Reduced to 1/8 the size of the membrane.

A. Area of placenta showing typical necrotic tufting of the villi. 1/5 of the villi of nearly all 57 cotyledons present branches which are slightly matted together and of a yellowish opaque appearance.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

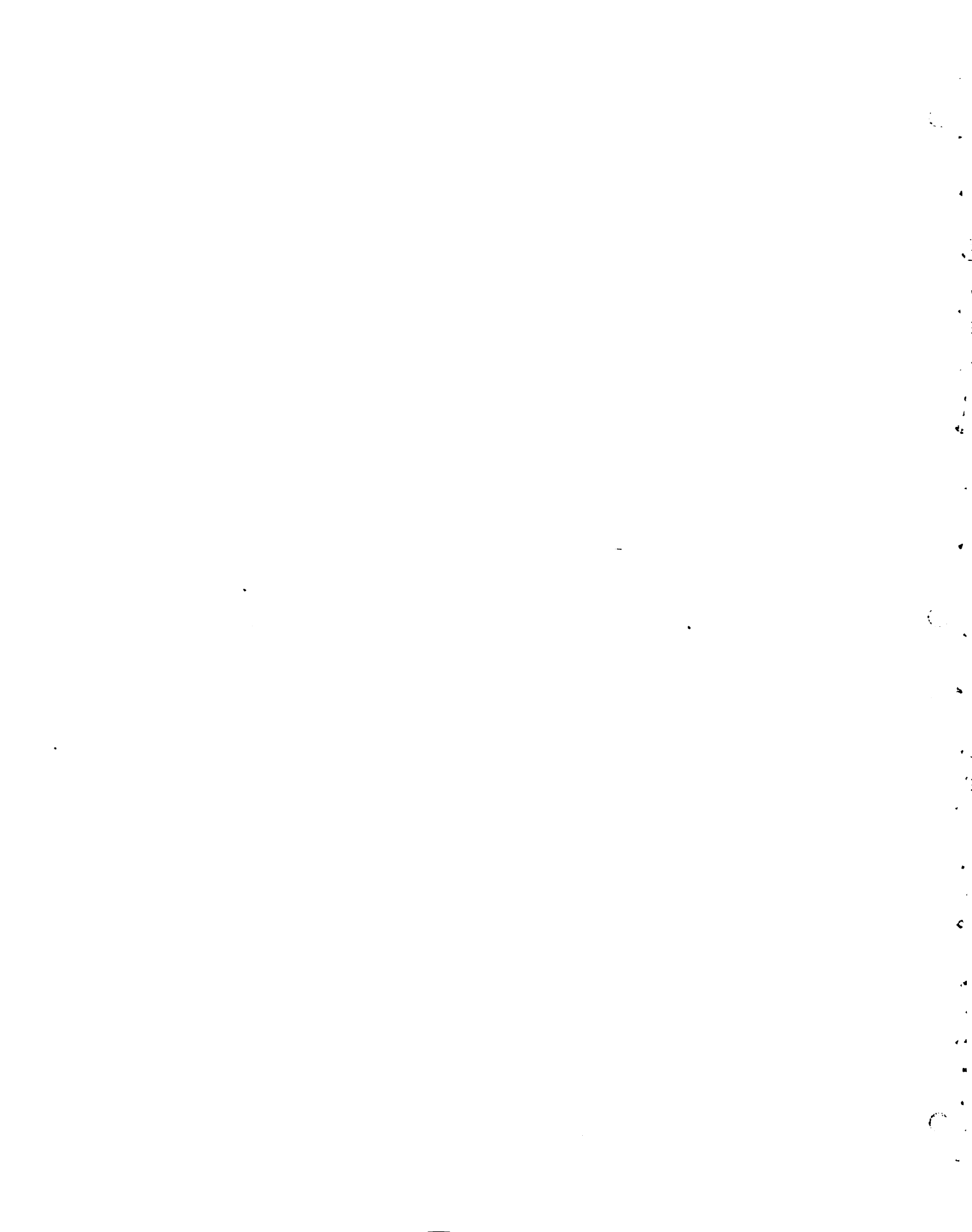
Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:



Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 83

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	T-----		
Feb.		T-----	PT---		
Mar.		T-----	T-----		
Apr.		+PT--	+-----		
May	PT---	T-----	-----		
June	-----	-----			
July	P-----	-----			
Aug.	+T---	PT---			
Sept.	T-----	T-----			
Oct.	-----	-----			
Nov.	-----	T-----			
Dec.	T-----	T-----			

Remarks:

Sept. 18, 1929, the cow was slaughtered.

August 2, 1929, a guinea pig was inoculated with a salt suspension of ground placental tissue which was obtained from a diseased area. Six weeks after injection the pig's serum reacted negative and cultural findings were negative.

Jan. 15, 1929, expressed a corpus luteum from either ovary.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

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BREEDING RECORD

Cow No, 128

Breed **Holstein**

Name

Date Born **March 15, 1920**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		10/ 4/21 12/14/22		6/26/22	266	M	
2		1/ 6/23		10/ 7/23	274	M	
3		1/ 6/26		9/15/24	252	F	Aborted
4		11/18/24		8/22/25	277	M	
5		10/ 1/25 10/18/26 12/ 1/26		6/28/26	270	F	
6		12/24/26 12/17/27		9/26/27	214	F	Aborted
7		1/ 7/28		10/13/28	279	M	
8		12/19/28 10/ 6/29 10/28/29		9/18/29	272	M	95 lbs.
9	5/1/30	11/16/29		9/ 9/30	297?	F	

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 128

Parturition No. 6

Date of conception: 12/24/26

Date of calving: 9/26/27

Gest. in days: 214

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Normal

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Normal, apparently.**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 128

Parturition No. 7

Date of conception: 1/7/28 Date of calving: 10/13/28 Gest. in days: 279

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records: **Guinea pig inoculation - see remarks.**

RECORD OF CALF

Sex: **Male**

Weight:

Condition at birth: **Normal**

Date and cause of death: 10/17/28. **B. coli septicaemia.**

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 128

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		+PP--	+++P-		
Feb.		++PT-	+++T-		
Mar.		+PT--	++P--		
Apr.		++P--	++PT-		
May	++T--	++P--	++PT-		
June	++T--	++PT-			
July	+++T-	++PT-			
Aug.	T-T--	++PT-			
Sept.	++T--	++T--			
Oct.	PP---	++P--			
Nov.	++P--	++PT-			
Dec.	+PT--	++P--			

Remarks:

Sept. 29, 1930, the cow was slaughtered.

Oct. 17, 1928, a guinea pig was injected with whole blood from calf of parturition number 7. Cultures from the liver, spleen, kidney, and lung of the pig on Nov. 28 showed pure growth of escherichia coli.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. 137

Breed **Holstein**

Name

Date Born **Feb. 13, 1921**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition	
1		7/14/22						
		8/23/22						
		9/11/22						
		9/30/22			7/ 3/23	277	M	Normal, sold
		1/11/24						
		2/ 2/24						
		3/19/24						
	5/22/24							
2		9/ 4/24		6/10/25	280	F	Normal, died 1/8/2	
		11/12/24						
		11/18/24						
		10/13/25						
3	11/18/25	8/ 1/25		5/ 5/26	271	F	Normal	
		7/31/26						
4		8/20/26		5/18/27	275	M		
5		8/10/27		5/12/28	275	M		
		6/25/28						
6		7/18/28		4/23/29	279	M		
		7/26/29						
		9/14/29						
		8/17/29						
		10/ 6/29						
		12/31/29						
		3/ 6/30			Pregnant at slaughter, 5/20/30.			

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 137

Parturition No. 3

Date of conception: 8/1/25 Date of calving: 5/5/26 Gest. in days: 271

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 137 - 1

Reduced to 1/10 the size of the membranes.

Numerous small accessory placental areas are present in the non-gravid horn.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Note: The chart for the photograph and data for this parturition were furnished by Dr. E. R. Carlson.

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PARTURITION RECORD

Cow No. 137

Parturition No. 5

Date of conception: 8/10/27 Date of calving: 5/12/28 Gest. in days: 275

RECORD OF FETAL MEMBRANES

Hours before passing: 1

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 137 - 2

Reduced to 1/10 the size of the membranes.

A - A' Areas of interplacental necrosis.

B - B' Areas of placental necrosis.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 137

Parturition No. 6

Date of conception: 7/18/28 Date of calving: 4/23/29 Gest. in days: 279

RECORD OF FETAL MEMBRANES

Hours before passing: Normal

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 137 - 3

Reduced to 1/12 the size of the membranes.

A. Area of placental necrosis.

B. Area of interplacental necrosis.

Reference to other records: Guinea pig inoculation - see remarks.

RECORD OF CALF

Sex: Male

Weight:

Condition at birth:

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 137

Year	1927	1928	1929	-----	-----
Jan.		+++++	-----		
Feb.		+++++	T++++		
Mar.		+++++	TPPPT		
Apr.		++++P	-P+PT		
May	+PPT-	-----	TPT--		
June	+++++	-----			
July	++++-	-----			
Aug.	+++PT	-----			
Sept.	++++T	-----			
Oct.	+++PT	-----			
Nov.	PPT--	-----			
Dec.	+++PT	-----			

Remarks:

* May 20, 1930, the cow was slaughtered. The right uterine horn contained a 75 day fetus. Most of the 45 placental areas which were arranged in 4 regular rows extending well into the apex were attached. There were 41 placental areas in the left horn arranged in 4 regular rows and extending to the apex. All structures appeared normal.

April 25, 1929, 2 guinea pig injections were made of a soft suspension of ground placental tissue obtained from the fetal membranes of the sixth parturition. Both pigs died within 24 hours after injection.

* These data were furnished by Dr. C. F. Clark.

BREEDING RECORD

Cow No. **143**

Breed **Holstein**

Name

Date Born **Aug. 2, 1921**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		3/21/23		12/27/23	281	F	
		7/ 4/24					
2		8/29/24		6/ 8/25	283	M	
		9/ 8/25					
3		10/ 7/25		7/11/26	277	F	Died 10/9/26
		9/30/26					
		1/29/27					
		4/ 1/27					
4		4/27/27		1/30/28	278	M	
	2/18/28	3/12/28					
		4/ 7/28					
		7/16/28					
5		9/12/28		6/15/29	276	M	
	2/ 9/28						
		9/27/29					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.



PARTURITION RECORD

Cow No. 143

Parturition No. 3

Date of conception: 10/7/25 Date of calving: 7/11/26 Gest. in days: 277

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 143 - 1

Reduced to 1/13 the size of the membrane.

Note the irregularity in placental arrangement.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Note: The chart for this photograph and the data for parturition No. 3 were furnished by Dr. E. R. Carlson.

#143-2



PARTURITION RECORD

Cow No. **143**

Parturition No. **4**

Date of conception: **4/27/27** Date of calving: **1/30/28** Gest. in days: **278**

RECORD OF FETAL MEMBRANES

Hours before passing: **12**

Treatment for retention:

Description of membranes:

Date of examination:

Pregnant in left horn.

See Photograph # 143 - 2

Reduced to 1/15 the size of the membrane.

Note very numerous accessory placental areas.

Reference to other records:

RECORD OF CALF

Sex: **Male**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 143

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	-----		
Feb.		T-----	-----		
Mar.		-----	T-----		
Apr.		T-----	-----		
May	-----	-----	-----		
June	-----	-----			
July	PT---	-----			
Aug.	+T---	-----			
Sept.	-----	-----			
Oct.	P-----	-----			
Nov.	-----	-----			
Dec.	-----	-----			

Remarks:

Dec. 4, 1929, the cow was slaughtered.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. 150

Breed

Name

Date Born **Feb. 2, 1922**

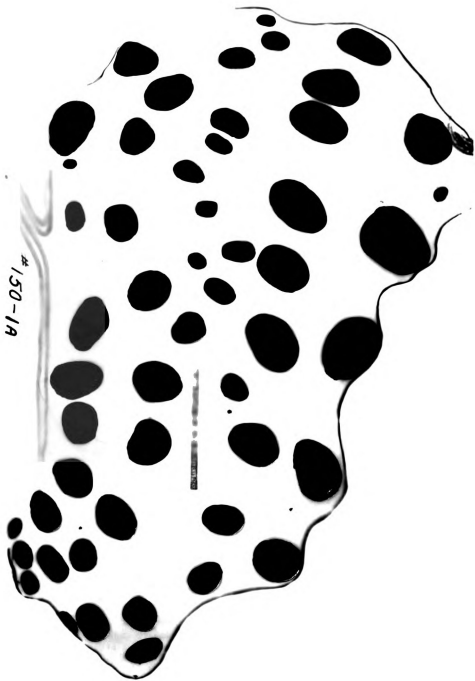
Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		8/20/23		3/28/24	220	M	
2		6/22/24		3/24/25	275	M	
3		6/27/25		3/28/26	274	M	
4		5/ 8/26		2/ 8/27	275	F	
5		5/ 6/27		2/ 6/28	276	F	
6		3/23/28					
		5/ 4/28		2/ 6/29	275	M	
		4/30/29					
		5/24/29					
		7/ 1/29					
		7/21/29					
		8/13/29					
		10/ 2/29					
		2/24/30					
		3/20/30					
		4/ 8/30					
		5/ 9/30		Pregnant at time of slaughter, 9/9/30.			

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.



150-1A

#150-1B



150#
B

PARTURITION RECORD

Cow No. 150

Parturition No. 3

Date of conception: 6/27/25 Date of calving: 3/28/26 Gest. in days: 275

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 150 - 1A & B

Reduced to 1/9 the size of the membrane.

Note numerous accessory placental areas and
naked apex in non-gravid horn.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Note: The charts for the photographs 150 - 1A & B and the data for this parturition were furnished by Dr. E. R. Carlson.



H. 150-2



#150-3

PARTURITION RECORD

Cow No. 150

Parturition No. 5

Date of conception: 5/6/27 Date of calving: 2/6/28 Gest. in days: 276

RECORD OF FETAL MEMBRANES

Hours before passing: 3

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 150 - 3

Note that there is an absence of visible indications of disease and naked areas. However, the cotyledons are not arranged in regular rows as usual.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth:

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 150

Parturition No. 6

Date of conception: 5/4/28

Date of calving: 2/6/29

Gest. in days: 275

RECORD OF FETAL MEMBRANES

Hours before passing: 5

Treatment for retention:

Description of membranes:

Date of examination:

Not charted.

**83 healthy placental areas in both horns arranged in four
fairly regular rows.**

Reference to other records:

RECORD OF CALF

Sex: **Male**

Weight:

Condition at birth:

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 150

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		++++P	++++P		
Feb.		++PT-	++P--		
Mar.		++PT	++PT-		
Apr.		+++T-	+++--		
May	+PT--	++P--	++T--		
June	+PT--	+++P-			
July	+PPT-	+++T-			
Aug.	+P---	+++PT			
Sept.	+PT--	+++++			
Oct.	+++PP	+++PT			
Nov.	++P++	+++++			
Dec.	+++PP	+++++			

Remarks:

BREEDING RECORD

Cow No. 151

Breed **Holstein**

Name

Date Born **Feb. 6, 1922**

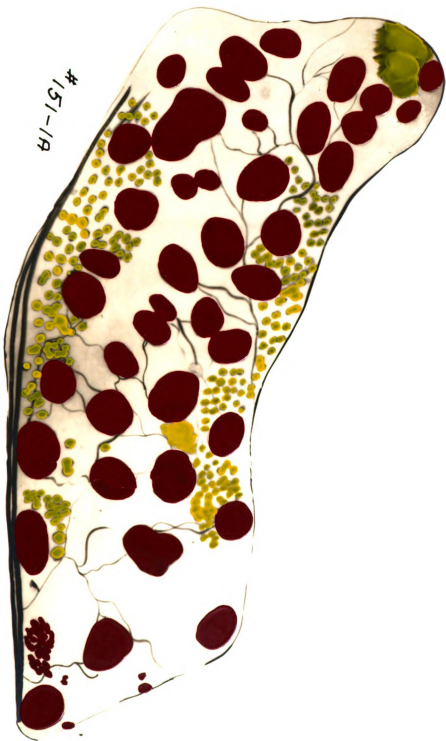
Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		8/30/23		5/22/24	266	M	Dead at del.
2		7/26/24		4/10/25	259	M	" " "
		6/26/25					
3		8/12/25		4/24/26	256	M	Developed normally
		7/ 3/26					
		6/26/26					
		9/16/26					
4		11/ 8/26		6/ 7/27	211		Dead at del.
5		8/ 3/27		6/ 4/28	273	F	
6		7/12/28		4/16/29	279	M	
		5/27/29					
		7/ 2/29					
7		8/ 2/29		6/ 1/30	271	M	
		8/ 5/30					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.





PARTURITION RECORD

Cow No. 151

Parturition No. 3

Date of conception: 8/12/25 Date of calving: 4/24/26 Gest. in days: 256

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 151 - 1A Non gravid horn.

Reduced to 1/5 the size of the membranes.

Note the necrosis of the numerous accessory placental areas as indicated by the yellow.

See Photograph # 151 - 1B Gravid horn.

Reduced to 1/6 the size of the membranes.

Note that in the gravid horn necrosis is very extensive in the interplacental tissue as indicated by the white. The yellow indicates necrosis of the placental areas.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Note: The chart for photographs # 151 - 1A & B and the data for this parturition were furnished by Dr. E. R. Carlson.

PARTURITION RECORD

Cow No. 151

Parturition No. 4

Date of conception: 11/8/26

Date of calving: 6/7/27

Gest. in days: 211

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

No examination of membranes.

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth: Dead at delivery.

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 151

Parturition No. 5

Date of conception: 8/3/27

Date of calving: 6/4/28

Gest. in days: 273

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

In the interplacental tissue of the non-gravid horn there was a group of thick, leathery, necrotic areas about 6 in number and about the size of a 50 ¢ piece. There were numerous accessory cotyledons. Otherwise there was no indication of disease.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:



#151-2

PARTURITION RECORD

Cow No. 151

Parturition No. 6

Date of conception: 7/12/28

Date of calving: 4/16/29

Gest. in days: 279

RECORD OF FETAL MEMBRANES

Hours before passing: 3 or 4

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Large healthy appearing cotyledons

See Photograph # 151 - 2

Reduced to 1/7 the size of the membranes.

Note the absence of all indication of disease.

Reference to other records:

RECORD OF CALF

Sex: **Male**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 151

Year	1927	1928	1929	-----	-----
Jan.		+++++	+++++		
Feb.		+++++	+++++		
Mar.		+++++	+++++		
Apr.		+++++	+++++		
May	+++++	++++P	+++++		
June	+++++	-----			
July	+++++	+++++			
Aug.	+++++	+++++			
Sept.	+++++	+++++			
Oct.	+++++	+++++			
Nov.	+++++	+++++			
Dec.	+++++	+++++			

Remarks:

Sept. 9, 1930, the cow was slaughtered.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. **153**

Breed **Holstein**

Name

Date Born **May 5, 1922**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		9/12/23		6/13/24	275	M	
2		8/19/24		5/18/25	273	F	
3		8/20/25		5/21/26	274	M	Vealed
		7/ 3/26					
		7/24/26					
		8/28/26					
		9/21/26					
4		10/11/26		7/14/27	276	F	
5		9/ 2/27		6/ 5/28	276	F	
6		8/13/28		5/17/29	277	F	
		9/23/29					
		10/22/29					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 153

Parturition No. 5

Date of conception: 9/2/27

Date of calving: 6/5/28

Gest. in days: 276

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Many accessory cotyledons in gravid horn.

**In the non-gravid horn there were four complete rows of
almost entirely diffuse placental areas.**

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 153

Parturition No. 6

Date of conception: 8/13/28 Date of calving: 5/17/29 Gest. in days: 277

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

The placental areas of non-gravid horn were somewhat diffuse, while there was no indication of diffusion in the gravid horn.

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 153

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	PT---		
Feb.		PT---	T----		
Mar.		P----	T----		
Apr.		-----	-----		
May	-----	T----	T----		
June	-----	-----			
July	-----	-----			
Aug.	-----	-----			
Sept.	-----	-----			
Oct.	-----	-----			
Nov.	-----	P----			
Dec.	-----	+P---			

Remarks:

Nor. 12, 1929, the cow was slaughtered.

Gross post mortem findings:

* The placental areas of the anterior one half of each uterine horn appear normal as to size, number, and arrangement. From the middle of each horn to the posterior extremities the number and size of the placental areas decrease so that they are nearly absent in the posterior one fourth.

* These data were furnished by Dr. C. F. Clark.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

Table with approximately 10 columns and 15 rows of data, including a header row and several rows of numerical or categorical entries.

