

culin.<sup>9</sup> Reactions to horse serum 1-100, bovine serum 1-100, Frei antigen, and 0.85% saline were negative in every subject except No. 9 (horse serum, 96, and bovine serum, 6). Observations were made at the end of 20 minutes, 8, 24, and 48 hours. Maximal reactions had occurred within 48 hours, and their tabulated size was obtained by multiplying the length by the breadth in cm. of the zone of definite erythema.

TABLE I.

	Patients					Normal Controls				
	1	2	3	4	5	6	7	8	9	
Johnin (undiluted)	82.5	15.0	12.6	24.0	0	22.75	0	.25	0	32.0
Old tuberculin 1-1000	42.5	3.6	2.25	1.04	0	1.5	0	.06	0	.25

These results reveal no relation between non-specific regional enteritis and cutaneous sensitivity to Johnin. Whether the sensitivity to tuberculin associated with sensitivity to Johnin is due to similar components of Johne's and tubercle bacilli or to a non-specific reactivity of tuberculous individuals as described by Hart<sup>10</sup> is a question which awaits further study.

We are indebted to Dr. H. W. Schoening of the Bureau of Animal Industry of the U. S. Department of Agriculture for valuable advice and for a generous supply of Johnin.

## 9675 P

## Gonadotropic Extracts from the Leaves of Young Oat Plants.

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By the use of the Katzman-Doisy benzoic acid procedure it was found possible to obtain gonadotropic extracts from alfalfa leaf meal.<sup>1</sup> It was, however, difficult to obtain active extracts uniformly from commercial samples available, and it was not found possible to arrange for a dependable supply of alfalfa meal of known age and history. The work of Schnabel<sup>2</sup> on the biologic value of im-

<sup>9</sup> Giltner, L. T., U. S. Bureau of Animal Industry, personal communication.

<sup>10</sup> Hart, D., *Quart. J. Med. N. S.*, 1932, 1, 49.

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<sup>1</sup> Friedman and Friedman, *Proc. Soc. Exp. Biol. and Med.*, 1934, 31, 842.

<sup>2</sup> Schnabel, C. F., read before the section on biology of the Am. Chem. Soc., New York, April 22, 1935.

mature oat grass prompted an investigation of this material. The young oat leaves proved to be a better source of gonadotropin than alfalfa leaf, and more easy to obtain at the desired stage of growth. The plants were cut when 4 to 6 inches high and either cured in the sun or quickly dehydrated by the method commonly used for drying alfalfa commercially. Two crops were obtained from Kansas and 2 from the New Jersey State Agricultural Experiment Station at New Brunswick.† The extraction procedure has been modified to the extent of substituting 30% acetone for water as the medium for the extraction of the crude protein resulting from the benzoic acid precipitation.

Potent extracts have been repeatedly prepared from each of the 4 successive crops over a period of 3 years. With the present technique the dried oat leaves yield products which produce ovulation in the rabbit by the single intravenous injection of the equivalent of 30 to 80 gm. of the original dry leaf. The latent period, like that of post-coital ovulation, is less than 18 hours and thus differs from the process provoked by the injection of copper salts.<sup>3</sup> It is entirely possible that the activity in alfalfa and oat leaves is similar to the thermolabile component in yeast extracts which was found to be active in the hypophysectomized male rat by Hisaw and coworkers.<sup>4</sup>

## 9676 P

### Hyperthyroidism and Vitamin C.\*

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Recently this laboratory has demonstrated that crystalline vitamin B<sub>1</sub>, when administered in large doses will prevent the rapid tissue catabolism and even permit considerable growth in hyperthyroidism in the rat, provided the diet was fortified with an abundance of the stable factor of the vitamin B complex.<sup>1</sup>

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† The Kansas product was supplied by Dr. Schnabel; the New Jersey samples were supplied through the courtesy and cooperation of Dr. Walter Russell without whose aid these experiments would have been impossible.

<sup>3</sup> Fevold, Hisaw, and Greep, *Am. J. Physiol.*, 1936, **117**, 68.

<sup>4</sup> Hisaw, Greep, and Fevold, *Anat. Rec.*, 1936, **67**, supp. p. 50.

\* Research paper No. 476, Journal Series, University of Arkansas, Fayetteville.

<sup>1</sup> Sure, B., and Buchanan, K. S., *J. Nutr.*, 1937, **18**, 513.