

Experiment Station
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Chemistry Department.

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Analyses of Eggs.

IN the summer of 1905 the Animal Husbandry Department under which at that time the poultry experiments were conducted, had in progress a test of the egg-producing capacity of representative hens from six pure breeds of chickens. This situation afforded a favorable opportunity for making some investigations concerning the physical and chemical characteristics of the eggs. The plans for these were chiefly the outgrowth of consultation between Professor Erf and Mr. Shaw. At that time it was expected that a bulletin would be issued concerning the egg-laying test in all its details, and it was planned to publish the chemical results as a part of this Bulletin. The publication of the data concerning the feeding and egg-production has been abandoned excepting in so far as it has already been given in press bulletins. The chemical investigations have involved the expenditure of a large amount of time, and though less interesting without the matter which it had been expected would accompany them the results are presented in detail in this Bulletin.

Though seven breeds of chickens were on trial in respect to egg-production, only four were used in the chemical tests. These were American Reds owned by J. Martin, Wichita, Kan.; Barred Plymouth Rocks owned by Mrs. J. W. Jones, Abilene, Kan.; Single Comb White Leghorns owned by the Agricultural

College, and White Wyandottes owned by Beecher & Beecher, Belleville, Kan. The Plymouth Rocks were hens, while the other breeds were pullets, of which the American Reds were the best matured at the beginning of the test, November 1, 1904. As the eggs for analysis were collected in June and July, 1905, all were well matured by that time. All of the eggs were laid within the six weeks between June 18 and July 31, 1905.

Measurements were made of both diameters of each egg, and of the thickness and strength of the shell. The diameters were measured to tenths of millimeters by means of calipers, and the thickness of the shell was measured to ten-thousandths of an inch by a micrometer caliper. The shell was measured in three places, usually the two ends and a side, and the average of the three taken. The strength of the shell was ascertained in terms of the weight necessary to perforate it, which was ascertained by a specially devised machine. The weight of each egg was taken, and also of the white, yolk and shell separately, from which the percentages of these three parts were calculated.

The analyses that were made of each egg were limited to determinations of water in the white, and of water, ether extract and ash in the yolk. The total solids of the white were taken to be protein, the percentage of other constituents being extremely small, and the protein of the yolk was also calculated by difference. All of the eggs laid within the six weeks were thus measured and analyzed. From the analytical results thus obtained with the white and yolk separately, the percentages of protein, fat and water in the whole egg were calculated.

In addition to the analyses above indicated, determinations of phosphorus were made in composite samples taken from the yolks of the egg laid by each hen for each of the six weeks; that is, with each hen the eggs laid for one week were sampled for a composite sample in which phosphorus was determined, and the eggs laid the next week were similarly sampled for another determination, etc. In some cases no eggs would be laid within a week, and hence there was no sample.

In the first forty-nine analyses the weight of the egg after boiling was taken as the basis upon which the percentages of white and of yolk were calculated, and the weight of the shell was not taken. In the remainder of the analyses the shell, white and yolk of each egg were weighed separately and their

sum taken as the weight of the egg upon which calculations are based. As samples dried somewhat during weighing the weight of the cooked egg was slightly greater than that of the sum of the observed weights of the three parts.

The estimation of ash in the yolk was made by igniting the dry substance in a flat porcelain dish in a muffle-furnace.

The ether extract was obtained by extracting the perfectly dry yolk with anhydrous ether. While consisting chiefly of fat, it also included lecithin.

At this point it may be stated that Mr. Shaw resigned his position with this Experiment Station and went to the Nebraska Station January 1, 1906, a large proportion of the analyses of the eggs being yet uncompleted. By the courtesy of the Nebraska Experiment Station arrangements were made by which a large number of determinations of ether extract were made in its chemical laboratory for us by Miss Stella Hartzell, under the supervision of Mr. Shaw, and grateful acknowledgment for this courtesy is hereby made.

The following tables show the details of the results upon each egg. It will be impossible to discuss all of these observations, and they are presented here in this extended way in order that students of the subject may be able to utilize the data in full in respect to any questions upon which they have application. Following the detailed tables are some general comments upon the results, also a table of averages.

AMERICAN RED No. 3.