Textual content at the bottom of the page, possibly a list of items or a summary, containing several lines of text and some bullet points.

BREEDING RECORD

Cow No. 155

Breed **Holstein**

Name

Date Born **July 10, 1922**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		8/27/23		5/26/24	273	F	
2		7/19/24		4/20/25	275	F	
3		7/ 7/25		4/ 8/26	275	F	
4		6/25/26		4/ 1/27	280	M	Died of pneumonia 7/5/27
5		5/ 7/27		2/12/28	281	M	
		3/25/27					
6		7/20/28		4/24/29	278	F	
7		6/23/29		4/ 2/30	283	F	

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. **155**

Parturition No. **5**

Date of conception: **5/7/27**

Date of calving: **2/12/28**

Gest. in days: **281**

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: **Male**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 155

Parturition No. 6

Date of conception: 7/20/28 Date of calving: 4/24/29 Gest. in days: 278

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

The placental tissue of the non-gravid horn was diffuse so as to form nearly complete rows of placental tissue. The areas of the gravid horn were diffuse but not so continuous as in the non-gravid horn.

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 155

Year	1927	1928	1929	-----	-----
Jan.		PT---	-----		
Feb.		-----	-----		
Mar.		-----	T-----		
Apr.		-----	-----		
May	-----	-----	T-----		
June	-----	-----			
July	T-----	-----			
Aug.	-----	-----			
Sept.	-----	-----			
Oct.	T-----	-----			
Nov.	-----	-----			
Dec.	-----	-----			

Remarks:

BREEDING RECORD

Cow No. 159

Breed **Holstein**

Name

Date Born **Sept. 21, 1922**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
		4/15/24					
		6/22/24					
		11/10/24					
1		12/ 5/24		9/ 7/25	279	F	
		12/ 7/25					
2		2/18/26		11/14/26	269	F	
3		3/18/27		12/21/27	279	F	
		2/ 4/28					
4		3/28/28		12/25/28	272	M & F	

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 159

Parturition No. 1

Date of conception: 12/5/24

Date of calving: 9/7/25

Gest. in days: 279

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Afterbirth normal.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Normal

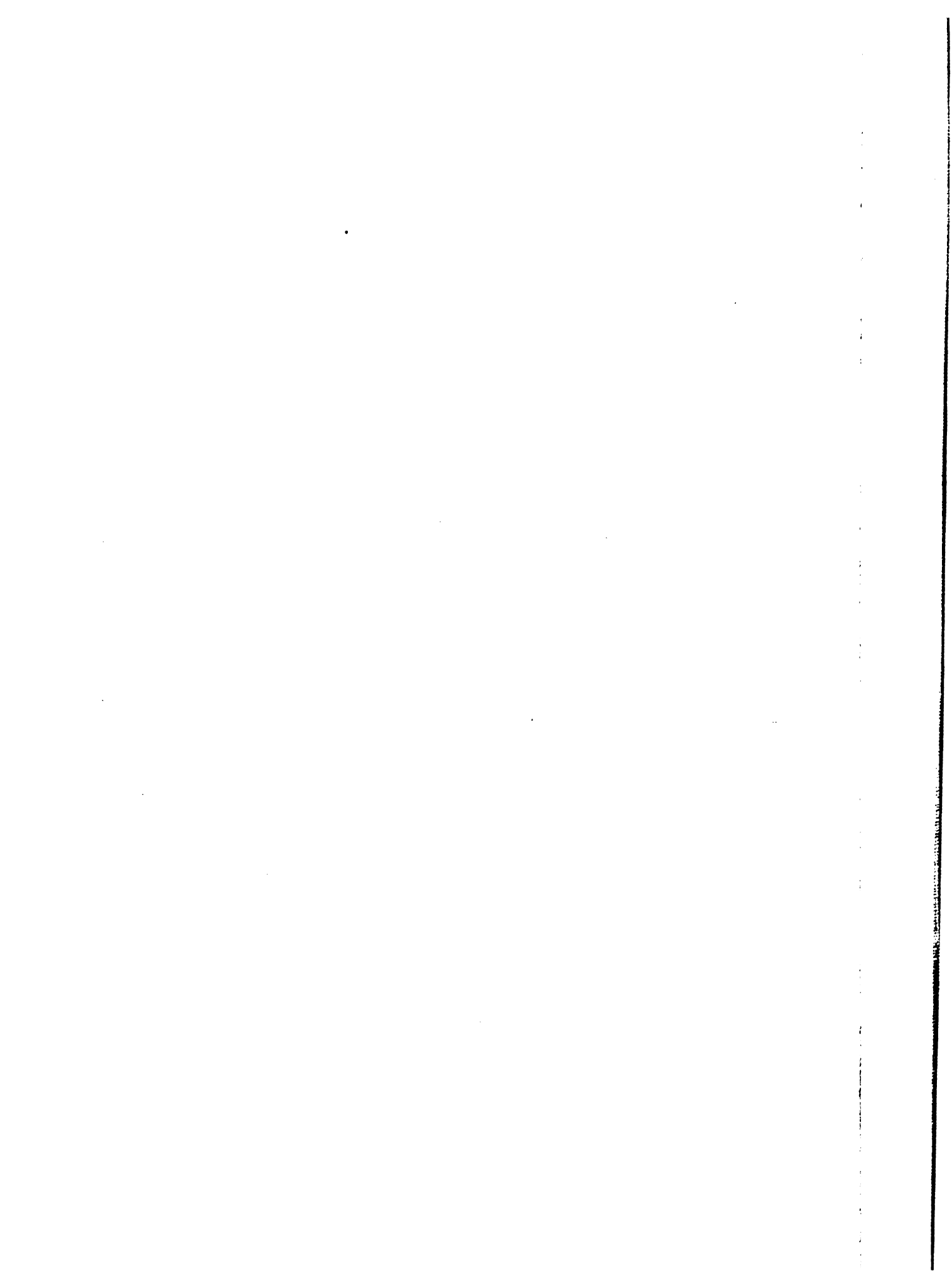
Date and cause of death:

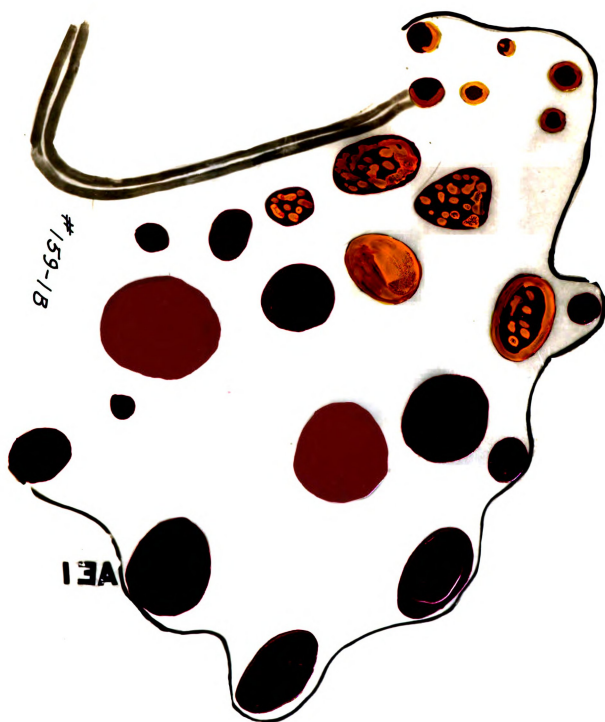
RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:







#/59-18

LEA

PARTURITION RECORD

Cow No. 159

Parturition No. 2

Date of conception: 2/18/26 Date of calving: 11/15/26 Gest. in days: 270

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 159 - 1A Non-gravid horn.

See Photograph # 159 - 1B Gravid horn.

Reduced to 1/6 the size of the membrane.

Note the extensive necrosis of the placental tissue
of both cornua as indicated by the yellow.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Note: The chart for the photographs # 159 - 1A & B and the data for this parturition were furnished by Dr. E. R. Carlson.

PARTURITION RECORD

Cow No. 159

Parturition No. 3

Date of conception: 3/18/27 Date of calving: 12/21/27 Gest. in days: 279

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Pregnant in right horn.

See Photograph # 159 - 2

Reduced to 1/10 the size of the membranes.

No indications of disease.

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Normal**

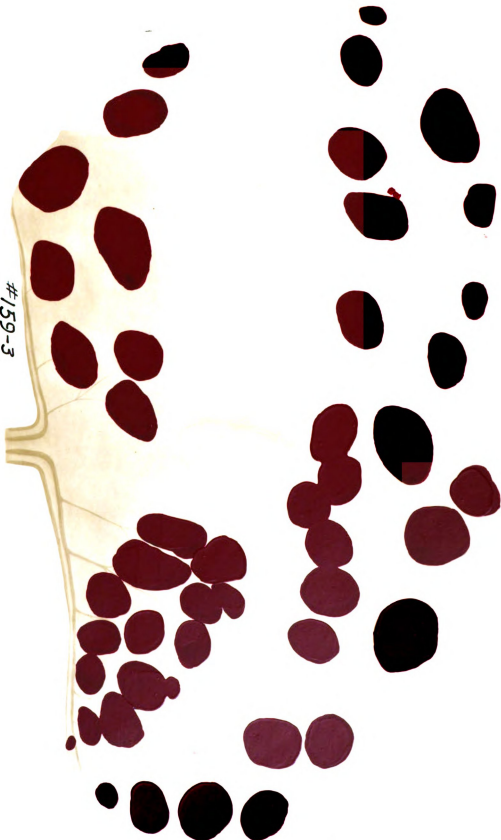
Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

#159-3



PARTURITION RECORD

Cow No. 159

Parturition No. 4

Date of conception: 3/28/28

Date of calving: 12/25/28

Gest. in days: 272

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

12/27/28, oil and iodoform injected into right horn.

12/29/28, all of the membranes cleaned away in nice shape.

Description of membranes:

Date of examination:

Two separate fetal membranes. The membranes of the left horn were passed immediately. The right horn was retained.

See Photograph # 159 - 3

Reduced to 1/7 the size of the membranes.

Note the large area of necrosis of the interplacental tissue as indicated by white.

Reference to other records:

RECORD OF CALF

Sex: Male and female

Weight: 90 & 80 lbs.

Condition at birth: Normal

Date and cause of death: 1/4/29 Male died. Septicemia resulting from generalized peritonitis.

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

The cow died Jan. 1, 1929. Death was due to septicemia following udder infection.

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 159

Year	1927	1928	-----	-----	-----
Jan.		+++PT			
Feb.		++PT-			
Mar.		+++P-			
Apr.		+++T-			
May	++PT-	++P--			
June	+++P-	+PT--			
July	++PT-	PPT--			
Aug.	+++--	++P--			
Sept.	++T--	++T--			
Oct.	+++--	++P--			
Nov.	++P--	++PT-			
Dec.	+PT--	++T--			

Remarks:

Jan. 1, 1929 - Cow died due to septicemia following udder infection.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. 162

Breed **Ayrshire**

Name

Date Born **June 10, 1920**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		4/19/22 7/20/23 8/ 6/23 8/23/23 9/ 8/23 1/26/23 10/31/23 12/ 7/23 12/27/23		1/27/23	282	M	
2		3/15/24		12/26/24	279	M	Died 12/28/24
3		4/ 4/25		1/13/26	285	F	
4		4/ 5/26		1/11/27	282	F	
5		4/ 2/27		1/13/28	287	F	
6		3/ 5/28		12/ 4/28	274	F	Killed by lightening
7		1/25/29 1/ 8/30		11/ 3/29	282	F	
8		2/15/30		11/22/30	280	F	Died.

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. **162**

Parturition No. **5**

Date of conception: **4/2/27** Date of calving: **1/13/28** Gest. in days: **287**

RECORD OF FETAL MEMBRANES

Hours before passing: **1**

Treatment for retention:

Description of membranes:

Date of examination:

Healthy.

There were no accessory cotyledons.

Reference to other records: **Guinea pig inoculation - see remarks.**

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. **162**

Parturition No. **6**

Date of conception: **3/5/28**

Date of calving: **12/4/28**

Gest. in days: **274**

RECORD OF FETAL MEMBRANES

Hours before passing: **3**

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

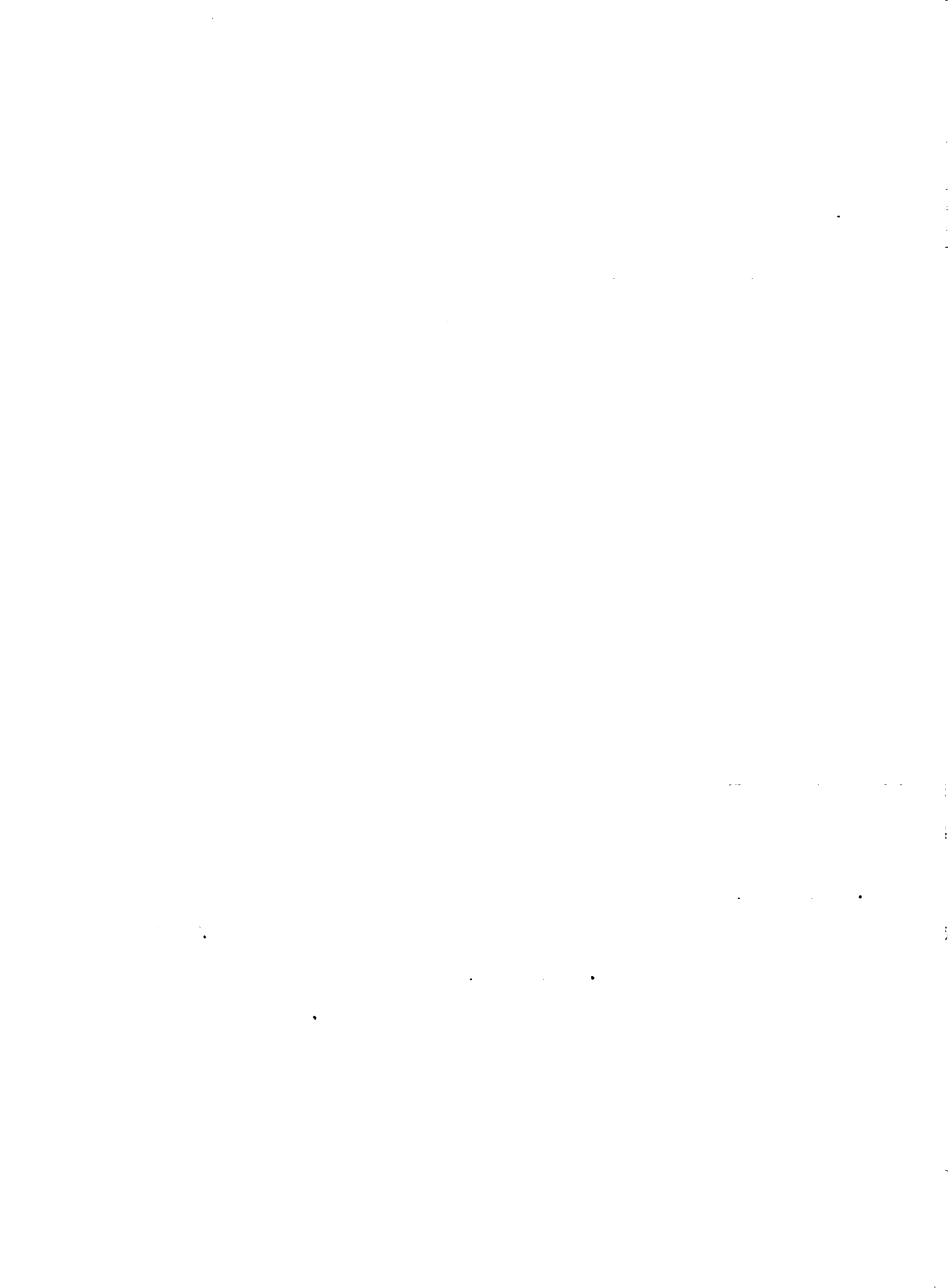
Cow No. 162

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		+++++	+++++		
Feb.		+++++	+++++		
Mar.		+++++	++++T		
Apr.		+++++	+++++		
May	+++PT	+++PT	+++++		
June	+++++	++++P			
July	++++P	++++P			
Aug.	+++++	+++++			
Sept.	+++++	+++++			
Oct.	++++P	+++++			
Nov.	+++++	++++P			
Dec.	+++++	+++PT			

Remarks:

Jan. 13, 1928, a guinea pig was injected with salt suspension of ground placental tissue obtained from a diseased area. The pig was killed on Feb. 24, 1928, and gave negative serum agglutination reaction and cultural findings.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.



BREEDING RECORD

Cow No. 168

Breed **Holstein**

Name

Date Born **Jan. 9, 1923**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
		8/28/24					
1		11/ 3/24		8/ 4/25	274	F	103 lbs.
2		10/12/25		8/16/26	271	M	
		11/ 9/25					
		10/11/26					
		11/30/26					
		12/15/26					
		1/ 6/27					
		1/28/27					
		2/ 5/27					
		2/17/27					
		3/14/27					
3		4/ 5/27		1/12/28	282	M	
4		2/21/28		11/29/28	272	M	Died 48 hours after birth.
		3/ 6/29					
5		4/ 6/29		1/16/30	285	M	Retained fetal membranes.

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. **168**

Parturition No. **3**

Date of conception: **4/5/27**

Date of calving: **1/12/28**

Gest. in days: **282**

RECORD OF FETAL MEMBRANES

Hours before passing: **8**

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. **168**

Parturition No. **4**

Date of conception: **2/21/28**

Date of calving: **11/29/28**

Gest. in days: **272**

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Normal.

Four regular rows of cotyledons.

Reference to other records:

RECORD OF CALF

Sex: **Male**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 168

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		+++++	+++++		
Feb.		+++++	+++++		
Mar.		+++++	+++++		
Apr.		+++++	+++++		
May	+++++	+++++	+++++		
June	+++++	+++++			
July	+++++	+++++			
Aug.	+++++	+++++			
Sept.	+++++	+++++			
Oct.	+++++	+++++			
Nov.	+++++	+++++			
Dec.	+++++	++++P			

Remarks:

April 8, 1930, the cow was sold.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. 171

Breed **Holstein**

Name

Date Born **Feb. 7, 1923**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		7/7/24		4/15/25	283	M	
		7/20/25					
2		8/16/25		4/15/26	243		Dead at del. Fetal pneumonia.
		5/31/26					
		6/24/26					
3		8/15/26		5/ 6/27	264	F	
4		8/25/27		6/ 2/28	281	M	
5		8/10/28		5/ 5/29	268	M & F	
		7/16/29					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.



PARTURITION RECORD

Cow No. 171

Parturition No. 2

Date of conception: 8/16/25 Date of calving: 4/15/26 Gest. in days: 243

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Right (gravid) horn passed in 10 hours.

Left (non-gravid) horn retained and treated with oil
& iodoform

See Photograph # 171 - 1

Reduced to 1/6 the size of the membranes.

Yellow indicates necrosis of the placenta.

White indicates necrosis of the chorion.laeve.

The small, dark, unpainted specks are petechial
lesions on the chorion.laeve.

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth:

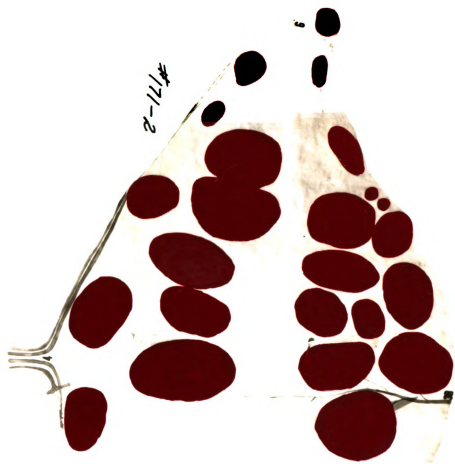
Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Note: The chart for the photograph and data for this parturition were furnished by Dr. E. R. Carlson.



#171-2

2

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PARTURITION RECORD

Cow No. 171

Parturition No. 3

Date of conception: 8/15/26

Date of calving: 5/6/27

Gest. in days: 264

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 171 - 2

Reduced to 1/8 the size of the membranes.

Note that one half of the chorion is void of placental tissue leaving a total of 24 areas in the gravid horn.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth:

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:



#171-3

PARTURITION RECORD

Cow No. 171

Parturition No. 4

Date of conception: 8/25/27 Date of calving: 6/2/28 Gest. in days: 281

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 171 - 3

Reduced to 1/10 the size of the membranes.

Note that except for two placental areas there are no indications of disease.

