Lot 3 in 50 c.c. $\frac{1}{10}$ molecular $NaNO_3$ containing $\frac{1}{2}$ per cent. ether. At the end of eight hours, the water was removed from each lot, evaporated in quartz vessels to 3 c.c. and examined with the nephelometer. The water from lot 2 contained $\frac{1}{2}$, and that from lot 3 contained $\frac{3}{4}$ as much chlorides as that from lot 1.

Two conclusions may be drawn from these experiments.

1. Pure salt solutions or anesthetics, in concentrations approaching the lethal dose, irreversibly increase the permeability.

2. Anesthetics in about $\frac{1}{2}$ the above concentration (which is about the concentration for narcosis) antagonize the action of pure salt solutions, so that the combined action is less than the action of the salt alone in increasing permeability.

It has been shown that the permeability of muscle is increased by stimulation.[2] Anesthetics in certain concentrations tend to inhibit the stimulation of muscle. Perhaps they do so by inhibiting the increase in permeability. This idea is not new, but new facts are brought in support of it.

J. F. MCCLENDON
PHYSIOLOGICAL LABORATORY,
UNIVERSITY OF MINN. MEDICAL SCHOOL,
June 1, 1914

THE EFFECT OF SOIL CONDITIONS ON THE TASSELS OF MAIZE

CONSIDERABLE work has been done on the effect of various factors of environment on the growth of the maize plant. Most of these studies have been confined to the pistillate flowers, or the ear, and comparatively little attention has been given to the tassel which produces the pollen.

Lazenby,[1] on studying a number of varieties of corn, showed that the number of flowers upon a stalk varied widely even in the same variety. He also found a certain relation between the number of pistillate and staminate flowers produced by the corn. This relation was not the same for all types.

In work carried on at the Utah Experiment Station by the author and his associates on the effect of soil factors on plants, a study was made of the number of branches produced in the tassels of maize.

The corn was raised at the Greenville experimental farm on a uniform soil that had received no manure for many years previous to beginning this experiment in 1911. There were 36 plats in all, 12 having no manure applied, 12 receiving at the rate of 5 tons to the acre and 12 receiving 15 tons. The size of each plat was 7 x 24 feet.

Each manuring treatment contained six different irrigation treatments of two plats each as follows: (1) no irrigation, (2) 5 inches, (3) 10 inches, (4) 20 inches, (5) 30 inches and (6) 40 inches. The water was applied in irrigations of five inches each. When the plants were a few inches high they were thinned so that each plat contained the same number of plants.

Before harvesting a count was made of the number of branches in the tassel of each plant and averages made for the plats. A record of the number of ears produced on each plat was also made. The work has been carried on for three years. A summary of the results follows:

EFFECT OF MANURE ON THE NUMBER OF BRANCHES PER TASSEL OF MAIZE

Manure Applied	Number Plats Each Year	Number of Branches per Tassel			
		1911	1912	1913	Average
None.....	12	15.45	12.85	13.65	13.98
5 tons.....	12	17.29	14.89	18.61	16.92
15 tons.....	12	18.75	16.09	21.47	18.77

The number of ears produced on each plat was as follows:

Manure Applied	Number of Ears per Plat			
	1911	1912	1913	Average
None.....	70	59.25	49.3	59.52
5 tons.....	75	75.41	66.5	72.30
15 tons.....	75	78.08	83.5	78.86

[1] Lazenby, W. R., "The Flowering and Pollination of Indian Corn," *Proc. Soc. Prom. Agr. Sci.* (1898), pp. 123–129.

[2] McClendon, *Am. Journal Physiology*, Vol. 29, p. 302.

In order to compare the number of branches per tassel with the ears per plat, 100 was taken as the number on the plats with no manure in each case, and the others expressed in relative numbers.

RELATIVE NUMBER OF BRANCHES PER TASSEL AND EARS PER PLAT

Manure Applied	1911		1912		1913		Average	
	Branches per Tassel	Ears per Plat	Branches per Tassel	Ears per Plat	Branches per Tassel	Ears per Plat	Branches per Tassel	Ears per Plat
None....	100	100	100	100	100	100	100	100
5 tons...	112	107	109	127	129	127	121	121
15 tons..	115	107	125	132	157	160	127	132

The effect of the irrigation water on the number of branches per tassel and the ears per plat is expressed in the following table, which is an average of the three years' results.

EFFECT OF SOIL MOISTURE ON THE NUMBER OF BRANCHES PER TASSEL AND EARS PER PLAT

Water Applied	Number Plats Each Year	Number Branches per Tassel	Number Ears per Plat	Relative Number of	
				Branches per Tassel	Ears per Plat
None.....	6	16.25	69.28	100	100
5 inches.....	6	16.78	76.05	103	110
10 inches...	6	16.33	71.27	101	103
20 inches...	6	16.49	77.38	102	112
30 inches...	6	17.15	73.28	106	106
40 inches...	6	16.56	75.28	102	109

These tables show that the number of branches per tassel is affected by the condition of the soil, and that there is a close relationship between the tassel branches and number of ears produced.

It seems clear, therefore, that the staminate and the pistillate flowers of maize are affected by the same conditions.

Frank S. Harris
Utah Experiment Station,
Logan, Utah

ASCARIS SUUM IN SHEEP

An autopsy of an eight-months-old lamb upon which with others of the same age, a feeding experiment was being conducted revealed the presence of two female ascarids in the small intestine. By the aid of the key in Ransom[1] these were diagnosed as *Ascaris ovis*. These lambs, however, were being fed and kept in pens, previously occupied by hogs, known to be infested with ascarids. The pens had been thoroughly cleaned out before the lambs were placed in them. An examination of the ascarids in the light of this information emphasized their close similarity if not identity to *Ascaris suum*.

The mothers of these lambs were shipped up from the Carpenter Test Farm in the spring of 1912. No ascarids have ever been found in the sheep on this farm. The examination of the feces of the ewes from which these lambs were raised has never revealed the presence of ascarids. It appears highly probable, therefore, that the lamb got its infestation from the pen in which it was kept and that the eggs from which the worms developed were deposited in the pen by the infested hogs which previously occupied it.

The status of the different species of ascarids affecting man, swine and sheep seems to be somewhat in question. It is considered questionable by some authors whether *Ascaris ovis* (sheep) represents a distinct species, or whether it is simply *Ascaris lumbricoides* (man) or *Ascaris suum* (pig) in an unusual host. Circumstantial evidence in the case here recorded strongly indicates that this statement may be true. It is also questioned by some whether *Ascaris suum* and *Ascaris lumbricoides* represent distinct species. In fact, Neveu-Lemaire[2] does not consider the differences between these worms marked enough to establish a separate species and reduces *Ascaris suum* Goeze, 1872, and *Ascaris suilla* Dujardin, 1845, to synonyms. He calls the ascarids of these two different hosts *Ascaris lumbricoides* Linne, 1758. Feeding experiments may serve to clear up this confusion.

Don C. Mote
Ohio Agricultural Experiment Station,
Wooster, O.

[1] Ransom, "The Nematodes Parasitic in the Alimentary Tract of Cattle, Sheep and other Ruminants," 1911.

[2] M. Neveu-Lemaire, "Parasitologie des Animaux Domestiques," 1912.