DATE.	Analysis No.	Laboratory No.	No. of eggs.	Long diameter of egg.	Short diameter of egg.	Weight of part of egg shell.	Av. thickness of shell, in inches.	Wt. of egg, in ounces.	Percentage of white.	Percentage of yolk.	Percentage of shell.	Percentage of protein in white.	Percentage of water in white.	Percentage of ether extract in yolk.	Percentage of water in yolk.	Percentage of ash in yolk.	Percentage of protein in egg.	Percentage of ether extract in egg.	Percentage of water in egg.	Percentage of protein in egg.
Jun. 28.	64	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
28.	65	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
28.	66	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
28.	67	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
28.	68	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
Jul. 1.	69	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
4.	70	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
5.	71	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
8.	72	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
10.	73	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
12.	74	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
13.	75	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
14.	76	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
17.	77	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
18.	78	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
21.	79	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
22.	80	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
23.	81	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
24.	82	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
25.	83	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
26.	84	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
28.	85	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
29.	86	1063	1	2.95	1.67	5.50	0.0133	2.04	56.62	33.25	8.43	10.33	89.62	17.14	33.57	47.76	1.53	11.59	11.16	66.68
Totals				2.95	1.67	5.50	0.0133	45.80	1866.61	813.04	222.45	243.70	2055.90	408.58	810.37	1147.60	37.92	275.20	274.90	1545.54
Averages				2.95	1.67	5.50	0.0133	1.908	56.94	33.87	9.268	10.6	89.39	16.816	33.76	47.817	1.58	11.965	11.45	67.197

AMERICAN RED No. 6.

DATE.	Analysis No.	Laboratory No.	No. of eggs	Long diameter of eggs	Short diameter of eggs	Weight to surface of shell.	Av. thickness of shell, in inches	Wt. of egg, in ounces	Percentage of white	Percentage of yolk	Percentage of shell	Percentage of protein in white	Percentage of water in white	Percentage of ether extract in yolk.	Percentage of ash in yolk.	Percentage of protein in egg	Percentage of other extract in egg.	Percentage of water in egg		
Jun. 23	80	1679	1	2.21	1.67	8.85	0.0131	1.91	59.45	34.43	9.11	12.78	87.22	16.63	34.80	47.04	1.65	12.95	11.98	65.42
.. 30	181	1182	1	2.13	1.63	6.03	0.0133	1.96	59.65	34.41	9.95	10.81	89.19	17.51	33.04	47.79	1.63	12.18	11.37	67.95
.. 1	199	1198	1	2.14	1.61	7.03	0.0150	1.79	46.23	45.87	10.91	10.57	89.09	15.09	23.12	60.45	1.34	11.62	11.29	65.50
.. 3	231	1230	1	2.13	1.61	7.56	0.0138	1.81	53.89	36.33	9.72	11.87	88.63	16.54	31.89	50.66	1.41	12.16	11.57	65.94
.. 22	434	1417	1	2.13	1.62	7.79	0.0118	1.87	59.06	36.37	9.44	12.82	87.48	15.48	33.85	49.93	1.73	12.50	10.33	68.00
.. 21	440	1433	1	2.11	1.62	8.28	0.0131	1.76	56.28	34.99	9.75	12.10	87.90	17.92	31.91	48.62	1.58	13.07	11.14	66.50
.. 25	453	1433	1	2.11	1.62	8.28	0.0137	1.77	53.16	36.76	10.07	11.47	88.53	17.52	32.00	48.83	1.645	12.53	11.75	64.99
.. 27	463	1451	1	2.11	1.63	8.28	0.0138	1.75	53.10	36.64	10.27	10.79	88.21	17.65	31.90	48.71	1.74	12.20	11.70	65.24
.. 28	474	1456	10	2.10	1.62	8.31	0.0131	1.87	52.60	37.36	10.04	10.26	89.74	17.90	32.88	48.56	1.68	12.07	12.27	65.34
.. 29	499	1498	11	2.13	1.75	6.42	0.0145	1.61	53.37	35.06	11.55	10.87	89.18	16.88	32.80	48.56	1.76	11.71	11.50	64.58
Totals						60.66	0.1485	18.00	534.29	363.36	97.82	113.48	856.46	169.17	317.19	498.65	16.19	122.97	114.90	659.46
Averages				2.12	1.64	6.67	0.0185	1.80	53.33	36.336	9.78	11.348	88.646	16.917	31.719	49.865	1.619	12.297	11.49	65.946

AMERICAN RED No. 214.