Reference to other records:

RECORD OF CALF

Sex: **Male**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:



PARTURITION RECORD

Cow No. 171

Parturition No. 5

Date of conception: 8/10/28

Date of calving: 5/5/29

Gest. in days: 268

RECORD OF FETAL MEMBRANES

Hours before passing: 3

Treatment for retention:

Description of membranes:

Date of examination:

Pregnant in left horn.

See Photograph # 171 - 4

Reduced to 1/10 the size of the membranes.

Note that except for one placental area there are no indications of disease.

Reference to other records:

RECORD OF CALF

Sex: Male and Female

Weight: 61 and 54 lbs.

Condition at birth: Small

Date and cause of death: Female autopsied. Reproductive organs undeveloped.

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 171

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		+++PT	+++P-		
Feb.		++++P	++PT-		
Mar.		+++P-	++---		
Apr.		++PT-	++P--		
May	+++T-	-----	+T---		
June	++PPT	T-----			
July	++PPT	-----			
Aug.	++++T	+PT--			
Sept.	++PT-	PT---			
Oct.	+++PT	-----			
Nov.	+++PT	+PT--			
Dec.	++PPT	++P--			

Remarks:

Oct. 2, 1929, the cow was slaughtered.

A guinea pig injection was made of a salt suspension of ground placental tissue obtained from diseased area of membranes of the fourth parturition. The pig died within 24 hours after injection.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. 173

Breed **Holstein**

Name

Date Born **April 8, 1923**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
		12/ 3/24					
1		1/ 7/25		9/22/25	259	F	Dead at del.
2		11/ 5/25		8/ 6/26	275	M	Vealed 10/7/26
3		9/ 1/26		5/25/27	266	F	Dead at del.
		9/12/27					
4		10/ 1/27		6/27/28	269	F	
		9/17/28					
		10/ 9/28					
5		12/17/28		9/20/29	277	F	Retained fetal membranes.
6		12/ 2/29		9/ 2/30	274	M	Retained fetal membranes.
		2/ 7/30					
		2/11/30					
		3/11/30					
		3/21/30					
	6/12/30						

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.



PARTURITION RECORD

Cow No. 173

Parturition No. 2

Date of conception: 11/5/25 Date of calving: 8/6/26 Gest. in days: 275

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 173 - 1

Reduced to 1/10 the size of the membranes.

Note that the anterior 1/3 of the non-gravid horn was entirely void of placental tissue.

Reference to other records:

RECORD OF CALF

Sex: **Male**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Note: The chart for the photograph and the date for this parturition were furnished by Dr. E. R. Carlson.

PARTURITION RECORD

Cow No. 173

Parturition No. 4

Date of conception: 10/1/27

Date of calving: 6/27/28

Gest. in days: 269

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Normal.

Normal arrangement of placental areas.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth:

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 173

Year	1927	1928	1929	-----	-----
Jan.		-----	-----		
Feb.		-----	-----		
Mar.		-----	-----		
Apr.		-----	-----		
May	-----	-----	-----		
June	-----	-----			
July	-----	-----			
Aug.	-----	-----			
Sept.	-----	-----			
Oct.	-----	-----			
Nov.	-----	-----			
Dec.	-----	-----			

Remarks:

Sept., 1930, the cow was sold.

It is quite interesting to study the history of the reproduction of this animal. The length of her gestation periods are below the average; two of her six calves were dead at rather premature delivery; the fetal membranes were retained following the last two parturitions; her breeding efficiency has been below average. In spite of the fact that many would attribute such history to Br. abortus infection, this cow has never shown the slightest reaction to the test for that disease.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

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BREEDING RECORD

Cow No. **174**

Breed **Holstein**

Name

Date Born **May 28, 1923**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		3/10/25		12/ 8/25	274	F	
		3/14/26					
2		5/18/26		2/21/27	279	F	
3		6/ 7/27		3/ 9/28	275	M	Dead at del.
4		5/11/28		2/17/29	282		
		8/11/28					
		8/ 7/29		Found pregnant at slaughter 1/8/30.			

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 174

Parturition No. 3

Date of conception: 8/7/27

Date of calving: 3/9/28

Gest. in days: 275

RECORD OF FETAL MEMBRANES

Hours before passing: 4

Treatment for retention:

Description of membranes:

Date of examination:

Only the gravid horn was obtained. 52 cotyledons varying in size from 1 1/4 to 6 inches in diameter and arranged in 4 very regular rows. A few villi of 6 cotyledons in the apex of the gravid horn and of 2 cotyledons in the ventro-cervical region showed a bleached appearance which was in contrast to the rest of the placental areas which were of a decided blood-red color. These villi were neither matted or tufted as indicative of necrosis.

Reference to other records: Guinea pig inoculation - see remarks.

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Dead

Date and cause of death: Posterior presentation. Very large fetus.

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 174

Parturition No. 4

Date of conception: 5/11/28 Date of calving: 2/17/29 Gest. in days: 292

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Pregnant in right horn.

Gravid horn appeared normal.

About one-half of the chorion of the non-gravid horn was covered with diffuse placental tissue.

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth:

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 174

Year	1927	1928	1929	-----	-----
Jan.		+PT	+++++		
Feb.		PT---	+++++		
Mar.		PT---	+++++		
Apr.		T-----	+++++		
May	T-----	++P--	+++++		
June	-----	++P--			
July	+P----	+++++			
Aug.	T-----	+++++			
Sept.	T-----	+++++			
Oct.	T-----	+++++			
Nov.	T-----	+++++			
Dec.	T-----	++++P			

Remarks:

A guinea pig injection was made of a salt suspension of ground placental tissue obtained from fetal membrane of the third parturition.

April 23, 1928, the blood reaction and cultural findings were negative.

* Upon slaughter it was found that the right uterine horn (post pregnant horn) carried a fetus of 150 days gestation. Some of the placental areas near the anterior extremity of the right horn were diseased.

* These data were furnished by Dr. C. F. Clark.

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BREEDING RECORD

Cow No. **179**

Breed **Brown Swiss**

Name

Date Born **Sept. 28, 1922**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
		12/ 6/24					
1		8/ 6/25		5/24/26	291	F	
2		12/22/26		10/ 2/27	284	F	
		11/18/27					
		2/20/28					
3		3/ 6/28		12/10/28	280	M	
4		4/ 3/29		1/20/30	292	F	Retained fetal membranes
		9/24/29					
		3/24/30					
		4/21/30					
		6/29/30					
		7/21/30					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 179

Parturition No. 2

Date of conception: 12/22/26 Date of calving: 10/2/27 Gest. in days: 284

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

The interplacental area of the gravid horn was most
completely covered with accessory cotyledons.
Non-gravid horn missing.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Normal

Date and cause of death: 1/6/28, pneumonia.

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 179

Parturition No. 3

Date of conception: 2/20/28

Date of calving: 12/11/28

Gest. in days: 294

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

The entire gravid and much of the non-gravid horn were most completely covered with accessory cotyledons.

Pregnant in right horn.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 179

Year	1927	1928	1929	-----	-----
Jan.		++PT-	T----		
Feb.		++PT-	T----		
Mar.		+++T-	PT---		
Apr.		++P--	+T---		
May	++++T	++PT-	-----		
June	+++PT	+P---			
July	+----	++P--			
Aug.	+++P-	++P--			
Sept.	+++--	++T--			
Oct.	+PT--	+PT--			
Nov.	+++--	+P---			
Dec.	++P--	+P---			

Remarks:

Sept. 9, 1930, the cow was slaughtered.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.



BREEDING RECORD

Cow No. 180

Breed **Guernsey**

Name

Date Born **Sept. 23, 1923**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
		4/10/25					
		4/30/25					
		6/ 3/25					
1		9/25/25		7/14/26	290	M	
2		9/28/26		7/21/27	294	M	
		9/26/27					
3		10/19/27		7/29/28	283	M	
4		10/ 9/28		7/24/29	288	F	
		9/28/29					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 180

Parturition No. 2

Date of conception: 9/23/26 Date of calving: 7/21/27 Gest. in days: 294

RECORD OF FETAL MEMBRANES

Hours before passing: 10

Treatment for retention:

Description of membranes:

Date of examination:

Distributed throughout the interplacental area of the entire membrane were found diffuse yellow mottled areas. Also there were found in the cervical portion of the non-gravid horn three cotyledons showing much necrosis of the tips of the villi.

Reference to other records: Guinea pig inoculation - see remarks.

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 180

Parturition No. 3

Date of conception: 10/19/27 Date of calving: 7/29/28 Gest. in days: 283

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: **Male**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 180

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	-----		
Feb.		-----	-----		
Mar.		-----	-----		
Apr.		-----	-----		
May	T-----	-----	-----		
June	-----	-----			
July	P-----	-----			
Aug.	T-----	-----			
Sept.	-----	-----			
Oct.	-----	-----			
Nov.	T-----	-----			
Dec.	T-----	-----			

Remarks:

Nov., 1929, the cow was sold.

A guinea pig injection was made of a salt suspension of ground placental tissue from the fetal membranes of the second parturition. Cultural findings of the pig were negative.

BREEDING RECORD

Cow No. 184

Breed **Guernsey**

Name

Date Born **Dec. 18, 1923**

Reg. No.

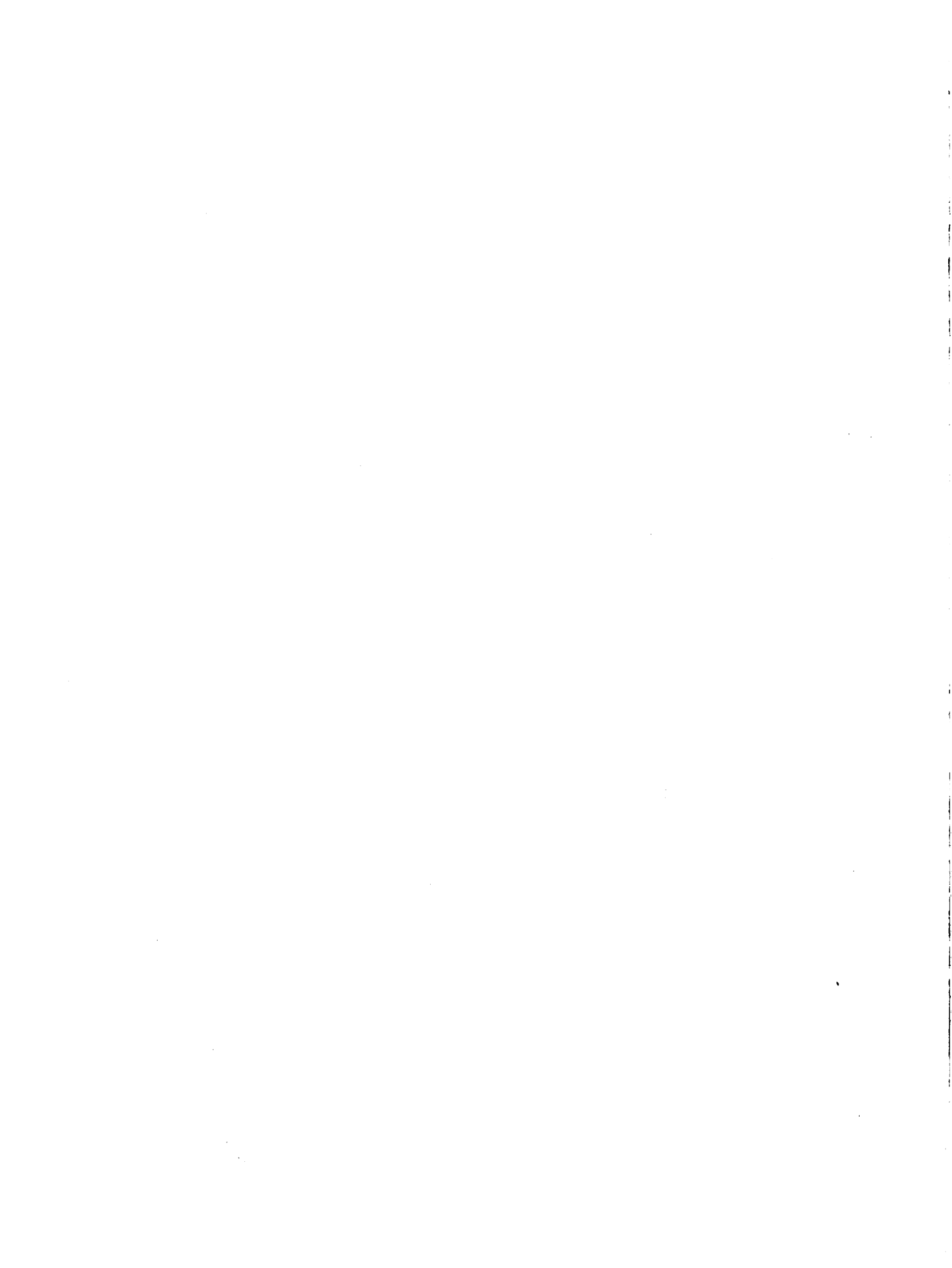
Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		4/17/25 6/28/25 9/ 5/25 10/26/25 9/ 7/26		6/14/26	282	M	Normal
2		9/28/26		7/17/27	292	M	
3		10/ 1/27		7/18/28	290		
4		9/27/27		7/15/29	291	M	

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.





PARTURITION RECORD

Cow No. 184

Parturition No. 2

Date of conception: 9/28/26 Date of calving: 7/17/27 Gest. in days: 292

RECORD OF FETAL MEMBRANES

Hours before passing: 24

Treatment for retention:

Oil and iodoform.

Description of membranes:

Date of examination:

See Photograph # 184 - 1

Reduced to 1/8 the size of the membranes.

Note the location and extension of placental necrosis as indicated by yellow.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 184

Parturition No. 3

Date of conception: 10/1/27 Date of calving: 7/18/28 Gest. in days: 290

RECORD OF FETAL MEMBRANES

Hours before passing: 12

Treatment for retention:

Taken away manually. Was not unusually difficult to remove.

Description of membranes:

Date of examination:

Membranes were badly torn so that a real systematic examination and charting were impossible. There were no signs of disease present in the portions examined. Culture made from one cotyledon which was removed showed staphylococcus and streptococcus.

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 184

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		++PT-	+PT--		
Feb.		+PT--	++T--		
Mar.		+++P-	++P--		
Apr.		+++P-	+PT--		
May	+PT--	+++P-	++T--		
June	+PT--	+P---			
July	+P---	+P---			
Aug.	+T---	+PT--			
Sept.	+T---	+P---			
Oct.	+T---	+T---			
Nov.	+PT--	+P---			
Dec.	+-----	+T---			

Remarks:

Nov. 12, 1929, the cow was slaughtered.

No gross pathological condition was noted in the
genital organs.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. 187

Breed **Holstein**

Name

Date Born **Jan. 7, 1924**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		4/14/25		1/ 9/26	270	M	
2		3/27/26		12/27/26	275	M	
3		3/17/27		11/14/27	222	F	Retained fetal membranes
		12/30/27					
		3/ 8/28					
		2/ 7/28					
4	3/20/28	5/ 5/28		2/ 8/29	279	M	Vealed.
		3/26/29					
5		5/20/29		2/27/30	283	M	
		4/ 4/30		Pregnant at slaughter 9/9/30.			

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. **187**

Parturition No. **3**

Date of conception: **3/17/27**

Date of calving: **11/14/27**

Gest. in days: **222**

RECORD OF FETAL MEMBRANES

Hours before passing: **6 days**

Treatment for retention:

11/15/27 injection of oil and iodoform.

11/18/27 " " " " "

11/20/27 membranes were removed.

Description of membranes:

Date of examination:

No examination because of retention.

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Dead. See remarks.**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 187

Parturition No. 4

Date of conception: 5/5/28 Date of calving: 2/8/29 Gest. in days: 279

RECORD OF FETAL MEMBRANES

Hours before passing: 3 or 4

Treatment for retention:

Description of membranes:

Date of examination:

Fetal membranes appeared healthy in every respect with the exception of six areas of interplacental tissue. These areas varied from the size of a 50 ¢ piece to a dime. They varied in appearance from a decided yellowish, dull, opaque necrosis to a homogeneous white, glistening appearance.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 187

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		+++++	+PT--		
Feb.		+++++	++PP-		
Mar.		+++P-			
Apr.		++++T	+PT--		
May	-----	++++T	++T--		
June	-----	+P---			
July	-----	++PT-			
Aug.	T-----	++P--			
Sept.	-----	++T--			
Oct.	-----	++P--			
Nov.	-----	++PT-			
Dec.	+++++	+TT--			

Remarks:

Nov. 14, 1927, the fetus which was delivered dead was cultured, and the cultures of all fetal organs showed *Brucella abortus*.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. **191**

Breed **Guernsey**

Name

Date Born **May 7, 1924**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		9/28/25					
		11/22/25					
		2/20/26		8/ 7/26	198	M	
		11/19/26					
		2/13/27					
2		3/28/27					
		6/25/27		3/ 3/28	251	M	Aborted dead.
	8/9/27						
3		1/ 6/28					
		5/ 8/28		2/12/29	280	F	Died 3/13/29
		2/ 2/29					
		4/ 2/29					

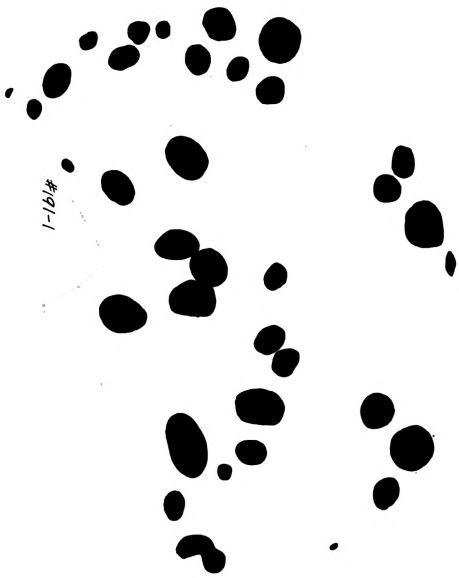
Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

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PARTURITION RECORD

Cow No. 191

Parturition No. 2

Date of conception: 6/25/27 Date of calving: 3/3/28 Gest. in days: 251

RECORD OF FETAL MEMBRANES

Hours before passing: 8

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 191 - 1

Reduced to 1/7 the size of the membranes.

Note the necrosis of the inter placental chorion indicated by white and the diseased placenta indicated by yellow. Note the unusually small proportion of placental tissue.

Reference to other records: Guinea pig inoculation - see remarks.

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Dead

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 191

Parturition No. 3

Date of conception: 5/8/28 Date of calving: 2/12/29 Gest. in days: 280

RECORD OF FETAL MEMBRANES

Hours before passing: 30

Treatment for retention:

A few placental attachments were loosened manually to remove the membranes.

Description of membranes:

Date of examination:

Pregnant in right horn.

Fetal membranes were badly torn and some of the cervical region was missing.

It appeared healthy in every respect.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Normal

Date and cause of death: March 13, 1929. Acute pleurisy and pericarditis. Pneumonia of long standing.

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 191

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		+++++	+PT--		
Feb.		+++PT	PTT--		
Mar.		+P---	TPT--		
Apr.		+P---	PTP--		
May	PTT--	+P---	+++PT		
June	++++T	PT---			
July	+++P-	-----			
Aug.	+++PT	-----			
Sept.	+++PT	-----			
Oct.	+++PT	T-----			
Nov.	+++PT	-----			
Dec.	+++++	-----			

Remarks:

July 26, 1926, the cow was climinated.

Mar. 3, 1928, the fetus which was dead at delivery was cultured, and the cultures of all organs were found to be negative.

Mar. 4, 1928, a guinea pig injection was made of a salt suspension of ground placental tissue taken from the fetal membranes of the second parturition.

April 16, 1928, at autopsy of pig no indication of *Brucella abortus* infection was found, the serum agglutination reaction and cultures being negative.

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BREEDING RECORD

Cow No. 192

Breed **Jersey**

Name

Date Born **May 12, 1924**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
		7/27/25					
		10/25/25					
		11/12/25					
1		1/17/26		10/27/26	283	F	
2		1/28/27		11/ 4/27	280	M	
		3/22/27					
3		12/ 9/27		9/20/28	285	M	
4		12/17/28		9/26/29	283	M	57 lbs.
		11/11/29					
5		12/ 2/29		9/ 9/30	281	M	
6		10/27/30		8/ 6/31	283	M	60 lbs.

