

The other pullets (G and GA) displayed courtship but no masculine copulatory behavior during the period of observations.

In the second group, 6 pullets received their first pellet at one month and further implants (average, 25.9 mg) at 109, 202, 297, 395, 495, and 592 days thereafter. One bird, G, was first observed to crow at 125, chase at 126, waltz and circle at 141, and to mount and copulate at 161 days (age 191) after the first implant. Sporadic copulations occurred until 11 months after final implantation. The other 5 birds began to crow and display courtship at approximately the same time as G but did not mount or copulate.

In a third group, 8 pullets received pellet implantations beginning at 4 days and additional implants (average, 23.2 mg) at 62 and 172 days. In this group, only one bird crowed and another was observed to waltz and circle.

In the fourth group, 6 pullets received the first pellet when 3 months old and further implants (average, 28.2 mg) at 80, 185, 317,[†] and 436 days subsequently. All were known to crow and 3 displayed courtship behavior. No copulations were observed.

A standard trap-nest was kept in all pens throughout the experiments. One treading pul-

let (A) never laid. It died 871 days after first implantation. The other treader (BW) laid 6 eggs between the 69th and 80th days following second implantation, and 3 more after a lapse of one year following the last implant. During the 4 years of observation the non-treading pullet G laid 6 eggs between 57th and 74th days, and GA only one egg on 79th day after second implantation.

In the second experiment, treading hen G, as well as 3 non-treaders, never laid over a span of 3 years. One non-treading hen laid an egg at 4 months after the first, and another laid one egg at 2 years after the last implant. Similar records of sporadic egg-laying were obtained in the other experiments, while some controls laid as many as 21 eggs per month.

Summary. Three cases are described from 4 experimental groups totaling 24 birds, some observed for more than 4 years, in which single comb brown Leghorn hens displayed male copulatory behavior following successive implants of testosterone propionate pellets. Implantations were begun when birds were 4 days, and 1, 3, and 5 months old. These results contrast with earlier negative findings following single daily injections of this hormone. Induction of copulatory behavior in such a small percentage of cases indicates the desirability for further study of factors controlling this behavior pattern.

[†] At the time of the second, third, and fourth implantations, 3 of the pullets received 2 pellets each. The average weight of both was 57.1 mg.

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Incidence of Rh Factor Among the Indians of the Southwest.

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Within the last 12 years the Indians of the Southwest have been investigated as to the occurrence of the various agglutinogens. Allen and Schaeffer¹ reported on the classic blood groups, and Allen and Larsen² reported their

findings on the M and N agglutinogens. The basis of this report is the Rh factor among the above mentioned Indians.

¹ Allen, F. W., and Schaeffer, W., *Univ. N. Mex. Bull. Biol. Series*, 1935, **4**, 2.

² Allen, F. W., and Larsen, H. D., *J. Immunol.*, 1937, **32**, 301.

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The Indians tested were patients at the U. S. Indian Hospital and the Indian School Hospital at Albuquerque, New Mexico. Students of the Indian School at Albuquerque and the Day School at Isleta were also used in this study. The age range was from school age to 60 years.

Lederle's Anti-Rh Serum (Anti-Rh₀) was used in this series of tests; this serum is of animal origin. Two drops of blood to be tested were added to 0.5 cc of physiological saline containing 1% sodium citrate. One drop of the cell suspension is placed on a clean glass slide. Next to this is placed one drop of Anti-Rh Serum. The two are mixed with a glass rod and finally by tilting the slide back and forth once. The slide is placed undisturbed on the table for 3 minutes. At the end of this time the slide is picked up and given 2 or 3 gentle turns. While continuing to hold the slide a gentle motion is maintained and the test mixture is examined macroscopically with oblique lighting until the end of 6 minutes. Clumping is always visible within 6 minutes in positive tests and all observations must be terminated in 6 minutes. It is necessary to guard against rapid evaporation in dry air; a Petri dish was used to cover the slides. Rh-positive and Rh-negative controls were run with all tests.

The census records of the United Pueblo Agency at Albuquerque were used to determine the racial purity of the Indians concerned. Table I records the findings of the full-blooded (4/4) Indians tested.

Seven Rh positives were found among Indians other than full bloods (4/4). The range of racial purity ran from 2/4 to 15/16.

TABLE I.
Incidence of Rh Factor Among Full-Blooded (4/4)
Indians Tested.

Tribe or Pueblo	Rh positive	Rh negative
Acoma	62	0
Apache	8	0
Cochiti	6	0
Hopi	6	0
Isleta	75	0
Jemez	9	0
Laguna	70	0
Navajo	53	1
Sandia	6	0
San Felipe	22	0
San Ildefonso	1	0
San Juan	6	0
Santa Ana	10	0
Santa Clara	3	0
Santo Domingo	19	0
Sia (Zia)	8	0
Taos	12	0
Tesuque	3	0
Tewa	1	0
Zuni	5	0
Totals	385	1

In some cases census records were unavailable; there were 55 Indians in this category. All were Rh positive.

The total findings are 447 Rh positives and one Rh negative in the Indians tested.

Similar results have been obtained by other investigators^{3,4} in testing Indians of North America.

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³ Landsteiner, K., Wiener, A. S., and Matson, G. A., *J. Exp. Med.*, 1942, **76**, 73.

⁴ Wiener, A. S., Zepeda, J. P., Sonn, E. B., and Polivka, H. R., *J. Exp. Med.*, 1945, **81**, 559.