DATE.	Analysis No.	Laboratory No.	No. of eggs.	Long diameter of eggs.	Short diameter of eggs.	Weight of perforated shell.	Average thickness of shell in inches.	Wt. of egg in ounces.	Percentage of white.	Percentage of yolk.	Percentage of shell.	Percentage of protein in white.	Percentage of water in white.	Percentage of protein in yolk.	Percentage of ether extract in yolk.	Percentage of ash in yolk.	Percentage of protein in egg.	Percentage of ether extract in egg.	Percentage of water in egg.	
Jun. 19	24	1023	1	2.23	1.60	7.83	0.0154	1.89	57.12	32.21	11.84	88.16	17.95	30.68	50.03	1.51	12.54	9.88	69.50	
.. 21	48	1017	2	2.23	1.60	7.83	0.0148	1.82	53.56	33.57	13.00	87.00	16.71	32.07	49.77	1.46	12.55	9.88	69.29	
.. 22	65	1034	2	2.17	1.58	3.84	0.0153	1.78	57.03	32.68	10.23	87.83	16.95	31.24	49.73	2.08	12.19	10.21	66.64	
.. 24	94	1033	2	2.24	1.58	7.53	0.0142	1.78	56.04	32.11	11.85	87.90	17.70	31.62	49.23	1.45	12.80	10.16	64.76	
.. 25	123	1121	2	2.23	1.59	6.80	0.0139	1.76	58.16	31.69	10.16	87.24	17.12	32.32	49.17	1.39	12.23	10.24	68.27	
.. 28	143	1167	2	2.23	1.58	6.43	0.0149	1.69	56.56	32.71	10.71	87.26	15.94	33.84	48.66	1.56	12.39	11.04	65.46	
.. 29	163	1167	2	2.12	1.58	6.43	0.0141	1.69	54.64	34.64	10.72	87.68	17.41	31.48	49.61	1.50	12.77	10.90	65.80	
.. 30	185	1184	2	2.14	1.58	5.64	0.0133	1.89	57.91	32.21	10.49	87.10	17.21	32.18	49.01	1.60	13.03	10.36	65.71	
Jul. 2	213	1213	10	2.25	1.62	5.84	0.0145	1.73	54.16	34.15	11.69	86.84	16.31	31.87	50.27	1.55	12.66	10.78	61.78	
.. 3	233	1213	10	2.14	1.60	5.84	0.0145	1.73	57.49	31.87	10.64	87.92	17.79	31.67	48.99	1.55	12.62	10.69	66.32	
.. 4	253	1213	10	2.19	1.54	5.84	0.0141	1.74	55.76	33.81	10.45	12.60	18.05	31.51	48.95	1.61	13.12	10.65	65.23	
.. 5	273	1213	10	2.19	1.57	5.84	0.0137	1.67	55.84	33.88	10.30	12.50	18.34	31.81	48.57	1.84	13.18	10.77	65.30	
.. 6	293	1213	10	2.19	1.57	5.84	0.0146	1.69	59.70	32.55	10.83	11.92	17.63	37.55	48.46	1.36	12.49	10.58	65.73	
.. 7	313	1213	10	2.19	1.57	5.84	0.0137	1.67	55.84	33.88	10.30	12.50	18.34	31.81	48.57	1.84	13.18	10.77	65.30	
.. 8	333	1213	10	2.19	1.57	5.84	0.0146	1.69	59.70	32.55	10.83	11.92	17.63	37.55	48.46	1.36	12.49	10.58	65.73	
.. 10	353	1213	10	2.25	1.57	5.34	0.0132	1.81	50.32	31.23	8.40	14.51	15.39	18.67	31.02	48.82	1.59	14.62	9.71	64.76
.. 11	373	1213	10	2.13	1.57	5.34	0.0133	1.63	57.24	31.56	11.19	12.22	17.96	31.50	49.00	1.535	12.65	9.955	65.70	
.. 13	393	1213	10	2.27	1.59	6.49	0.0128	1.79	57.49	32.48	10.02	12.46	17.64	31.81	48.19	1.36	12.99	10.35	66.81	
.. 15	413	1213	10	2.23	1.60	7.94	0.0139	1.79	57.63	31.85	10.57	13.24	18.67	17.39	32.64	48.46	1.51	13.17	10.41	65.46
.. 16	433	1213	10	2.19	1.59	7.80	0.0136	1.77	56.97	32.46	10.58	12.46	17.53	32.15	49.23	1.455	12.96	10.45	65.83	
.. 18	453	1213	10	2.23	1.58	7.07	0.0136	1.77	57.77	32.07	10.15	12.64	17.36	31.78	49.10	1.585	12.92	10.18	66.18	
.. 19	473	1213	10	2.20	1.60	5.87	0.0142	1.78	56.45	32.60	10.75	12.20	17.98	32.25	48.33	1.49	12.75	10.52	65.33	
.. 21	493	1213	10	2.22	1.60	6.18	0.0139	1.79	57.36	32.17	10.48	12.51	18.42	31.13	49.20	1.48	13.05	10.62	65.99	
.. 22	513	1213	10	2.15	1.61	6.84	0.0131	1.73	60.13	29.70	10.17	11.74	18.26	17.44	32.55	48.32	1.69	12.24	9.68	67.45
.. 24	533	1213	10	2.17	1.60	6.84	0.0147	1.76	59.07	30.27	10.68	12.54	18.42	31.60	48.72	1.69	12.82	9.57	66.47	
.. 25	553	1213	10	2.11	1.58	7.86	0.0134	1.64	58.26	31.07	10.66	12.54	18.42	31.60	48.72	1.69	12.82	9.57	66.47	
Totals						136.60	0.3500	43.99	1425.49	809.62	241.86	301.36	2098.64	437.24	797.58	1226.55	307.88	258.31	1577.21	
Averages				2.195	1.525	6.5	0.0140	1.76	57.02	32.38	10.516	12.556	17.49	31.90	49.06	1.53	12.83	10.33	65.717	