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. **192**

Parturition No. **2**

Date of conception: **1/28/27** Date of calving: **11/4/27** Gest. in days: **280**

RECORD OF FETAL MEMBRANES

Hours before passing: **4**

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. **192**

Parturition No. **3**

Date of conception: **12/9/27**

Date of calving: **9/20/28**

Gest. in days: **285**

RECORD OF FETAL MEMBRANES

Hours before passing: **2**

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: **Male**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 192

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	-----		
Feb.		-----	-----		
Mar.		-----	-----		
Apr.		-----	-----		
May	-----	-----	-----		
June	-----	-----			
July	-----	-----			
Aug.	-----	-----			
Sept.	-----	-----			
Oct.	-----	-----			
Nov.	-----	-----			
Dec.	-----	-----			

Remarks:

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. 195

Breed **Holstein**

Name

Date Born **June 18, 1924**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
		10/23/25					
1		1/31/25		10/26/26	268	F	
2		1/14/26		8/10/27	208	F	Dead
3		10/ 9/27		6/13/28	257	F	Dead. Retained fetal membranes.

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.



#195-1

PARTURITION RECORD

Cow No. 195

Parturition No. 2

Date of conception: 1/14/26 Date of calving: 8/10/27 Gest. in days: 208

RECORD OF FETAL MEMBRANES

Hours before passing: 24

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 195 - 1

Reduced to 1/10 the size of the membranes.

Note the extensive interplacental necrosis as indicated by white and the few areas of placental necrosis.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Dead

Date and cause of death: Pneumonia. The cardiac lobes show much consolidation.

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 195

Parturition No. 3

Date of conception: 10/9/27

Date of calving: 6/13/28

Gest. in days: 257

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention: Oil and iodoform, 6/14/28.

Description of membranes:

Date of examination:

Not examined because of retention.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Dead

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 195

Year	<u>1927</u>	<u>1928</u>	-----	-----	-----
Jan.		+++++			
Feb.		+++++			
Mar.		+++++			
Apr.		+++++			
May	-----	+++++			
June	-----	+++++			
July	-----				
Aug.	++++T				
Sept.	+++++				
Oct.	+++++				
Nov.	+++++				
Dec.	+++PT				

Remarks:

- June 27, 1928, the cow died.
- Aug. 11, 1927, a guinea pig injection was made of a salt suspension of ground normal placental tissue taken from fetal membranes of the second parturition.
- Sept. 29, 1927, the pig showed a positive agglutination reaction in 1/500 dilution. 24 hours following the bleeding from the heart the pig died and was not obtained for culturing until after decomposition had started.
- Aug. 11, 1927, a guinea pig injection was made of a salt suspension of ground, diseased placental tissue taken from fetal membranes of the second parturition.
- Sept. 29, 1927, the pig showed a positive agglutination reaction in 1/500 dilution.
- Sept. 30, 1927, the guinea pig was autopsied. The surface of the liver was covered with small greyish foci. The spleen was 5 or 6 times normal size as were the inguinea, intestinal, and mediastinal lymph glands. The right epididymis was abscessed. *Brucella abortus* was cultured from all organs and glands mentioned above.
- June 13, 1928, *Brucella abortus* was isolated from the lung, liver, spleen, kidney, and stomach contents of the fetus of the third parturition.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. 198

Breed **Jersey**

Name

Date Born **June 27, 1924**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
		10/ 5/25					
		10/29/25					
		12/ 7/25					
		12/25/25					
		1/15/26					
		2/22/26					
		4/ 6/26					
1		4/28/26		2/ 1/27	279	F	53 lbs.
2		5/ 5/27		2/ 3/28	274	M	64 lbs. Retained fetal membranes
3		5/26/28		1/23/29	242	M	
4		4/24/29		2/ 6/30	288	M	
		3/29/30					
		4/16/30					
		5/ 6/30					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 198

Parturition No. 2

Date of conception: 5/5/27

Date of calving: 2/3/28

Gest. in days: 274

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

2/4/28 injected oil and iodoform.

2/6/28 " " .

2/9/28 " 1 liter of .7 % pepsin solution.

Description of membranes:

Date of examination:

No examination because of retention.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight: 64 lbs.

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

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PARTURITION RECORD

Cow No. 198

Parturition No. 3

Date of conception: 5/26/28 Date of calving: 1/23/29 Gest. in days: 242

RECORD OF FETAL MEMBRANES

Hours before passing: 2

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 198 - 1

Reduced to 1/7 the size of the membranes.

Note the extent of interplacental disease as indicated by the dark, unpainted area.

Reference to other records: Guinea pig inoculation. See remarks.

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Died four hours following delivery.

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 198

Parturition No. 4

Date of conception: 4/24/29 Date of calving: 2/6/30 Gest. in days: 288

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

* Gravid horn, 50 placental areas in four semi-parallel rows.

All material examined, normal in appearance.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight: 63 lbs.

Condition at birth:

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

* These data were collected by Dr. C. F. Clark.

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 198

Year	1927	1928	1929	-----	-----
Jan.		+++++	+++++		
Feb.		+++++	-----		
Mar.		+++PT	+++++		
Apr.		++++P	+++++		
May	+++PT	++++P	+++++		
June	+++++	+++++	* -----		
July	Hem.	++++P	* +++++		
Aug.	++TTT	+++++			
Sept.	++++T	+PT--			
Oct.	++T--	+++PT			
Nov.	+++++	++++P			
Dec.	++PPP	+++++			

Remarks:

May 27, 1930, the cow was eliminated.

Jan. 24, 1929, Br. abortus was cultured from the liver, lung, spleen, and kidney of the fetus of the third parturition.

Feb., 1929, the cow was re-bled and the blood retested to eliminate the possible chance of error.

January 24, 1929, guinea pig injection was made of a salt suspension of gravid placental tissue taken from fetal membranes of the third parturition. Cultural findings of the guinea pig were all positive to Br. abortus.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. 206

Breed **Holstein**

Name

Date Born **Sept. 5, 1924**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		1/ 7/26		9/15/26	251	M	
2		11/ 4/26		4/23/27	170	F	
		5/25/27					
		6/20/27					
		8/12/27					
		9/11/27					
		9/16/27					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 206

Parturition No. 1

Date of conception: 1/7/26 Date of calving: 9/15/26 Gest. in days: 252

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

There were indications of disease of the periphery of one half of the placental areas. 15% of the interplacental chorion was necrotic.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Undersized.

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Note: The data for this parturition were furnished by
Dr. E. R. Carlson.

PARTURITION RECORD

Cow No. 206

Parturition No. 2

Date of conception: 11/4/26 Date of calving: 4/23/27 Gest. in days: 170

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

All of the placental areas showed some necrosis of the villi. An area in the cervical region which was one foot in width and extended entirely around the membrane exhibited necrosis of both the inter-placental and placental tissue.

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth: Dead at delivery.

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Note: The data for this parturition were furnished by
Dr. E. R. Carlson.

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 206

Year 1927

Jan.					
Feb.					
Mar.					
Apr.					
May	+++++				
June	+++++				
July	+++++				
Aug.	+++++				
Sept.	+++++				
Oct.	+++++				
Nov.					
Dec.					

Remarks:

Oct. 6, 1927, the cow was slaughtered.

Oct. 7, 1927, the uterine horns were apparently of normal size. Both fallopian tubes appeared normal. The uterine horns contained only a small quantity of sero-mucous fluid. The amount was only slightly in excess of the normal amount. The gland mucosa of either horn was of a rather uniform light color, resembling that of a heifer. The placental areas were distinct, slightly raised, not exceeding 1/4 of an inch in diameter and of a lighter, more glistening color than that of the gland mucosa. There were only a very few petechial hemorrhages in the gland mucosa of each horn; otherwise there were no indications of pathological condition except the cloudy fluid exudate. Pure cultures of *Brucella abortus* were isolated from either uterine horn.

Br. abortus was isolated from fetuses of parturitions number 1 and 2 by Dr. E. R. Carlson.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. 209

Breed **Holstein**

Name

Date Born **March 7, 1924**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
		6/ 1/25					
		7/31/25					
		10/ 3/25					
1		10/25/25		6/11/26	229	M	Aborted
		8/23/26					
		9/14/26					
2		10/ 5/26		7/12/27	280	M	
3		8/30/27		4/28/28	241	M	Aborted. Retained fetal membranes.
		9/17/27					
4		6/11/28		2/23/29	257	M F dead	Aborted. Retained fetal membranes.
		4/18/29					
		9/ 2/29					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 209

Parturition No. 3

Date of conception: 8/30/27 Date of calving: 4/27/28 Gest. in days: 241

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

4/27/28 tried to remove but no result. Injected oil and iodoform.
5/ 1/28 removed most of the remaining membranes. Injected into
right horn oil and iodoform.

Description of membranes:

Date of examination:

Membrane from non-gravid horn (left horn) and a very small piece of membrane from gravid horn were passed with fetus. The non-gravid portion was void of placental areas. On the small piece of membrane from gravid horn were six placental areas. The villi of three of these six areas showed indications of necrosis at the base of the villi, being matted somewhat.

Reference to other records: Guinea pig inoculation - see remarks

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Dead

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 209

Parturition No. 4

Date of conception: 6/11/28 Date of calving: 2/23/29 Gest. in days: 257

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

1000 cc. of .7 % pepsin solution were injected 2/25/29.

2/27/29 membranes were easily removed. Uterus was drained with syphon.

Description of membranes:

Date of examination:

The manor portion of the membrane has been expelled while small portions of either horn seem to be holding. There are a few firm placental attachments in the right horn while in the left horn there seems to be a strong adhesion between the endometrium and chorion in the apical region. This area feels thick, rough, and leathery.

Reference to other records: Guinea pig inoculation - see remarks.

RECORD OF CALF

Sex: Twins, M & F

Weight:

Condition at birth: Male - normal.

Female - died immediately.

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 209

Year	1927	1928	1929		
Jan.		+++T-	+++PT		
Feb.		++PT-	+++P-		
Mar.		+++T-	+P---		
Apr.		+++--	+PT--		
May	++PT	++T--	+P---		
June	+----	++T--			
July	+P---	++T--			
Aug.	++P--	++P--			
Sept.	+P---	++P--			
Oct.	++PT-	++T--			
Nov.	++P--	++PT-			
Dec.	+++--	++P--			

Remarks:

Sept. 19, 1929, the cow was slaughtered.

April 28, 1928, cultural findings of fetus were negative to *Br. abortus*.
Streptococcus organisms were isolated from liver and kidney.

April 28, 1928, a guinea pig injection was made of a salt suspension of placental tissue taken from fetal membranes of the third parturition

July 9, 1928, cultural findings and agglutination reaction of the pig were negative.

April 28, 1928, a guinea pig injection was made of fluid obtained from uterine cavity three hours after third parturition.

July 9, 1928, cultural findings and agglutination reaction were negative.

Feb. 24, 1929, the cultural findings of all organs and appearance of stomach contents of the fetus of the fourth parturition were not indicative of *Br. abortus* infection.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.



BREEDING RECORD

Cow No. **214**

Breed **Ayrshire**

Name

Date Born **Feb. 24, 1925**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
		10/10/26					
		12/ 9/26					
		12/27/26					
		1/16/27					
		3/27/27					
		4/15/27					
1		5/ 4/27		2/10/28	282	M	69 lbs. Retained fetal membranes
2		6/16/28		3/18/29	275	F	
3		6/26/29		3/28/30	275	F	Del. dead. retained fetal membranes.
		5/10/30					
		7/21/30					
4		8/13/30		5/18/31	279	F	Retained fetal membranes

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 214

Parturition No. 1

Date of conception: 5/4/27

Date of calving: 2/10/28

Gest. in days: 282

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

2/13/28 injected 1000 cc. of pepsin solution.

2/21/28 removed membranes.

Description of membranes:

Date of examination:

Reference to other records:

RECORD OF CALF

Sex: Male

Weight: 69 lbs.

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 214

Parturition No. 2

Date of conception: 6/16/28 Date of calving: 3/18/29 Gest. in days: 275

RECORD OF FETAL MEMBRANES

Hours before passing: 24

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Small membrane

54 placental areas

Reference to other records:

RECORD OF CALF

Sex: Female

Weight: 76 lbs.

Condition at birth: Normal

Date and cause of death: 3/22/29. Apparently due to over feeding and B. coli infection.

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 214

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		PT---	T----		
Feb.		PT---	T----		
Mar.		+++T-	-----		
Apr.		PT---	-----		
May	+++++	PT---	T----		
June	++PT-	-----			
July	++T--	PT---			
Aug.	++PT	PT---			
Sept.	+PT--	PT---			
Oct.	+-----	T----			
Nov.	+P----	-----			
Dec.	TT---	T----			

Remarks:

June 12, 1928, a corpus luteum was expressed from right ovary.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. **217**

Breed **Holstein**

Name

Date Born **April 20, 1925**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
		7/13/26					
		8/ 4/26					
		9/14/26					
		1/ 5/26					
1		12/14/26		9/23/27	283	F	
2		10/27/27		7/29/28	275	M	
		10/10/28					
		10/28/28					
		12/ 7/28					
		2/ 5/29					
		3/ 2/29					
		3/27/29					
		4/18/29		Pregnant in right horn at slaughter 5/24/29.			

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. **217**

Parturition No. **1**

Date of conception: **12/14/26** Date of calving: **9/23/27** Gest. in days: **283**

RECORD OF FETAL MEMBRANES

Hours before passing: **5**

Treatment for retention:

Description of membranes:

Date of examination:

Normal

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. **217**

Parturition No. **2**

Date of conception: **10/27/27** Date of calving: **7/29/28** Gest. in days: **275**

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Membranes appeared healthy in every respect with the exception of four areas on the interplacental tissue in the apical end of the non-gravid horn. These areas were each about two inches long and one in width lying close together. They were of a whitish yellow, thick necrotic appearance.

Reference to other records: **Guinea pig inoculation - see remarks.**

RECORD OF CALF

Sex: **Male**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 217

Year	1927	1928	1929	-----	-----
Jan.		-----	+T---		
Feb.		+T---	+P---		
Mar.		++T--	+T---		
Apr.		+P---	PT---		
May	-----	+T---	+T---		
June	-----	+P---			
July	T-----	+PT--			
Aug.	-----	T-----			
Sept.	-----	T-----			
Oct.	T-----	T-----			
Nov.	-----	+T---			
Dec.	-----	+T---			

Remarks:

Mar. 27, 1929, both uterine horns were well irrigated with a liter of physiological salt solution. The return flow from the left horn was of the appearance of hemolyzed blood.

July 30, 1928, a guinea pig injection was made of a salt suspension of ground placental tissue obtained from fetal membranes of the second parturition. The pig died within 24 hours.

1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	18
19	20	21
22	23	24
25	26	27
28	29	30
31	32	33
34	35	36
37	38	39
40	41	42
43	44	45
46	47	48
49	50	51
52	53	54
55	56	57
58	59	60
61	62	63
64	65	66
67	68	69
70	71	72
73	74	75
76	77	78
79	80	81
82	83	84
85	86	87
88	89	90
91	92	93
94	95	96
97	98	99
100	101	102

BREEDING RECORD

Cow No. 218

Breed **Holstein**

Name

Date Born **May 16, 1925**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		10/ 4/26 12/14/26		9/17/27	277	F	
2		11/15/27 12/15/27		9/18/28	277		
3		11/22/28 11/ 5/29		8/24/29	275	M	95 lbs.
4		11/26/29 12/22/29 10/30/30		8/29/30	276	M	

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. **218**

Parturition No. **1**

Date of conception: **12/14/26** Date of calving: **9/27/27** Gest. in days: **277**

RECORD OF FETAL MEMBRANES

Hours before passing: **4**

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 218

Parturition No. 2

Date of conception: 12/15/27

Date of calving: 9/18/28

Gest. in days: 277

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: **Male**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 218

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	-----		
Feb.		T-----	-----		
Mar.		T-----	-----		
Apr.		T-----	-----		
May	?PT--	-----	T-----		
June	+-----	-----			
July	+P---	PT---			
Aug.	-----	-----			
Sept.	+-----	-----			
Oct.	++P--	-----			
Nov.	+T---	-----			
Dec.	-----	-----			

Remarks:

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. 219

Breed **Holstein**

Name

Date Born **May 18, 1928**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		10/11/28		7/15/27	278	M	65 lbs.
2		9/ 4/27		6/ 4/28	273	F	84 lbs.
3		7/19/28		4/15/29	272	F	
4		6/ 1/29 3/28/30		3/ 4/30	276	F	

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 219

Parturition No. 2

Date of conception: 9/4/27

Date of calving: 6/4/28

Gest. in days: 273

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: Female

Weight: 84 lbs.

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. **219**

Parturition No. **3**

Date of conception: **7/19/28** Date of calving: **4/15/29** Gest. in days: **272**

RECORD OF FETAL MEMBRANES

Hours before passing: **4**

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 219

Year	1927	1928	1929	-----	-----
Jan.		-----	PT---		
Feb.		-----	T----		
Mar.		+T---	T----		
Apr.		PT---	-----		
May	PT---	-----	-----		
June	P-----	-----			
July	T-----	-----			
Aug.	T-----	-----			
Sept.	T-----	-----			
Oct.	T-----	-----			
Nov.	-----	T-----			
Dec.	-----	-----			

Remarks:

BREEDING RECORD

Cow No. **231**

Breed **Guernsey**

Name

Date Born **1925**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
		1/ 6/27					
		3/ 5/27					
		4/20/27					
		6/11/27					
		7/ 4/27					
		8/24/27					
		9/19/27					
		10/10/27					
		11/21/27					
1	12/13/27	1/25/28		10/16/28	264	F	

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

231-1



PARTURITION RECORD

Cow No. 231

Parturition No. 1

Date of conception: 1/25/28 Date of calving: 10/16/28 Gest. in days: 264

RECORD OF FETAL MEMBRANES

Hours before passing: 2

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 231 - 1

Reduced to 1/8 the size of the membranes.

Note the naked area of chorion in apex of non-gravid horn and the slight irregularity in arrangement of placental areas.

Reference to other records: Guinea pig inoculation - see remarks.

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Dead

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition: Pyometra

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. **231**

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		++++P	+++++		
Feb.		+++++	+++++		
Mar.		+++++	+++++		
Apr.		+++PT	+++++		
May	+++++	++++P	+++++		
June	+++++	++++T			
July	+++++	+++++			
Aug.	++++T	+++++			
Sept.	+++++	++++P			
Oct.	+++++	+++PT			
Nov.	+++++	+++++			
Dec.	++++P	+++++			

Remarks:

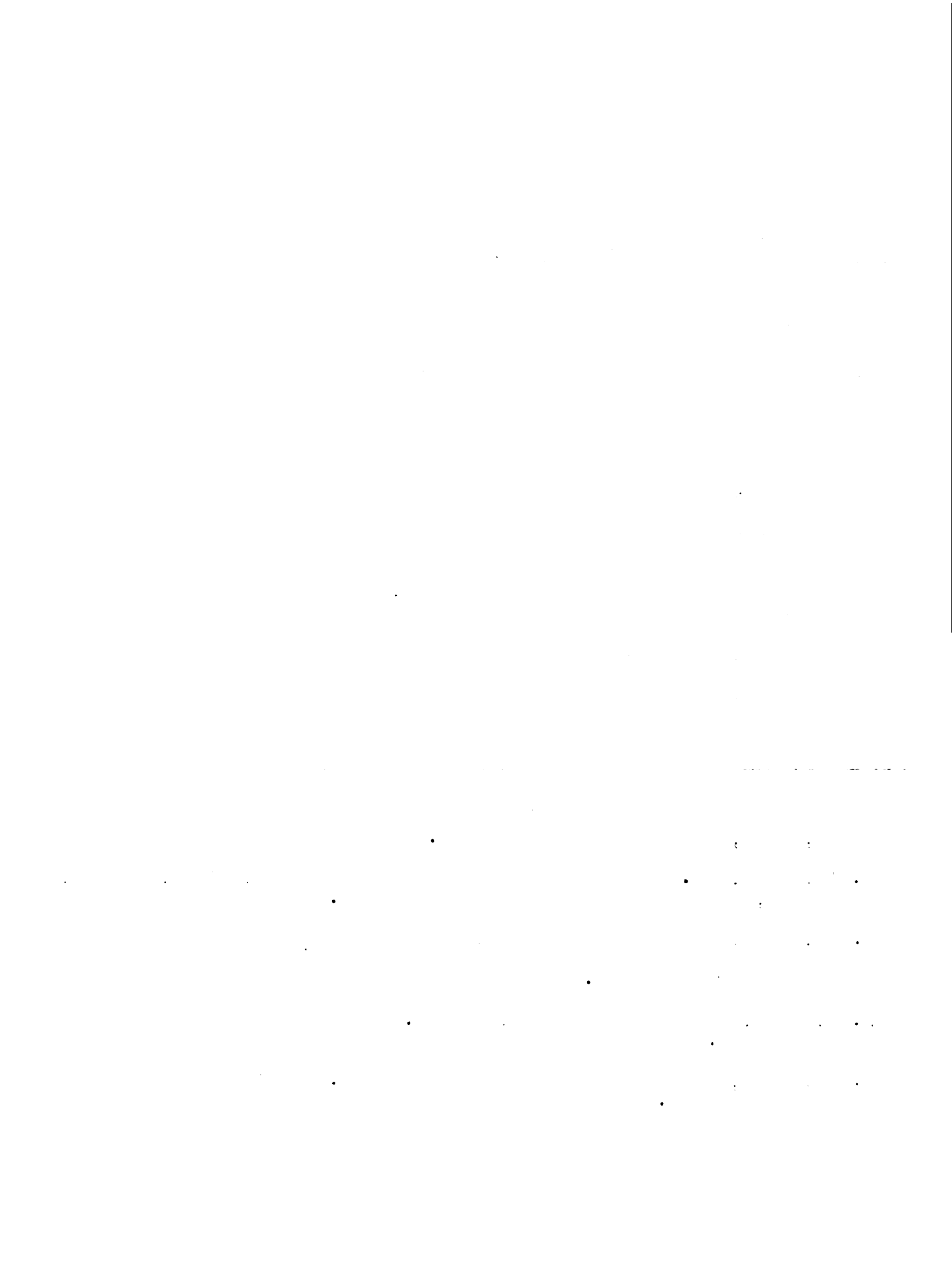
June 19, 1929, the cow was slaughtered.

Oct. 17, 1928, Br. abortus was isolated from the lung, liver, spleen, kidney, and stomach contents of the fetus.

Oct. 17, 1928, a guinea pig injection was made of a salt suspension of ground placental tissue taken from the fetal membranes of parturition number 1.

Jan. 3, 1929, the pig was killed, and Br. abortus was cultured from its organs.

Jan. 20, 1929, the cow was injected with 10 cc. follicular fluid subcutaneously.



BREEDING RECORD

Cow No. **232**

Breed **Holstein**

Name

Date Born **Nov. 25, 1924**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
		3/ 4/26					
		3/27/26					
		5/ 8/26					
1		6/22/26		1/27/27	219	M	Aborted
		3/16/27					
2		4/ 8/27		1/ 6/28	273	F	
3		2/27/28		12/ 4/28	280	M	
4		3/ 5/29		12/11/29	281	M	
5		3/ 4/30		12/10/30	279	F	

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 232

Parturition No. 2

Date of conception: 4/8/27

Date of calving: 1/6/28

Gest. in days: 273

RECORD OF FETAL MEMBRANES

Hours before passing: 14

Treatment for retention:

Description of membranes:

Date of examination:

Normal

Reference to other records: Guinea pig inoculation - see remarks.

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. **232**

Parturition No. **3**

Date of conception: **2/27/28** Date of calving: **12/4/28** Gest. in days: **280**

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: **Male**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 232

Parturition No. 5

Date of conception: 3/4/30 Date of calving: 12/10/30 Gest. in days: 279

RECORD OF FETAL MEMBRANES

Hours before passing: 2

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 232

Year	1927	1928	1929	-----	-----
Jan.	-----	+PT--	PPT--		
Feb.	++++-	+++PT	PPP--		
Mar.	+++++	+++--	PT---		
Apr.	+++++	+PT--	PPPT-		
May	++++P	+P---	PPT--		
June	+++PT	T-----			
July	+PP--	-----			
Aug.	+PT--	T-----			
Sept.	++T--	PT---			
Oct.	++PT-	-----			
Nov.	++PPT	PT---			
Dec.	++PT-	-----			

Remarks:

Jan. 19, 1928, a guinea pig injection was made of a salt suspension of ground placental tissue obtained from the fetal membranes of the second parturition. The pig died two days after injection. The cultural findings were negative.

* Br. abortus was isolated from the fetus of the first parturition.

* This data was furnished by Dr. E. R. Carlson.

BREEDING RECORD

Cow No. **235**

Breed **Ayr shire**

Name

Date Born **Jan. 13, 1926**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		4/25/27		1/31/28	281	M	
2		3/24/28		12/30/28	281	F	
3		2/14/29		11/22/29	281	F	
4		2/18/30		11/30/30	285	M	Retained fetal membranes.
		3/20/31					
	4/28/31	5/22/31					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 235

Parturition No. 1

Date of conception: 4/25/27 Date of calving: 1/31/28 Gest. in days: 281

RECORD OF FETAL MEMBRANES

Hours before passing: 12

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: **Male**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. **235**

Parturition No. **2**

Date of conception: **3/24/28** Date of calving: **12/31/28** Gest. in days: **281**

RECORD OF FETAL MEMBRANES

Hours before passing: **16**

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 235

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	-----		
Feb.		-----	-----		
Mar.		-----	-----		
Apr.		-----	-----		
May	+PT--	-----	T-----		
June	+-----	-----			
July	+-----	-----			
Aug.	+T----	-----			
Sept.	-----	T-----			
Oct.	T-----	-----			
Nov.	T-----	-----			
Dec.	T-----	-----			

Remarks:

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. 238

Breed **Holstein**

Name

Date Born **April 8, 1926**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		10/20/27		5/16/28	208	F	Aborted
2		8/11/28		5/12/29	274		
		7/21/29					
		10/17/29					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 238

Parturition No. 1

Date of conception: 10/20/27 Date of calving: 5/16/28 Gest. in days: 208

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Gravid horn was passed with fetus. Non-gravid horn not found.

A very few of the cotyledons indicate slight disease.

Much of interplacental area in the cervical region shows necrosis.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Dead

Date and cause of death: See remarks for cultural findings.

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 238

Parturition No. 2

Date of conception: 8/11/28 Date of calving: 5/12/29 Gest. in days: 274

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Normal.

Pregnant in left horn.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 238

Year	1927	1928	1929	-----	-----
Jan.		+PT--	+++++		
Feb.		+++++	+++++		
Mar.		+++++	+++++		
Apr.		+PPTT	+++++		
May	-----	++++P	+++++		
June	T-----	+++PT			
July	PT---	++PPT			
Aug.	++++T	++++P			
Sept.	+++++	++PPT			
Oct.	+++PP	+++PP			
Nov.	++++P	+++PT			
Dec.	++++P	++++P			

Remarks:

May 16, 1928, Br. abortus was isolated from the liver, spleen, lung, and stomach contents of the fetus of parturition number 1.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. 250

Breed **Holstein**

Name

Date Born **Oct. 26, 1926**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		3/24/28 5/ 7/28 5/ 2/29 6/ 1/29 6/21/29		2/ 3/29	272	M	
				Pregnant in left horn at time of elimination.			

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. 250

Parturition No. 1

Date of conception: 5/7/28

Date of calving: 2/3/29

Gest. in days: 272

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Fetal membranes appeared healthy in every way except that the anterior one half of the non-gravid horn was entirely void of placental areas. In the gravid horn and posterior half of the non-gravid the cotyledons were arranged in four regular rows. Pregnant in left horn.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 250

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	P----		
Feb.		-----	T----		
Mar.		P----	T----		
Apr.		T----	T----		
May		-----	P----		
June		-----			
July		-----			
Aug.		T----			
Sept.	-----	T----			
Oct.		PT---			
Nov.	-----	T----			
Dec.		PT---			

Remarks:

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. C 16

Breed **Nolstein**

Name

Date Born **Oct. 24, 1923**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
		12/19/25					
1		1/ 9/26		10/14/26	278		
2		1/27/27		10/21/27	267	F	Normal
		11/10/27					
3		11/29/27		9/15/28	290		
4		11/17/28		8/19/29	275	F	84 lbs.
		12/24/29					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. C 16

Parturition No. 2

Date of conception: 1/27/27

Date of calving: 10/21/27

Gest. in days: 267

RECORD OF FETAL MEMBRANES

Hours before passing: 2

Treatment for retention:

Description of membranes:

Date of examination:

Normal

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. C 16

Parturition No. 3

Date of conception: 11/29/27 Date of calving: 9/15/28

Gest. in days: 290

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

80 cotyledons

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth:

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. C 16

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	-----		
Feb.		-----	-----		
Mar.		-----	-----		
Apr.		-----	-----		
May	-----	-----	-----		
June	-----	-----			
July	-----	-----			
Aug.	-----	-----			
Sept.	-----	-----			
Oct.	-----	-----			
Nov.	-----	-----			
Dec.	-----	-----			

Remarks :

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. C 46

Breed **Holstein**

Name

Date Born **March 29, 1925**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
		12/ 6/26					
1		12/30/26		9/26/27	271	F	
2		1/12/28		10/15/28	276	F	
3		1/15/29		10/24/29	282	M	
	11/28/29						

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.



PARTURITION RECORD

Cow No. C 46

Parturition No. 1

Date of conception: 12/30/26 Date of calving: 9/26/27 Gest. in days: 271

RECORD OF FETAL MEMBRANES

Hours before passing: 3

Treatment for retention:

Description of membranes:

Date of examination:

Pregnant in right horn.

See Photograph # C 46 - 1

Reduced to 1/10 the size of the membranes.

Note the scarcity of cotyledons and their comparatively small size.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Blind and unable to stand.

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

#C46-2



PARTURITION RECORD

Cow No. C 46

Parturition No. 2

Date of conception: 1/12/28 Date of calving: 10/15/28 Gest. in days: 276

RECORD OF FETAL MEMBRANES

Hours before passing: 6

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # C 46 - 2

Reduced to 1/11 the size of the membranes.

Note the scarcity of cotyledons and their comparatively small size.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth:

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. ,C 46

Parturition No. 3

Date of conception: 1/15/29

Date of calving: 10/24/29

Gest. in days: 282

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Pregnant in right uterine horn.

* Only the membranes from the pregnant horn were examined. Many of the cotyledons had matted, tufted villi indicating necrosis.

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth:

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

* These data were furnished by Dr. C. F. Clark.

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. C 46

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		T----	PT---		
Feb.		T----	PT---		
Mar.		-----	T----		
Apr.		T----	T----		
May	T----	-----	P----		
June	-----	T----			
July	-----	-----			
Aug.	T----	T----			
Sept.	T----	-----			
Oct.	-----	-----			
Nov.	-----	-----			
Dec.	PP---	PT---			

Remarks:

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. C 50

Breed **Holstein**

Name

Date Born **1924**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		5/25/26		2/12/27	263		Dead at delivery
2		7/13/27		4/21/28	283		
3		7/21/28		4/23/29	277	M	
		12/10/28					
		8/ 9/29					
	8/15/29						
		9/ 1/29					
4		9/24/29		8/15/30	282	M	
	9/16/30						

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. **C 50**

Parturition No. **3**

Date of conception: **7/21/28** Date of calving: **4/23/29** Gest. in days: **277**

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: **Male**

Weight: **106 lbs.**

Condition at birth: **Normal**

Date and cause of death: **12/3/29, Hydrocephalus.**

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. C 50

Parturition No. 2

Date of conception: 7/13/27 Date of calving: 4/21/28 Gest. in days: 283

RECORD OF FETAL MEMBRANES

Hours before passing: 1

Treatment for retention:

Description of membranes:

Date of examination:

The villi of one quarter of one placental area in the gravid horn were tufted close to their base and had a slight appearance of necrosis. In a placental area, adjacent to the one just described, the villi constituting an area about the size of a 25 ¢ piece showed somewhat of a matting. Accessory cotyledons almost completely covered the non-gravid horn and a considerable portion of the gravid.

Otherwise the membrane appeared healthy.

Reference to other records:

Guinea pig inoculation - see remarks

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. C 50

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		T----	-----		
Feb.		-----	-----		
Mar.		-----	-----		
Apr.		-----	-----		
May	-----	-----	-----		
June	P----	-----			
July	++---	-----			
Aug.	+T---	-----			
Sept.	+P---	-----			
Oct.	T----	-----			
Nov.	-----	-----			
Dec.	T----	-----			

Remarks:

April 21, 1928, a guinea pig injection was made of a salt suspension of ground placental tissue obtained from fetal membranes of the second parturition.

July 7, 1928, the serum-agglutination reaction and cultural findings were negative.

BREEDING RECORD

Cow No. **F 1**

Breed **Holstein**

Name

Date Born **1924**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		11/24/26		8/20/27	269	M	
2		12/21/27		9/ 6/28	258		
3		12/20/28		9/17/29	270	M	

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. **F 1**

Parturition No. **1**

Date of conception: **11/24/26** Date of calving: **8/20/27** Gest. in days: **269**

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

8/23/27, oil and iodoform.

8/26/27, " " "

Description of membranes:

Date of examination:

Reference to other records:

RECORD OF CALF

Sex: **Male**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. F 1

Parturition No. 2

Date of conception: 12/21/27 Date of calving: 9/6/28 Gest. in days: 258

RECORD OF FETAL MEMBRANES

Hours before passing: 24

Treatment for retention:

Description of membranes:

Date of examination:

Pregnant in right horn. The membranes were torn badly and some were missing. In what appeared to be the gravid horn the cotyledons were few. Near the apex of this horn, in the interplacental portion, were two areas (each about 2 inches in diameter) which were necrotic. Placental areas were healthy in appearance.

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth: Appears healthy

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. F 1

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		T----	PT---		
Feb.		+PT--	T----		
Mar.		T----	T----		
Apr.		T----	T----		
May		-----	-----		
June	-----	-----			
July	-----	-----			
Aug.	-----	-----			
Sept.	-----	-----			
Oct.	-----	-----			
Nov.	-----	-----			
Dec.	+P---	-----			

Remarks:

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

1. The first part of the document is a list of names and addresses, which are arranged in three columns. The names are written in a cursive script, and the addresses are written in a more formal, printed style. The list appears to be a directory or a roster of some kind.

2. The second part of the document is a series of short, handwritten notes or entries, arranged in two columns. These notes are written in a cursive script and appear to be related to the names and addresses listed in the first part. They may be descriptions, dates, or other identifying information.

3. The third part of the document is a series of short, handwritten notes or entries, arranged in two columns. These notes are written in a cursive script and appear to be related to the names and addresses listed in the first part. They may be descriptions, dates, or other identifying information.

4. The fourth part of the document is a series of short, handwritten notes or entries, arranged in two columns. These notes are written in a cursive script and appear to be related to the names and addresses listed in the first part. They may be descriptions, dates, or other identifying information.

5. The fifth part of the document is a series of short, handwritten notes or entries, arranged in two columns. These notes are written in a cursive script and appear to be related to the names and addresses listed in the first part. They may be descriptions, dates, or other identifying information.

BREEDING RECORD

Cow No. G 1

Breed **Holstein**

Name

Date Born **Nov. 13, 1925**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
		2/ 3/27					
1		2/21/27		11/23/27	275	F	
2		3/ 2/28		11/27/28	270		
		2/15/29					
		3/29/29					
3		4/18/29		1/21/30	278	M	
		3/28/30					
	3/21/30						
		4/23/30					
4		6/24/30		2/28/31	249	F	Retained fetal membranes
	5/13/31						
		6/ 3/31					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. G 1

Parturition No. 1

Date of conception: 2/21/27

Date of calving: 11/23/27

Gest. in days: 275

RECORD OF FETAL MEMBRANES

Hours before passing: 1

Treatment for retention:

Description of membranes:

Date of examination:

50 % of the maternal placenta of the non-gravid horn was removed attached to the fetal placenta.

Pregnant in right horn.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Normal (strong).

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. G 1

Parturition No. 2

Date of conception: 3/2/28 Date of calving: 11/27/28 Gest. in days: 270

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

11/29/28, oil and iodoform 48 hours after calving.

Description of membranes:

Date of examination:

Pregnant in right horn.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Strong and healthy.

Date and cause of death: 48 hours after birth.

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. G 1

Parturition No. 3

Date of conception: 4/18/29 Date of calving: 1/21/30 Gest. in days: 278

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

* Gravid horn has 77 placental areas and 5 accessory placental areas arranged in 5 fairly regular rows. The non-gravid horn is entirely void of placental tissue except in the cervical 1/4 where there are 20 placental areas. All placental areas appear normal.
Pregnant in right horn.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

* This data was furnished by Dr. C. F. Clark.

PARTURITION RECORD

Cow No. G 1

Parturition No. 3

Date of conception: 4/18/29 Date of calving: 1/21/30 Gest. in days: 278

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

* Gravid horn has 77 placental areas and 5 accessory placental areas arranged in 5 fairly regular rows. The non-gravid horn is entirely void of placental tissue except in the cervical 1/4 where there are 20 placental areas. All placental areas appear normal.

Description of membranes:

Date of examination:

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

* These data were furnished by Dr. C. F. Clark.

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. G 1

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	-----		
Feb.		-----	T-----		
Mar.		-----	T-----		
Apr.		-----	T-----		
May	-----	-----	-----		
June	-----	-----			
July	-----	-----			
Aug.	-----	-----			
Sept.	-----	-----			
Oct.	-----	-----			
Nov.	-----	-----			
Dec.	-----	-----			

Remarks:

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. **G 2**

Breed **Holstein**

Name

Date Born **Nor. 12, 1925**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		2/22/27		11/26/27	277	F	
		3/19/27					
2		2/20/28		11/23/28	276		
		4/20/28					
		2/ 1/29					
3		3/ 5/29		12/ 4/29	274	M	
		9/15/29					
		10/ 7/29					
		2/3/30					
		2/25/30					
		3/16/30					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. G 2

Parturition No. 1

Date of conception: 2/22/27

Date of calving: 11/26/27

Gest. in days: 277

RECORD OF FETAL MEMBRANES

Hours before passing: 1

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. G 2

Parturition No. 2

Date of conception: 2/20/28 Date of calving: 11/23/28 Gest. in days: 276

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Non-gravid horn was missing. With the exception of two, the 38 placental areas of the gravid horn are of large even size, arranged in four regular rows and very healthy appearing. There are two cotyledons in the dorso-cervical region which present no healthy villi, all being shortly tufted and of a greyish opaque color.

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth: Normal appearing in all respects.

Date and cause of death: 36 hours after birth.

B. coli cultured from kidney only.

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. G 2

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	-----		
Feb.		-----	-----		
Mar.		-----	-----		
Apr.		-----	-----		
May	-----	-----	-----		
June	-----	-----			
July	-----	-----			
Aug.	-----	-----			
Sept.	-----	-----			
Oct.	-----	-----			
Nov.	-----	-----			
Dec.	-----	-----			

Remarks:

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. G 4

Breed **Holstein**

Name

Date Born **Dec. 28, 1925**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition	
1	2/ 8/27							
	3/18/27							
		4/ 4/27						
		4/23/27						
		5/12/27			2/12/28	276	M	79 lbs.
		3/15/28						
2	4/ 6/28							
	4/28/28							
		5/19/28						
3		7/ 2/28		4/15/29	287	F	81 lbs.	
3		7/17/29		4/27/30	284	M		
	7/26/30							
4		8/16/30						
		9/ 7/30						
		9/28/30		6/24/31	269	F		

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. G 4

Parturition No. 1

Date of conception: 5/12/27 Date of calving: 2/12/28 Gest. in days: 276

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Pregnant in left horn

Reference to other records:

RECORD OF CALF

Sex: Male

Weight: 79 lbs.

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. G 4

Parturition No. 2

Date of conception: 7/2/28 Date of calving: 4/15/29 Gest. in days: 287

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight: 81 lbs.