AMERICAN RED No. 218.

DATE.	1905.	Analysis No.	Laboratory No.	No. of eggs.	Long diameter of eggs.	Short diameter of eggs.	Weight to per- forate shell.	Ay. thickness of shell, in inches.	Wt. of egg, in ounces.	Percentage of white.	Percentage of yolk.	Percentage of shell.	Percentage of protein in white.	Percentage of water in white.	Percentage of ether ex- tract in yolk.	Percentage of ash in yolk.	Percentage of other ex- tract in egg.	Percentage of water in eggs.			
Jun.	18.	11	1010	1	2.37	1.71			2.19	59.29	31.12		12.38	87.62	18.86	35.01	44.32	1.81	13.19	10.87	65.80
	20.	35	1034	2	2.27	1.69	6.55	0.0124	2.13	57.10	33.11		12.52	87.48	17.18	34.04	47.13	1.65	12.83	11.37	65.56
	21.	49	1048	3	2.23	1.66		0.0125	1.97	54.61	34.13		13.30	86.70	16.23	34.72	47.47	1.53	12.79	11.71	65.54
	22.	66	1065	3	2.23	1.65	4.42	0.0115	1.91	56.79	34.85		12.62	87.38	19.09	30.86	48.49	1.61	13.80	12.25	66.51
	25.	105	1104	3	2.30	1.72	5.42	0.0130	2.03	57.44	33.97		13.02	86.93	16.32	32.99	49.26	1.43	13.01	11.20	66.70
	28.	124	1123	3	2.34	2.02	4.32	0.0129	2.04	57.15	34.04		13.62	86.38	16.46	34.68	47.42	1.44	13.37	11.50	65.50
	28.	151	1150	3	2.20	1.67	3.77	0.0149	1.89	59.06	30.68		10.31	85.19	17.16	33.20	48.26	1.33	14.01	10.17	65.13
	30.	174	1185	3	2.33	1.70		0.0130	2.09	60.73	30.89		9.38	87.02	17.59	33.39	47.41	1.61	13.32	10.31	67.52
Jul.	1.	201	1199	3	2.33	1.70	3.40	0.0121	1.88	58.20	32.75		9.04	85.55	17.59	33.67	47.35	1.39	14.16	11.05	65.20
	2.	215	1214	10	2.24	1.65	5.44	0.0121	1.95	54.56	31.45		8.70	87.40	17.10	33.74	47.62	1.54	12.85	10.61	62.65
	18.	373	1372	11	2.40	1.85		0.0101	2.10	62.26	30.66		7.09	86.86	18.03	32.76	47.66	1.56	13.72	10.06	65.75
	19.	378	1381	12	2.28	1.66		0.0107	1.93	58.52	33.59		7.88	87.30	17.39	33.83	47.32	1.46	13.23	11.36	65.97
	20.	391	1393	13	2.29	1.66		0.0115	1.91	56.02	35.20		8.79	86.72	17.32	33.45	47.66	1.55	13.54	11.81	65.43
	22.	429	1419	14	2.33	1.67		0.0118	2.07	58.89	33.17		7.94	87.08	17.29	33.82	47.19	1.65	13.33	11.20	66.91
	23.	431	1430	15	2.34	1.71	4.32	0.0117	2.08	57.42	34.21		8.37	87.04	16.75	33.80	47.82	1.60	13.17	11.56	66.27
	24.	442	1441	15	2.30	1.68	5.77	0.0118	2.02	55.30	34.89		8.81	86.96	17.25	33.82	47.36	1.57	13.22	11.80	64.59
	25.	455	1454	18	2.30	1.67	4.35	0.0123	2.00	56.54	34.77		8.70	87.48	16.89	34.50	46.97	1.69	12.91	11.38	65.77
	26.	465	1465	18	2.28	1.67		0.0123	1.93	56.10	34.85		9.02	87.58	16.16	34.46	47.71	1.67	12.60	12.00	65.81
	28.	473	1487	19	2.22	1.69	4.46	0.0090	1.97	57.11	34.09		8.81	86.88	17.59	33.00	47.82	1.59	14.39	11.24	65.97
	29.	500	1499	20	2.08	1.67		0.0118	1.98	57.93	33.34		8.68	86.99	16.71	34.14	47.39	1.76	13.14	11.39	66.16
	Totals.						52.86	0.2316	40.06	1150.87	665.76	147.26	261.46	1738.54	344.94	673.87	949.65	31.53	266.04	225.76	1317.82
	Averages.				2.277	1.696	4.80	0.0122	2.00	57.54	33.28	8.66	13.07	86.927	17.247	33.69	47.48	1.577	13.32	11.288	65.89