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. G 4

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	T-----		
Feb.		-----	+PT--		
Mar.		-----	PT---		
Apr.		T-----	T-----		
May	-----	-----	T-----		
June	-----	-----			
July	-----	-----			
Aug.	-----	-----			
Sept.	T-----	-----			
Oct.	-----	-----			
Nov.	-----	-----			
Dec.	-----	P-----			

Remarks:

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Population (Millions)	1250	1270	1290	1310	1330	1350	1370	1390	1410	1430	1450	1470	1490	1510	1530	1550	1570	1590	1610	1630	1650	1670	1690	1710	1730	1750	1770	1790	1810	1830	1850	1870	1890																																																																																																																																																																																																																																																																																																																																																																																																																																																											
GDP (Millions of \$)	500	520	540	560	580	600	620	640	660	680	700	720	740	760	780	800	820	840	860	880	900	920	940	960	980	1000	1020	1040	1060	1080	1100	1120	1140	1160	1180	1200	1220	1240	1260	1280	1300	1320	1340	1360	1380	1400	1420	1440	1460	1480	1500	1520	1540	1560	1580	1600	1620	1640	1660	1680	1700	1720	1740	1760	1780	1800	1820	1840	1860	1880	1900	1920	1940	1960	1980	2000	2020	2040	2060	2080	2100	2120	2140	2160	2180	2200	2220	2240	2260	2280	2300	2320	2340	2360	2380	2400	2420	2440	2460	2480	2500	2520	2540	2560	2580	2600	2620	2640	2660	2680	2700	2720	2740	2760	2780	2800	2820	2840	2860	2880	2900	2920	2940	2960	2980	3000	3020	3040	3060	3080	3100	3120	3140	3160	3180	3200	3220	3240	3260	3280	3300	3320	3340	3360	3380	3400	3420	3440	3460	3480	3500	3520	3540	3560	3580	3600	3620	3640	3660	3680	3700	3720	3740	3760	3780	3800	3820	3840	3860	3880	3900	3920	3940	3960	3980	4000	4020	4040	4060	4080	4100	4120	4140	4160	4180	4200	4220	4240	4260	4280	4300	4320	4340	4360	4380	4400	4420	4440	4460	4480	4500	4520	4540	4560	4580	4600	4620	4640	4660	4680	4700	4720	4740	4760	4780	4800	4820	4840	4860	4880	4900	4920	4940	4960	4980	5000	5020	5040	5060	5080	5100	5120	5140	5160	5180	5200	5220	5240	5260	5280	5300	5320	5340	5360	5380	5400	5420	5440	5460	5480	5500	5520	5540	5560	5580	5600	5620	5640	5660	5680	5700	5720	5740	5760	5780	5800	5820	5840	5860	5880	5900	5920	5940	5960	5980	6000	6020	6040	6060	6080	6100	6120	6140	6160	6180	6200	6220	6240	6260	6280	6300	6320	6340	6360	6380	6400	6420	6440	6460	6480	6500	6520	6540	6560	6580	6600	6620	6640	6660	6680	6700	6720	6740	6760	6780	6800	6820	6840	6860	6880	6900	6920	6940	6960	6980	7000	7020	7040	7060	7080	7100	7120	7140	7160	7180	7200	7220	7240	7260	7280	7300	7320	7340	7360	7380	7400	7420	7440	7460	7480	7500	7520	7540	7560	7580	7600	7620	7640	7660	7680	7700	7720	7740	7760	7780	7800	7820	7840	7860	7880	7900	7920	7940	7960	7980	8000	8020	8040	8060	8080	8100	8120	8140	8160	8180	8200	8220	8240	8260	8280	8300	8320	8340	8360	8380	8400	8420	8440	8460	8480	8500	8520	8540	8560	8580	8600	8620	8640	8660	8680	8700	8720	8740	8760	8780	8800	8820	8840	8860	8880	8900	8920	8940	8960	8980	9000	9020	9040	9060	9080	9100	9120	9140	9160	9180	9200	9220	9240	9260	9280	9300	9320	9340	9360	9380	9400	9420	9440	9460	9480	9500	9520	9540	9560	9580	9600	9620	9640	9660	9680	9700	9720	9740	9760	9780	9800	9820	9840	9860	9880	9900	9920	9940	9960	9980	10000

BREEDING RECORD

Cow No. G 5

Breed **Holstein**

Name

Date Born **Jan. 31, 1926**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1	2/20/27						
	4/ 1/27						
		4/21/27		1/24/28	278	F	87 lbs.
2	2/10/28						
	3/10/28						
		4/21/28					
		5/31/28		3/ 5/29	278	M	95 lbs.
3	7/11/29						
		10/ 5/29					
		10/26/29		8/ 4/30	282	M	Retained fetal membranes.
		12/30/30					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. G 5

Parturition No. 1

Date of conception: 4/21/27 Date of calving: 1/24/28 Gest. in days: 278

RECORD OF FETAL MEMBRANES

Hours before passing: 2

Treatment for retention:

Description of membranes:

Date of examination:

Pregnant in right horn.

Healthy.

On each of three or four placental areas were
from 6 to 12 villi which were calcified.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight: 87 lbs.

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. G 5

Parturition No. 2

Date of conception: 5/31/28 Date of calving: 3/5/29 Gest. in days: 279

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Pregnant in left horn.

Healthy.

Reference to other records:

RECORD OF CALF

Sex: Male

Weight: 95 lbs.

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

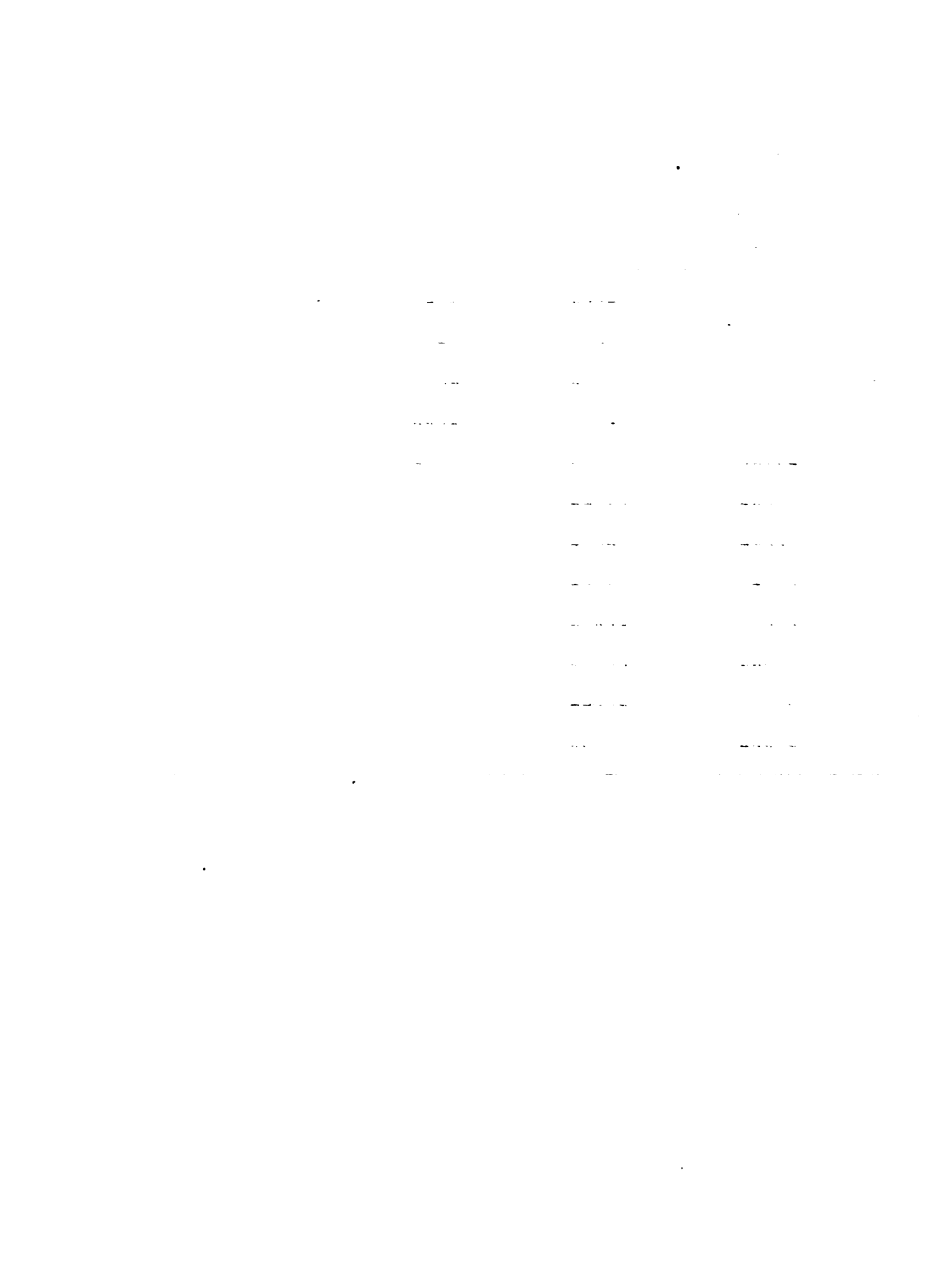
Record of Serum-Agglutination Tests for Bang's Disease

Cow No. G 5

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	T-----		
Feb.		-----	-----		
Mar.		-----	T-----		
Apr.		P-----	T-----		
May	-----	-----	-----		
June	-----	-----			
July	-----	-----			
Aug.	-----	-----			
Sept.	-----	-----			
Oct.	T-----	-----			
Nov.	-----	-----			
Dec.	-----	-----			

Remarks:

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.



BREEDING RECORD

Cow No. M 217

Breed **Holstein**

Name

Date Born **Aug. 20, 1922**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		1/ 2/24		9/25/24	266		
2		12/15/24		9/20/25	279		
3		1/19/26		10/22/26	276		
		1/28/27					
4		2/19/27		11/29/27	283	F	
5		2/27/28		12/ 5/28	281		

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. M 217

Parturition No. 4

Date of conception: 2/19/27 Date of calving: 11/29/27 Gest. in days: 283

RECORD OF FETAL MEMBRANES

Hours before passing: 4

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Normal

Date and cause of death: 12/29/27, pneumonia.

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. M 217

Parturition No. 5

Date of conception: 2/27/28 Date of calving: 12/5/28 Gest. in days: 281

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. M 217

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.			PT---		
Feb.		+T---	PT---		
Mar.		T----			
Apr.		T----			
May	-----	-----			
June	-----	T----			
July	T----	T----			
Aug.	T----	PT---			
Sept.	-----	PT---			
Oct.	T----	TT---			
Nov.	-----	TT---			
Dec.	P----	T----			

Remarks:

Feb. 20, 1929, the cow was slaughtered.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.



BREEDING RECORD

Cow No. M 221

Breed **Holstein**

Name

Date Born **Oct. 13, 1922**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		12/23/23		7/20/24	209		Aborted, B. abortus infection
2		1/ 7/25		10/ 7/25	273		Normal calf
3		2/19/26		11/17/26	271		" "
4		3/ 7/27		12/ 2/27	270		" "

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. M 221

Parturition No. 4

Date of conception: 3/7/27 Date of calving: 12/2/27 Gest. in days: 270

RECORD OF FETAL MEMBRANES

Hours before passing: 4

Treatment for retention:

Description of membranes:

Date of examination:

Pregnant in right horn.

Two cotyledons of the gravid horn contain a few necrotic villi.

Reference to other records: Guinea pig inoculation - see remarks.

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. M 221

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		+++++			
Feb.					
Mar.					
Apr.					
May	+++++				
June					
July	+++++				
Aug.	+++++				
Sept.	+++++				
Oct.	+++++				
Nov.	+++++				
Dec.	+++++				

Remarks:

Feb. 11, 1928, the cow was slaughtered.

Dec. 2, 1927, two guinea pig injections were made of a salt suspension of ground placental tissue obtained from fetal membranes of the fourth parturition.

Feb. 5, 1928, the cultural findings and serum-agglutination reaction of the pigs were negative.

BREEDING RECORD

Cow No. M 222

Breed **Holstein**

Name

Date Born **Oct. 14, 1922**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		1/10/24		10/19/24	282		Delivered dead.
2		12/30/24		9/17/25	261		Normal calf.
3		1/12/26		10/18/26	279		" "
		1/31/27					
4		3/17/27		12/18/27	276	M	" "
		3/21/28					
5		4/17/28		1/23/29	281		

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. M 222

Parturition No. 4

Date of conception: 3/17/27 Date of calving: 12/18/27 Gest. in days: 276

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Pregnant in right horn.

Healthy

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth:

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. M 222

Parturition No. 5

Date of conception: 4/17/28 Date of calving: 1/23/29 Gest. in days: 281

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Taken away following an immediate prolapse of the uterus.

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth: **Normal**

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Prolapse of the uterus.

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. M 222

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.			T-----		
Feb.		-----	T-----		
Mar.		-----	-----		
Apr.		-----			
May	-----	-----			
June	-----	-----			
July	-----	-----			
Aug.	-----	-----			
Sept.	-----	-----			
Oct.	-----	-----			
Nov.	T-----	-----			
Dec.	+T-----	-----			

Remarks:

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. M 227

Breed **Holstein**

Name

Date Born **Dec. 23, 1922**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		4/17/24		1/12/25	271		Normal
2		4/22/25		1/ 3/26	266		Weak calf
3		4/ 6/26		1/ 9/27	278		Normal
4		4/28/27		2/ 1/28	279	M	Normal

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.



#M227-1

M 227#1

PARTURITION RECORD

Cow No. M 227

Parturition No. 2

Date of conception: 4/22/25 Date of calving: 1/3/26 Gest. in days: 256

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Membranes retained 6 hours.

See Photograph # M 227 - 1

Reduced to 1/7 the size of the membrane.

Note the placental necrosis as indicated by yellow and the chorionic necrosis which is indicated as white.

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth: Calf weak.

Date and cause of death: Died 1/9/26, ascites & coxitis.

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

The chart for the photograph and the data were furnished by
Dr. E. R. Carlson.



#M227-2

PARTURITION RECORD

Cow No. M 227

Parturition No. 3

Date of conception: 4/22/25 Date of calving: 1/3/26 Gest. in days: 256

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # M 227 - 2

Reduced to 1/10 the size of the membranes.

Note the very small amount of necrosis and a few accessory cotyledons.

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Note: The chart for the photograph and the data were furnished by Dr. E. R. Carlson.



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PARTURITION RECORD

Cow No. M 227

Parturition No. 4

Date of conception: 1/28/27 Date of calving: 2/1/28 Gest. in days: 279

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Pregnant in right horn.

See Photograph # M 227 - 3

Reduced to 1/11 the size of the membranes.

Note the naked apex of non-gravid horn and absence of other indications of disease.

Reference to other records: Guinea pig inoculation - see remarks.

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. M 227

Year	1927	1928	1929	-----	-----
Jan.		+T---			
Feb.		+++P-			
Mar.		++PT-			
Apr.					
May	+T---				
June					
July					
Aug.	+----				
Sept.	++----				
Oct.	++T--				
Nov.	++----				
Dec.	+++PT				

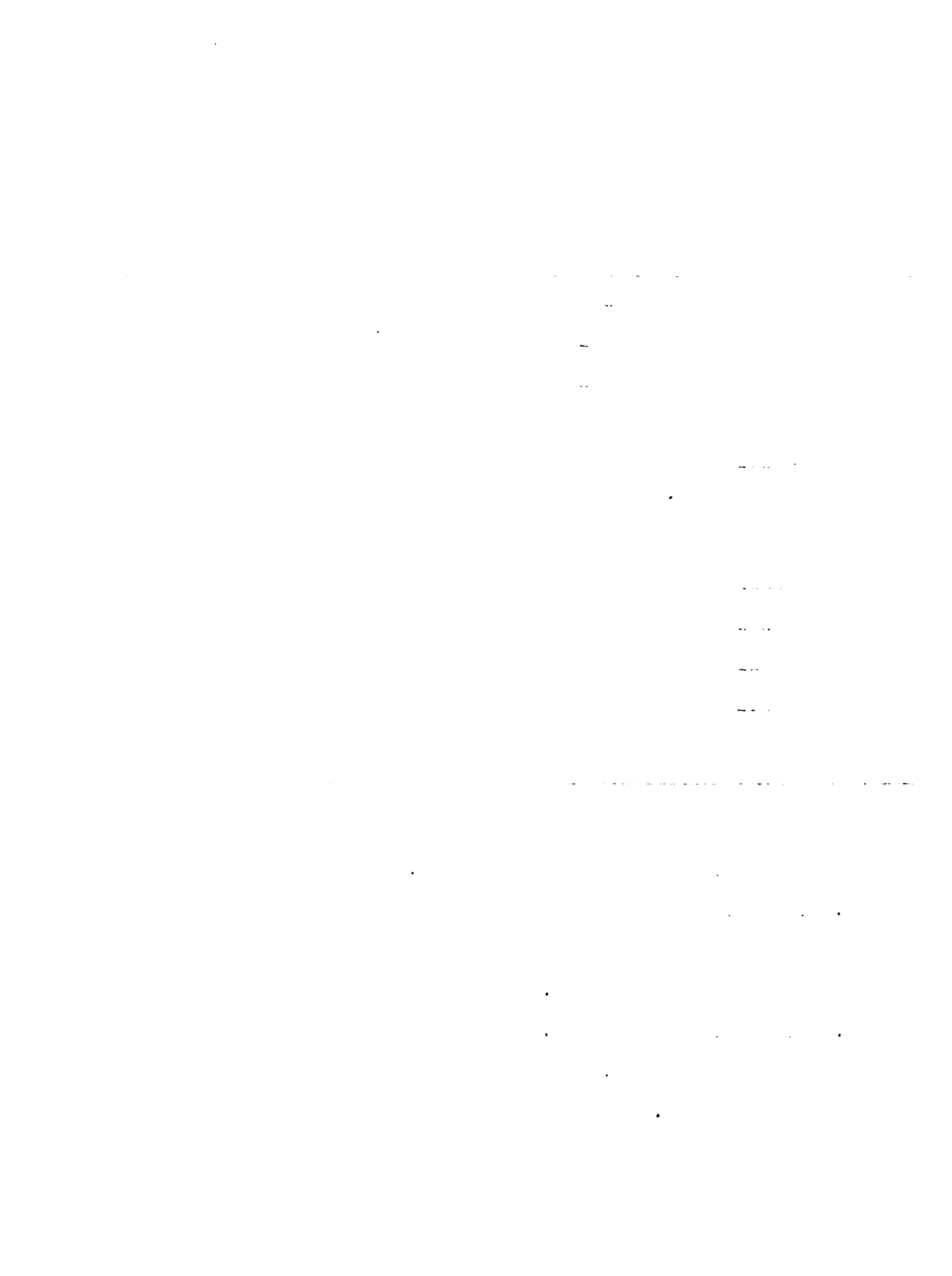
Remarks:

April 7, 1928, the cow was slaughtered.

Feb. 2, 1928, a guinea pig injection was made of a salt suspension of ground placental tissue obtained from fetal membranes of the fourth parturition.

Feb. 28, 1928, the pig died. Extensive necrosis was present at the site of injection. The cultures made of the guinea pig organs were negative.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.



BREEDING RECORD

Cow No. M 234

Breed **Holstein**

Name

Date Born **April 6, 1923**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		6/24/24		3/27/25	276		
2		7/14/25		4/16/26	275		
3		7/18/26		4/21/27	265		
4		7/19/27		4/19/28	274		

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. M 234

Parturition No. 4

Date of conception: 7/19/27 Date of calving: 4/19/28 Gest. in days: 274

RECORD OF FETAL MEMBRANES

Hours before passing: 4

Treatment for retention:

Description of membranes:

Date of examination:

In the gravid horn were two placental areas which contained only a few villi which were white in appearance. Otherwise the membranes look healthy.

Reference to other records: Guinea pig inoculation - see remarks.

RECORD OF CALF

Sex: Male

Weight:

Condition at birth:

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. M 234

Year	1927	1928	1929	-----	-----
Jan.		+++++			
Feb.		+++++			
Mar.		+++++			
Apr.		++PT-			
May	+++++	+++++			
June	+++++	+++PT			
July	+++++				
Aug.	+++++				
Sept.	+++++				
Oct.	+++++				
Nov.	+++++				
Dec.	+++++				

Remarks:

July 5, 1928, the cow was slaughtered. The genital organs appeared normal.

April 20, 1928, a guinea pig injection was made of a salt suspension of ground placental tissue obtained from fetal membranes of the fourth parturition.

May 23, 1928, the pig died. The blood reacted positive to the agglutination test. The cultures of all organs show only streptococcus colonies. There appeared to be an abscess formed within the peritoneal cavity adjacent to the liver, and many adhesions were present. The liver was 4 or 5 times its normal size and has a greyish mottled appearance. The spleen appeared normal. The lungs showed 4 or 5 small grey foci.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. M 242

Breed **Holstein**

Name

Date Born **May 17, 1923**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		10/10/24		7/13/25	276		Normal calf
		11/ 9/24					
2		11/ 1/25		7/ 3/26	264		Calf weak. 10/14/26 died of pneumonia.
		11/12/26					
3		8/24/27		5/25/28	274		
		2/17/29		Pregnant in left horn.			
				at alsughter 3/27/29.			

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. M 242

Parturition No. 3

Date of conception: 8/24/27

Date of calving: 5/25/28

Gest. in days: 274

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Scattered throughout the non-gravid horn were accessory cotyledons. Placental areas were arranged in four regular rows. No indication of disease.

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. M 242

Year	1927	1928	1929	-----	-----
Jan.		-----	T-----		
Feb.		+PT--	PT---		
Mar.		T-----	T-----		
Apr.		T-----			
May	-----	-----			
June	-----	-----			
July	-----	-----			
Aug.	-----	-----			
Sept.	-----	-----			
Oct.	-----	-----			
Nov.	-----	-----			
Dec.	P-----	T-----			

Remarks:

Feb. 13, 1929, a corpus luteum was expressed from the right ovary.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.



BREEDING RECORD

Cow No. M 253

Breed **Holstein**

Name

Date Born **Oct. 19, 1923**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		1/13/25		10/ 7/25	267		Strong
2		1/ 7/26		10/ 5/26	271		"
		1/ 8/27					
3		4/28/27		1/26/28	273	F	Normal
4		4/26/28		2/17/29	297		

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. M 253

Parturition No. 3

Date of conception: 4/23/27 Date of calving: 1/26/28 Gest. in days: 273

RECORD OF FETAL MEMBRANES

Hours before passing: 3

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Pregnant in right horn.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. M 253

Parturition No. 4

Date of conception: 4/26/28

Date of calving: 2/16/29

Gest. in days: 297

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: **Female**

Weight:

Condition at birth:

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. M 253

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	-----		
Feb.		-----	T-----		
Mar.		-----			
Apr.		T-----	T-----		
May	-----	-----			
June	-----	-----			
July	-----	-----			
Aug.	-----	-----			
Sept.	T-----	-----			
Oct.	T-----	-----			
Nov.	-----	-----			
Dec.	-----	T-----			

Remarks:

April 24, 1929, the cow was slaughtered. The genital organs
appeared normal.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. M 257

Breed **Holstein**

Name

Date Born **Nor. 22, 1923**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		2/ 3/25		11/ 6/25	276		
2		2/ 2/27		11/11/27	282	M	
3		1/27/28		10/29/28	275	M	

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. M 257

Parturition No. 2

Date of conception: 2/2/27 Date of calving: 11/11/27 Gest. in days: 282

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. M 257

Parturition No. 3

Date of conception: 1/27/28 Date of calving: 10/29/28 Gest. in days: 275

RECORD OF FETAL MEMBRANES

Hours before passing: 9

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. M 257

Year	1927	1928	1929	-----	-----
Jan.		T----	-----		
Feb.		++PT-			
Mar.		+P---			
Apr.		+P---			
May	PT---	+T---			
June	PT---	+T---			
July	+T---				
Aug.	PT---	+PT--			
Sept.	PT---	+PT--			
Oct.	+T---	PT---			
Nov.	T----	PT---			
Dec.	+-----	PT---			

Remarks:

Jan. 4, 1929, the cow was slaughtered. The genital organs appeared normal. Cultures of the uterine horns were negative to *Br. abortus*.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.



BREEDING RECORD

Cow No. M 258

Breed **Holstein**

Name

Date Born **Dec. 2, 1923**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		4/26/25		2/ 1/26	281		
2		4/19/26		1/24/27	280		
3		5/ 5/27		2/11/28	282		
4		5/ 3/28		2/ 3/29	275		
		7/22/28					
		8/ 3/28					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. M 258

Parturition No. 3

Date of conception: 5/5/27

Date of calving: 2/11/28

Gest. in days: 282

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Pregnant in right horn.

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. M 258

Parturition No. 4

Date of conception: 5/3/28

Date of calving: 8/3/29

Gest. in days: 275

RECORD OF FETAL MEMBRANES

Hours before passing: 1

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Pregnant in right horn.

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. M 258

Year	1927	1928	1929	-----	-----
Jan.		-----	-----		
Feb.		-----	-----		
Mar.		-----			
Apr.		T-----			
May	-----	-----			
June	-----	-----			
July	-----	+PT--			
Aug.	-----	-----			
Sept.	-----	-----			
Oct.	-----	-----			
Nov.	-----	-----			
Dec.	P-----	-----			

Remarks:

April 8, 1929, the cow was slaughtered. The genital organs appeared normal. The cultures of the uterine horns were negative to Br. abortus.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is crucial for ensuring transparency and accountability in the organization's operations.

2. The second part outlines the various methods and tools used to collect and analyze data. This includes both traditional manual methods and modern digital technologies, highlighting the benefits of each approach.

3. The third part focuses on the challenges faced in data management and analysis. It identifies common issues such as data inconsistency, incomplete information, and the complexity of large datasets, and offers practical solutions to address these problems.

4. The fourth part discusses the role of data in decision-making and strategic planning. It explains how data-driven insights can help organizations identify trends, anticipate market changes, and make more informed choices.

5. The fifth part covers the importance of data security and privacy. It outlines best practices for protecting sensitive information from unauthorized access and ensuring compliance with relevant regulations.

6. The sixth part addresses the need for continuous monitoring and evaluation of data systems. It stresses that regular audits and updates are essential to maintain the accuracy and reliability of the data over time.

7. The seventh part discusses the future of data management, including emerging trends like artificial intelligence and big data analytics. It suggests ways in which these technologies can be leveraged to enhance data processing capabilities.

8. The eighth part provides a summary of the key points discussed throughout the document. It reiterates the importance of a robust data management strategy for long-term organizational success.

9. The final part offers concluding remarks and a call to action, encouraging all stakeholders to take responsibility for the quality and integrity of the organization's data.

BREEDING RECORD

Cow No. M 259

Breed **Holstein**

Name

Date Born **Dec. 18, 1923**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		4/ 2/25		11/26/25	248		B. coli infection
2		4/ 4/26		1/10/27	282		
3		5/ 4/27		2/11/28	283		
4		5/ 7/28 6/28/28		4/15/29	290	Twin,F	

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. M 259

Parturition No. 3

Date of conception: 5/4/27 Date of calving: 2/11/28 Gest. in days: 283

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. M 259

Parturition No. 4

Date of conception: 6/28/28 Date of calving: 4/15/29 Gest. in days: 290

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

4/16/29, injected 1000 cc. of a .7 % pepsin solution

4/19/29, membranes removed.

Description of membranes:

Date of examination:

Pregnant in right horn.

Left, non-pregnant horn passed.

Reference to other records:

RECORD OF CALF

Sex: Female twins

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Has not acted normal for a couple of weeks prior to calving.

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. M 259

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		+T---	PT---		
Feb.		++PT-	+PT--		
Mar.		+T---	PT---		
Apr.		PT---	+T---		
May	T----	-----	P----		
June		+P---			
July	++PT-	-----			
Aug.	++PT-	++P--			
Sept.	+++T-	+P---			
Oct.	+PT--	+P---			
Nov.	++P--	PT---			
Dec.	++P--	PT---			

Remarks:

•

June 24, 1929, the cow was slaughtered. Much pus was present in the right uterine horn.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. M 266

Breed **Holstein**

Name

Date Born **Jan. 12, 1924**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		4/17/25 4/29/26		1/20/26	278		Delivered dead
2		5/28/26		1/29/27	275	M	Strong
3		4/19/27		1/20/28	276		
4		4/24/28 5/16/28		1/26/29	276	F	
5	3/21/30 5/ 5/30	5/ 1/29		1/28/30	272	F	

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.



PARTURITION RECORD

Cow No. M 266

Parturition No. 3

Date of conception: 4/19/27 Date of calving: 1/20/28 Gest. in days: 276

RECORD OF FETAL MEMBRANES

Hours before passing:

Treatment for retention:

Description of membranes:

Date of examination:

Pregnant in right horn

See Photograph # M 266 - 1

Reduced to 1/10 the size of the membranes.

Note the extensive area of chorion of the non-gravid horn which is entirely void of placental tissue.

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. M 266

Parturition No. 5

Date of conception: 5/1/29 Date of calving: 1/28/30 Gest. in days: 272

RECORD OF FETAL MEMBRANES

Hours before passing: 2

Treatment for retention:

Description of membranes:

Date of examination:

* In the gravid horn there were 63 placental areas arranged in 4 semi-parallel rows and about 110 accessory placental areas. In the non-gravid horn there were 34 placental areas arranged in 4 regular rows and about 260 accessory placental areas. All placental areas appeared healthy except one large one in the non-gravid horn which contained a few tufted villi.

Pregnant in right horn.

Reference to other records:

RECORD OF CALF

Sex: Female

Weight: 88 lbs.

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

* These data were collected by Dr. C. F. Clark.

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. M 266

Year	1927	1928	1929	-----	-----
Jan.		-----	-----		
Feb.		-----	-----		
Mar.		-----			
Apr.		T-----	T-----		
May	T-----	-----	T-----		
June	-----	T-----			
July	-----	-----			
Aug.	T-----	-----			
Sept.	P-----	-----			
Oct.	T-----	-----			
Nov.	-----	-----			
Dec.	+PT--	-----			

Remarks:

May 8, 1930, the cow was slaughtered.

Genital organs appeared normal.

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.



BREEDING RECORD

Cow No. M 335

Breed **Holstein**

Name

Date Born **Mar 7, 1926**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		5/10/27		1/31/28	266	F	Normal
2		4/20/28		1/20/29	275	F	
3		4/11/29		1/11/30	275	F	
	3/29/30						
		4/11/30					
4		5/31/30		2/19/31	264		

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. M 335

Parturition No. 1

Date of conception: 5/10/27 Date of calving: 1/31/28

Gest. in days: 256

RECORD OF FETAL MEMBRANES

Hours before passing: 1

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Pregnant in right horn

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. M 335

Parturition No. 2

Date of conception: 4/20/28 Date of calving: 1/19/29 Gest. in days: 275

RECORD OF FETAL MEMBRANES

Hours before passing: 7

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Pregnant in right horn

Reference to other records:

RECORD OF CALF

Sex: Female

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. M 335

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	T-----		
Feb.		-----	-----		
Mar.		-----	-----		
Apr.		-----	-----		
May	-----	-----	-----		
June	-----	-----			
July	-----	-----			
Aug.	-----	-----			
Sept.	-----	-----			
Oct.	-----	-----			
Nov.	-----	-----			
Dec.	-----	-----			

Remarks:

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. 06

Breed **Holstein**

Name

Date Born **1925**

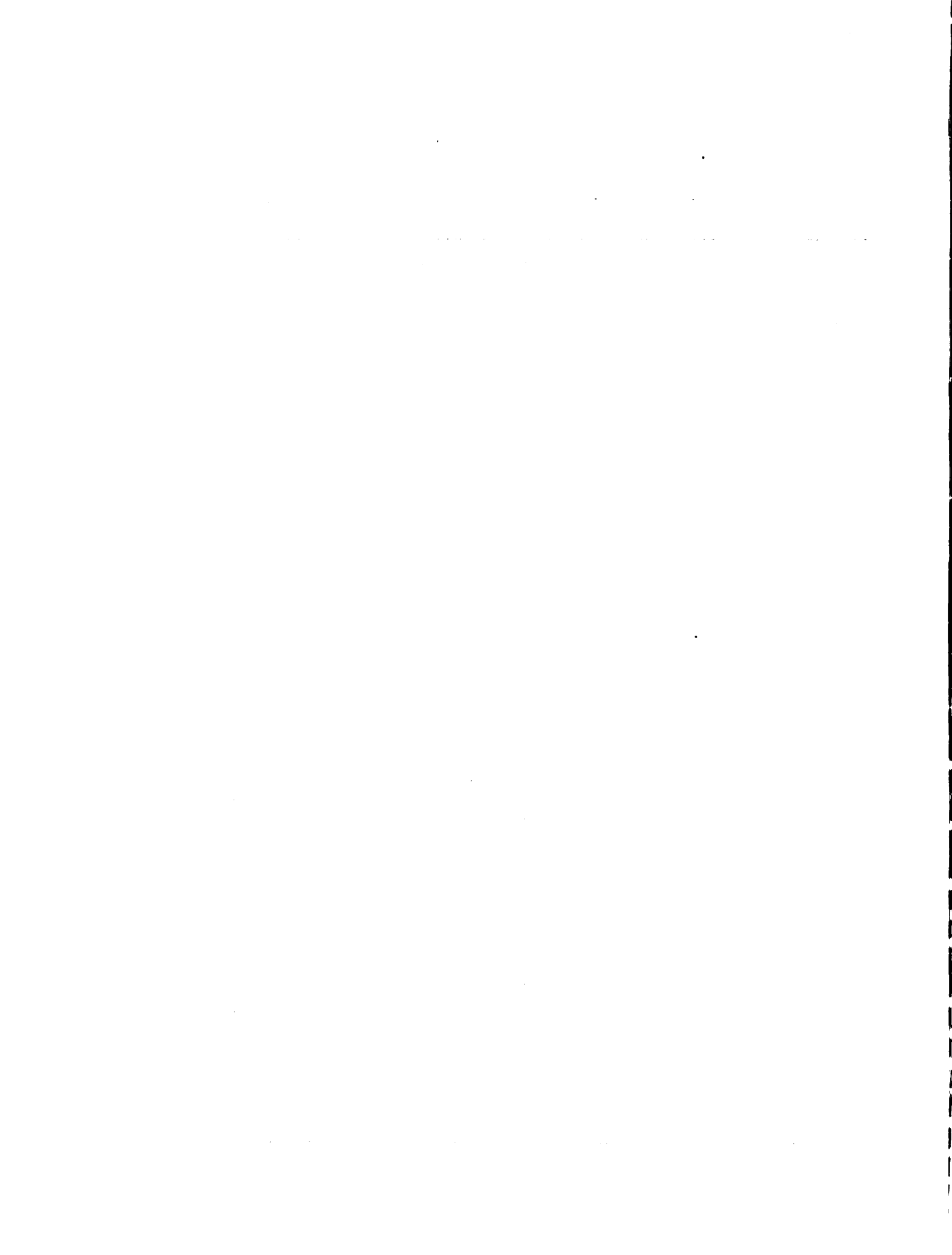
Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		8/ 6/27 9/13/27		5/22/28	251		
2		7/13/28 7/17/29		4/17/29	278		
3		8/ 6/29 9/27/29 10/17/29		7/14/30	270	F	

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.



PARTURITION RECORD

Cow No. 06

Parturition No. 1

Date of conception: 9/13/27 Date of calving: 5/22/28 Gest. in days: 251

RECORD OF FETAL MEMBRANES

Hours before passing: 1

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth: Small, weak, and blind.

Date and cause of death: Killed and autopsied May 22, 1928.

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 06

Parturition No. 2

Date of conception: 7/13/28

Date of calving: 4/17/29

Gest. in days: 278

RECORD OF FETAL MEMBRANES

Hours before passing: 2

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 06

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	-----		
Feb.		-----	-----		
Mar.		-----	-----		
Apr.		-----	-----		
May	-----	-----	-----		
June	-----	-----			
July	-----	-----			
Aug.	-----	-----			
Sept.	-----	-----			
Oct.	-----	-----			
Nov.	-----	-----			
Dec.	P-----	-----			

Remarks:

Dilutions: 1/25, 1/50, 1/100, 1/200, 1/500.

BREEDING RECORD

Cow No. HT. 10

Breed **Jersey**

Name

Date Born **Feb. 11, 1923**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
				9/11/29		M	Normal
		12/ 4/29					
		12/27/29					
		2/21/30					
		3/10/30					
		4/ 1/30		12/ 6/30	249		Dead
		6/ /31					

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. HT.10

Parturition No.

Date of conception: 4/1/30 Date of calving: 12/6/30 Gest. in days: 249

RECORD OF FETAL MEMBRANES

Hours before passing: Passed with fetus.

Treatment for retention:

Description of membranes:

Date of examination:

In the gravid horn there were numerous small accessory placental areas scattered throughout. A majority of the placental areas of this horn showed indications of necrosis, varying from a yellowish dull appearance of the villi to a tufting. There was some indication of disease in the non-gravid horn as indicated by slight necrosis of the interplacental tissue immediately surrounding the placental areas.

Reference to other records: Guinea pig inoculation - see remarks.

RECORD OF CALF

Sex:

Weight:

Condition at birth: Dead

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. HT. 10

Year	1930	1931	-----	-----	-----
Jan.	-----	++++P			
Feb.	-----				
Mar.	-----				
Apr.	PT---	++PT			
May					
June					
July					
Aug.					
Sept.					
Oct.	++++P				
Nov.					
Dec.					

Remarks:

Dec. 7, 1930, Br. abortus was cultured from the liver, lung, spleen, and kidney of the fetus of the 1929 parturition. The guinea pig which was injected with 1 cc. of the stomach contents of the fetus reacted negative to the agglutination test and cultural findings, as did the cultures made directly of the stomach contents.

Dec. 6, 1930, a guinea pig injection was made of a salt suspension of ground, diseased placental tissue obtained from the fetal membranes of the 1929 parturition. The guinea pig gave positive agglutination reaction and cultural findings for Br. abortus.

BREEDING RECORD

Cow No. HT. 46

Breed **Guernsey**

Name

Date Born **1927**

Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
1		8/22/29 10/ 1/29 11/ 5/29 11/26/29 12/12/29 4/21/30 Numerous service dates but failed to conceive.		12/30/30	253		Dead

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.

PARTURITION RECORD

Cow No. HT. 46

Parturition No. 1

Date of conception: 4/21/30 Date of calving: 12/30/30 Gest. in days: 253

RECORD OF FETAL MEMBRANES

Hours before passing: 1

Treatment for retention:

Description of membranes:

Date of examination:

There was only slight indication of disease as indicated by tufting of a few of the villi at the periphery of two of the placental areas.

Reference to other records: Guinea pig inoculation - see remarks.

RECORD OF CALF

Sex:

Weight:

Condition at birth: Dead

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. HT. 46

Year	1930	1931	-----	-----	-----
Jan.	+++PT	+++++			
Feb.					
Mar.	TTPP-	+++++			
Apr.	-----	+++++			
May					
June					
July					
Aug.					
Sept.					
Oct.	-----				
Nov.					
Dec.					

Remarks:

Jan. 2, 1931, Br. abortus was cultured from all organs of the fetus.

Jan. 2, 1931, a guinea pig injection was made of a salt suspension of ground, diseased placental tissue obtained from the fetal membranes. The guinea pig gave positive reactions to the agglutination test and cultural findings.



BREEDING RECORD

Cow No. 1659D

Breed **Holstein**

Name

Date Born **Sept. 2, 1925**

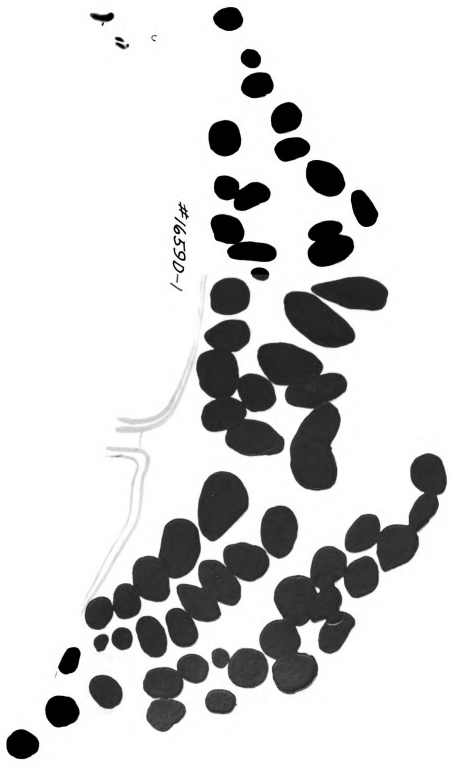
Reg. No.

Par. No.	Heat Dates	Dates Bred	Sire	Par. Date	Ges. in Days	Sex of Calf	Sequel of Parturition
				1/24/26			
1		4/19/27		1/24/28	280		Normal
2		3/17/28		2/23/29	283	M	Normal

Abbreviations:

Par. means parturition or calving.

Ges. means gestation or number of days carrying calf.



PARTURITION RECORD

Cow No. 1659D

Parturition No. 1

Date of conception: 4/19/27 Date of calving: 1/24/28 Gest. in days: 280

RECORD OF FETAL MEMBRANES

Hours before passing: 1

Treatment for retention:

Description of membranes:

Date of examination:

See Photograph # 1659D - 1

Reduced to 1/10 the size of the membranes.

Note the extensive naked area of chorion in the non-gravid horn.

Reference to other records:

RECORD OF CALF

Sex:

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

PARTURITION RECORD

Cow No. 1659D

Parturition No. 2

Date of conception: 3/17/28 Date of calving: 2/23/29 Gest. in days: 283

RECORD OF FETAL MEMBRANES

Hours before passing: 2

Treatment for retention:

Description of membranes:

Date of examination:

Healthy

Reference to other records:

RECORD OF CALF

Sex: Male

Weight:

Condition at birth: Normal

Date and cause of death:

RECORD OF DAM

Condition prior to parturition:

Condition subsequent to parturition:

Record of Serum-Agglutination Tests for Bang's Disease

Cow No. 1659D

Year	<u>1927</u>	<u>1928</u>	<u>1929</u>	-----	-----
Jan.		-----	-----		
Feb.		-----	-----		
Mar.		-----	-----		
Apr.		-----			
May	-----	-----			
June	-----	-----			
July	-----	-----			
Aug.	-----	-----			
Sept.	-----	-----			
Oct.	-----	-----			
Nov.	-----	-----			
Dec.	-----	-----			

Remarks:

DISCUSSION

Because of the probable fact that certain pathological changes of the endometrium and maternal placenta are duplicated in extent and character upon the corresponding fetal structures (chorion) it is possible to make detailed studies of various pathological conditions of the endometrium at the time of each parturition by means of the chorion. By establishing a permanent, complete, and accurate record of each consecutive afterbirth it is possible to study the significance of each condition with reference to its effect upon the subsequent health of the uterus.