Mar. 1909.]

Analyses of Eggs.

PLYMOUTH ROCK No. 7.

DATE.	Analysis No.	Laboratory No.	No. of eggs.	Long diameter of egg.	Short diameter of egg.	Weight to per- forate shell.	Av. thickness of shell, in inches.	Wt. of egg, in ounces.	Percentage of white.	Percentage of yolk.	Percentage of shell.	Percentage of protein in white.	Percentage of water in white.	Percentage of ether ex- tract in yolk.	Percentage of water in yolk.	Percentage of ash in yolk.	Percentage of protein in egg.	Percentage of ether ex- tract in egg.	Percentage of water in egg.
Jun. 27.	181	1130	1	2.25	1.58	5.12	0.0127	1.74	56.40	34.33	9.13	12.73	87.22	19.28	30.20	1.38	13.82	10.44	66.07
28.	144	1133	2	2.25	1.57	4.77	0.0145	1.71	53.70	35.71	10.61	10.25	89.74	18.33	31.85	1.63	12.95	11.35	59.28
30.	177	1176	3	2.25	1.59	7.44	0.0144	1.74	54.09	35.34	10.53	11.12	88.88	18.04	31.06	1.61	12.98	11.55	60.20
Jul. 1.	193	1192	4	2.32	1.55	6.51	0.0137	1.75	53.84	35.59	10.55	11.53	88.47	17.59	31.61	1.60	12.91	11.24	59.12
3.	224	1234	4	2.31	1.57	6.24	0.0145	1.83	55.04	34.83	10.12	11.39	88.61	17.60	30.78	1.55	12.81	10.73	59.39
5.	252	1251	6	2.32	1.61	.....	0.0145	1.73	55.54	33.32	10.15	11.63	88.37	19.15	31.14	1.59	12.96	10.35	59.11
8.	253	1251	6	2.25	1.64	.....	0.0143	1.93	53.43	32.56	9.83	12.10	87.90	18.54	31.54	1.43	12.10	10.82	59.68
9.	253	1251	6	2.21	1.61	9.23	0.0143	1.77	53.75	35.05	11.19	11.20	88.80	18.54	30.86	1.41	12.51	10.40	59.20
10.	253	1251	6	2.25	1.64	7.34	0.0142	1.79	53.38	33.70	10.92	10.18	89.32	18.69	30.80	1.53	11.94	10.40	59.20
12.	324	1320	10	2.24	1.63	6.95	0.0145	1.94	54.95	32.45	10.77	11.04	89.95	17.11	32.80	1.44	11.82	10.65	64.64
13.	330	1329	11	2.15	1.62	6.60	0.0141	1.73	55.58	33.60	10.81	11.41	89.59	18.23	32.20	1.45	11.82	10.59	65.36
15.	317	1316	12	2.16	1.60	7.55	0.0123	1.72	56.82	33.28	10.09	12.10	87.90	18.15	30.63	1.41	12.55	10.18	66.32
16.	354	1353	13	2.12	1.61	3.63	0.0133	1.73	59.80	32.49	9.74	11.12	85.89	18.33	30.66	1.61	12.36	9.96	67.40
Totals.	.....	.....	.....	.....	.....	6.399	0.0140	1.73	55.70	34.02	10.35	11.37	89.63	18.28	31.25	1.54	12.34	10.71	65.86
Averages	.....	.....	.....	2.19	1.60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