During the two years that the author carried on these studies, 174 fetal membranes from 101 cows were examined. Following 27 parturitions of 21 cows the fetal membranes were retained; consequently not examined grossly. Of the 174 examined 127, or 73 per cent, were considered healthy; 26, or 15 per cent, were classed as atypical; and 21, or 12 per cent, were considered as diseased. Since retained membranes are generally considered to be the result of a diseased placenta, the 27 membranes which were retained can justly be classed with the 21 which were found diseased upon gross examination, making a total of 48 diseased membranes of a grand total of 201 (174 examined and 27 retained). Computed on the basis of these new figures, the percentages become: normal 63.2 per cent, atypical 12.9 per cent, and diseased 23.9 per cent.

Since there is not a recognized definition of an atypical fetal membrane, the question will quite naturally arise

as to what are the various abnormalities which the author has used as criteria for his classification. The answer to this question may be learned by studying the photographs and descriptions, using the Tables I, II, and III as an index for classification of the membranes.

A very interesting and lengthy discussion could be developed following a study of the recorded data of a majority of the 60 cows listed in this thesis. Since limited space will not permit the presentation of such a discussion, only a few of the representative cases are discussed.

The first pregnancy of cow number 151 terminated prematurely with the delivery of a dead fetus. At the first service two months later she conceived, and again pregnancy terminated abnormally with the abortion of a dead fetus. She became pregnant as the result of a second service four months following the second parturition. In 256 days the third pregnancy ended with the delivery of a living bull calf and badly diseased afterbirth. The calf developed normally. The placental tissue of the chorion from the non-gravid horn exhibited no indication of necrosis. Scattered among the cotyledons on either side of and adjacent to the umbilical vessels were approximately 200 accessory placental areas, all of which on gross examination showed necrosis of the villi. The chorion of the gravid horn was affected with extensive disease involving approximately one-third of the total of each of the placental (*) and interplacental (#) areas. Conception resulted from the fourth

* The term "placental area" is used synonymously with "cotyledon" or "chorion frondosum".

The term "interplacental" is used synonymously with "intercotyledonous" or "chorion laeve".

service nearly seven months after the third parturition. Two hundred eleven days later a dead fetus was aborted. The afterbirth was not examined. The fifth and sixth pregnancies were the results of one service each and terminated in 273 and 279 days respectively. An apparently healthy female calf was delivered at the fifth parturition, and the membranes showed a small amount of necrosis of the chorion laeve and numerous accessory cotyledons. The results of the sixth calving were a healthy calf and an apparently normal fetal membrane.

The data furnished by the six parturitions of this cow constitute an exceedingly interesting study, especially in view of the opinions advanced in the writings of Williams, Udall, et al. (2) "The placental side of the chorion is always a faithful replica of the endometrium, and fetal membranes examined under an adequate technic largely reveal the breeding efficiency of the cow, forecast her reproductive future, and furnish important knowledge of the probable health of her young. A uterine cotyledon once destroyed vanishes forever. The records of such lesions are as indelibly written as though chiselled in marble, and, once disease has invaded the cotyledon of a cow, the proof of such changes will be authentically recorded on the fetal membranes of each conception as long as she breeds."

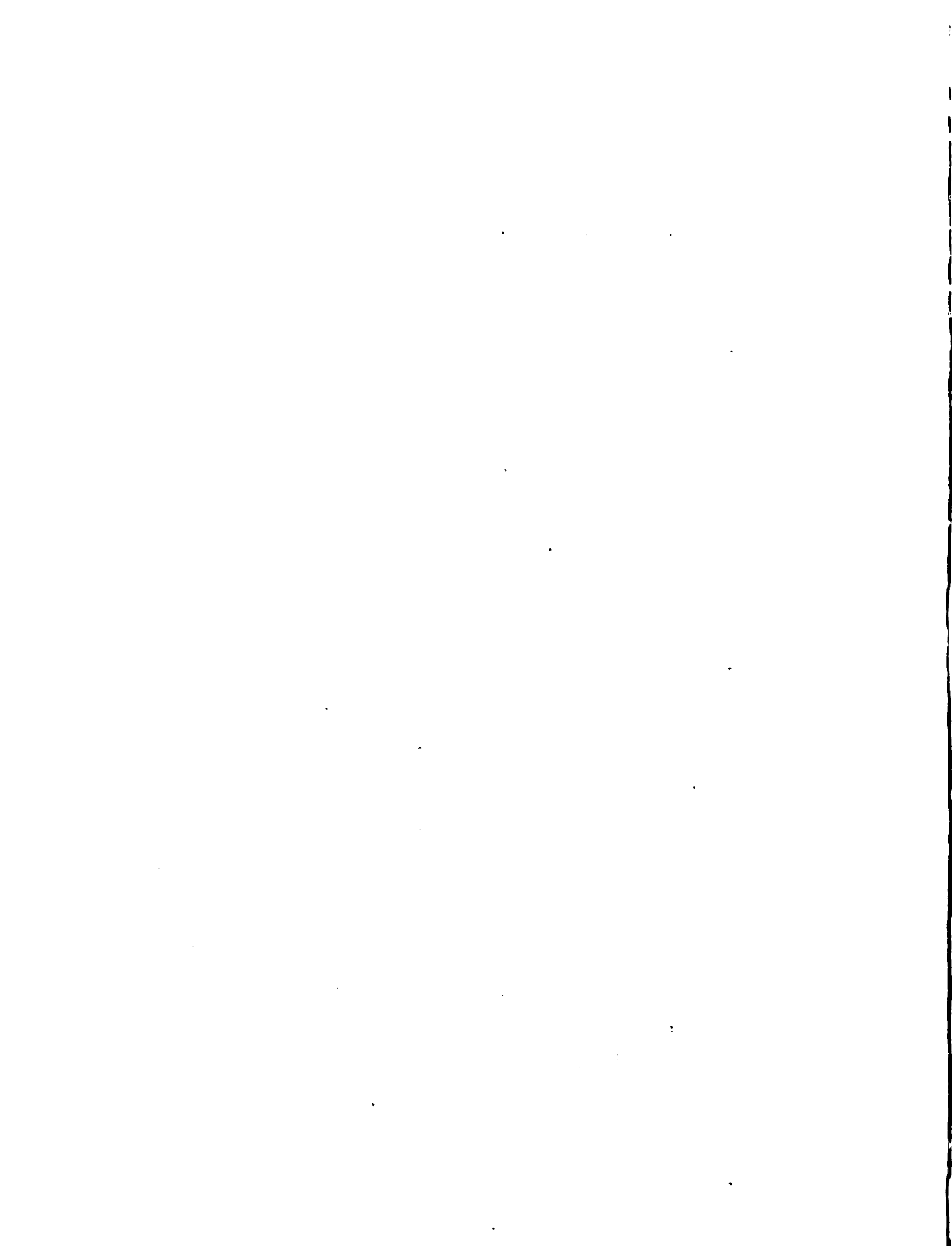
The recorded data on each of the first four parturitions of cow No. 151 are indicative of existing pathological conditions during those pregnancies. This is particularly true of the third parturition when extensively diseased membranes were expelled. In spite of the severe endometritis

which had previously existed the cow delivered, within twenty-two and one-half months after the day of her fourth parturition, two strong, healthy calves. These two pregnancies resulted from one service each. The fetal membranes of the fifth parturition showed only limited indications of disease and those of the sixth parturition were entirely normal in appearance. (See photograph No. 151 - 2)

Cow No. 171, through her five parturitions, presents data for a very interesting study. Her first parturition was normal in every respect as indicated by conception as a result of one service, full term gestation, and a healthy calf. Her second pregnancy resulted from the second service four months following the first calving and terminated in 243 days with delivery of a dead fetus. The membranes of the non-pregnant horn were retained while those of the gravid horn were passed within ten hours. Very extensive disease of the cotyledons and chorion laeve was present as pictured by the photograph No. 171 - 1. Conception for the third time took place in four months on the third service and terminated in 264 days with the delivery of a living calf which developed normally. The membranes were passed normally and upon examination exhibited no cotyledons upon the chorion of the non-gravid horn and 24 very large healthy ones on the chorion of the gravid horn. The fourth and fifth pregnancies were normal in every respect except that the fifth parturition terminated with the delivery at 268 days of a pair of twins which were small and weak. The membranes of these two parturitions were healthy except for one or two very small areas of placental necrosis on each.

This cow presented an extremely diseased chorion at her second parturition and at the third a chorion which appeared healthy but atypical in that the chorion of the non-gravid horn was entirely void of placental tissue. In the opinion of Williams, Udall, et al. (2) this naked condition of the non-gravid horn was the inevitable result of previous extensive disease, as also was the unusually short gestation period. Contrary to the belief of the authors cited (2) and Williams (3), the animal conceived normally within three months and gave birth to a strong healthy calf after a gestation period of 281 days. The afterbirth was normal except for a small amount of necrosis which involved one and one-half small cotyledons.

A rather common abnormal condition of the chorion is the absence of cotyledons over areas of chorion of unusual extent. Generally when this condition is present, the apex of one or both uterine horns is involved. In regard to this condition Williams, Udall, et al. (2) made the following statement. "The total destruction of a few uterine cotyledons is a very common occurrence; not uncommonly all cotyledons in one or both cornua are destroyed by necrosis. In those cases where the lesions do not bar conception, the evidence as recorded upon the chorion is convincing." Further on in the same paper they state, with regard to naked areas, "In all our observations this condition has been associated with other extensive lesions and with an unfavorable termination of pregnancy." The observations of the author substantiate their statement only to a certain degree. While naked areas are generally preceded by or



associated with a diseased condition of endometrium, such is not always the case. Furthermore, a diseased endometrium is not always, in fact only occasionally, succeeded by a chorion exhibiting a naked area. The termination of pregnancy in such cases is usually favorable unless the nakedness is to the extent of one-third or more of the entire chorion.

Cow No. M266 calved for the first time 278 days after one service. There is no record of the calf except that it was dead at delivery. On the second service within four months, the cow conceived, and pregnancy terminated in 275 days with a normal calf. The membranes were not examined following those two parturitions. Conception took place following the first service within three months, and 276 days later a normal calf was delivered. The anterior two-thirds of the non-gravid horn was void of placental tissue as indicated by photograph No. M266 - 1. Again following one service the cow became pregnant and calved normally. The membranes were not obtained for examination. The result of the first service following the fourth parturition was pregnancy which resulted in delivery of a normal calf at 272 days gestation. The membranes of the pregnant horn exhibited 63 normal cotyledons arranged in four semi-parallel rows and about 110 accessory cotyledons, while the non-gravid horn presented 34 normal cotyledons arranged in four regular rows and 260 accessory cotyledons.

Cow No. 250 failed to conceive at her first service but did at the second, and gestation ended in 272 days with the delivery of a normal calf. The fetal membranes appeared healthy in every respect except that the anterior one-half

of the non-gravid horn was entirely void of placental tissue. In the gravid and posterior half of the non-gravid horn the cotyledons were arranged in four regular rows. As a result of three services she became pregnant again but was eliminated from the herd before termination of gestation. The two pregnancies were both in the left uterine horn. In this case the naked condition of the chorion occurred at the first parturition of an animal which had previously shown no clinical indications of endometritis other than the fact that she failed to conceive as a result of the first service.

Cow No. 171, which is discussed above, is a good example of nakedness of an entire horn succeeding extensive disease while the two following parturitions and membranes were normal excepting a very few villi.

The presence of diffuse placenta is not exceptionally rare in the bovine since four cases have been found among the 174 membranes examined by the author. There seems to be very little reference in the literature to this condition in the bovine. A study of the records of cows No. 19, 153, 155, and 174 will serve to demonstrate that there seems to be little or no evidence that this condition is in any way associated with other abnormal or with pathological conditions and that it is not hazardous to the health of the fetus.

Accessory cotyledons or adventitious placental growths are commonly found to be present upon the chorion laeve. Their significance is still debatable after a study of the rather limited data presented by several pathologists.

Williams (3) and Hallman (4) consider them as nature's

reserves, to be called forth whenever needed to furnish more blood supply following the destruction of placental tissue by disease. Williams states, "I have observed cases in which essentially all the cotyledons of the entire uterus have been destroyed, and after a long interval the cow again became pregnant. But such is a very frail fetus, and I have yet to see the pregnancy endure to the 280th day and a vigorous calf be produced."

Williams, Udall, et al. (2) state that accessory cotyledons are very common in cows and very uncommon in heifers and that they indicate the prior existence of an endometritis.

Cows No. 179, C50, and 143 present evidence which fails to support the theories of Williams et al. (2) The membranes of the second and third parturitions of cow No. 179 exhibited excessive numbers of secondary cotyledons, however, each of these as well as the first and fourth pregnancies persisted until the 280th day; and strong, healthy, vigorous calves were delivered.

Cow No. C50 delivered her first fetus dead at 263 days gestation and the second at 283 days. The membranes of the second parturition showed very slight indication of necrosis in two small areas of placental tissue. The entire chorion laeve of the non-gravid and much of the gravid horn was covered almost completely with accessory cotyledons. The calf of the second parturition was strong and healthy as were those of the third and fourth parturitions. The membranes of the third parturition were normal in every way.

The chorion laeve of the afterbirth of the fourth preg-

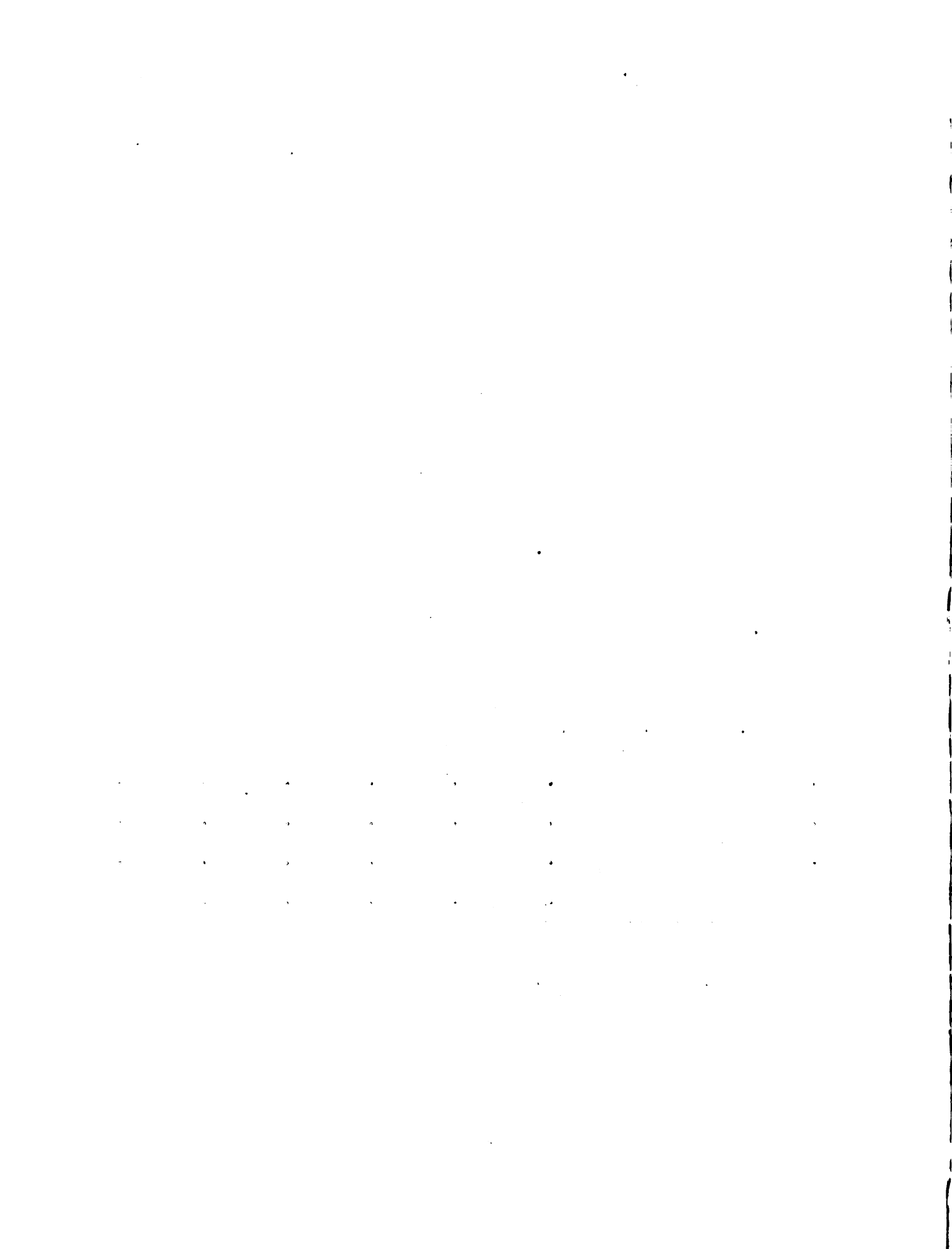
nancy of cow No. 143 was thickly dotted with accessory cotyledons throughout both uterine horns, yet a strong healthy calf was delivered at 278 days of gestation.

Table IV includes the data on 226 pregnancies of 59 cows with reference to the breeding efficiency as indicated by the average number of services per pregnancy, and the length of gestation. All the pregnancies included terminated with the birth of an apparently healthy calf which lived at least one month after birth. The animals are divided into three groups according to their reaction to the serum-agglutination test for Bang's disease. The figures appearing in the columns under the heading "Length of Gestation in Days" indicate the per cent of total parturitions of that particular group, which terminated within the designated number of days.

TABLE IV

Group	Total No. of Services	Total No. of Part.	Average No. of Services	Length of Gestation in Days				
				260 or less	261 to 271	271 to 276	276 to 281	281 or over
Neg.	232	116	2.0	1.72%	9.48%	22.41%	26.72%	39.68%
Pos.	192	65	2.9	3.05%	13.84%	33.84%	27.69%	21.53%
Sus.	113	45	2.5	0	8.88%	20. %	40. %	31.11%
All	537	226	2.4	2.38%	10.73%	25.42%	31.47%	30.77%

Williams, Udall, et al. (2) state that a calf born prior to 280 days of gestation is prematurely born and is abnormal. Accepting this statement as correct, Table IV would indicate that approximately 60 per cent of all living calves from the cows of the negative group, 78 1/2 per cent from the positive group, and 69 per cent from the suspicious group were



abnormal. There is little doubt but that many were abnormal since, as a study of the individual records will show, many were accompanied by fetal membranes which were diseased. However, abnormality to the extent of 60 to 70 per cent of all living calves hardly seems likely. In view of this, one might conclude, with regard to the animals studied, that the average normal gestation is less than 280 days. Data presented by the animals included in this work indicate that there is considerable variation of the average length of gestation between the various breeds as a whole.

CONCLUSIONS

These studies indicate that the endometrium of the bovine uterus possesses a great deal of reparative power in that it can apparently return to its normal state of health and carry on all its functions normally following disease, which may vary in extent from slight necrosis of a small area of placenta or interplacental tissue to complete necrosis of the cotyledons.

Disease of the fetal membranes seems to be more common and more extensive in the cotyledonous portion of the chorion than in the intercotyledonous area.

The study of the fetal membranes from cows, which were negative to the serum-agglutination test for Bang's disease indicates that both the extent and the prevalence of disease of the fetal membranes of such cases is slight. This would seem to indicate that Br. abortus was either directly or indirectly the etiological factor involved in a very high per cent of the cases of disease of the interplacental portion of the chorion, fetal and maternal cotyledons, and endometrium studied in this work.

The presence of diffuse placenta does not seem to be extremely rare in the bovine, or to be associated with any pathological condition of the endometrium, or hazardous to the health of the fetus.

A condition of comparative nakedness of a considerable area of the chorion (absence of placental tissue) is common in both negative and positive reacting cows, occurring most often and to a greater extent in the latter. Indications

are that this absence of placental tissue often accompanies, or is sequel to, disease of the endometrium.

While accessory cotyledons are not uncommon as a sequel to endometritis, their presence either in large or small numbers seems in a majority of cases to be quite independent of any previously existing pathological condition of the uterus. Furthermore, the presence of these accessories is not characterized by any consistent variations in the normal course of pregnancy.

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