PLYMOUTH ROCK No. 9.

DATE.	Analysis No.	Laboratory No.	No. of eggs	Long diameter of egg	Short diameter of egg	Weight to per- forate shell	Av. thickness of shell, in inches	Wt. of egg, in ounces	Percentage of white	Percentage of yolk	Percentage of shell	Percentage of protein in white	Percentage of protein in yolk	Percentage of water in white	Percentage of ether ex- tract in yolk	Percentage of ash in yolk	Percentage of protein in egg	Percentage of ether ex- tract in egg	Percentage of water in egg
Jun. 19.	17	1016	1	2.30	1.63	.....	0.0147	1.94	50.50	37.12	.....	.....	.....	17.63	31.67	49.03	1.67	.....	11.75
21.	40	1039	2	2.25	1.58	7.95	0.0150	1.82	50.48	37.34	.....	11.76	88.24	16.73	32.91	38.85	1.51	12.19	12.25
22.	54	1053	2	2.28	1.61	4.00	0.0147	1.82	52.34	37.76	9.90	11.73	88.27	16.74	33.57	48.12	1.57	12.45	12.66
23.	73	1072	2	2.13	1.63	3.84	0.0149	1.87	52.12	37.51	10.39	11.20	88.80	17.29	33.40	47.79	1.52	12.32	10.05
24.	87	1086	4	2.23	1.63	.....	0.0147	1.85	49.29	38.10	10.69	12.08	87.92	16.37	34.26	47.88	1.49	12.19	13.12
25.	99	1098	6	2.12	1.64	6.29	0.0160	1.92	52.90	36.24	10.86	11.53	88.47	16.23	34.28	47.94	1.55	11.97	12.45
26.	113	1112	7	2.04	1.55	6.72	0.0148	1.52	55.85	32.89	11.27	.....	16.27	32.73	49.68	1.32	.....	10.76	
28.	140	1139	2	2.30	1.64	5.14	0.0148	1.92	54.91	35.06	10.40	11.96	88.04	17.13	33.29	47.93	1.65	12.57	11.66
29.	159	1158	9	2.17	1.61	7.64	0.0153	1.76	54.36	34.49	11.16	8.55	91.45	15.81	33.93	48.85	1.41	10.10	11.70
30.	174	1173	10	2.17	1.63	.....	0.0143	1.75	53.60	35.75	10.64	12.42	87.58	17.10	32.65	48.93	1.32	12.76	11.10
Jul. 1.	191	1190	11	2.14	1.59	5.96	0.0105	1.71	58.35	34.60	7.33	11.53	88.47	16.65	32.83	48.94	1.68	12.50	11.63
3.	221	1220	12	2.20	1.60	5.04	0.0146	1.76	55.64	33.73	10.63	12.76	87.24	17.29	31.07	50.21	1.45	12.93	10.45
4.	238	1237	13	2.13	1.59	5.88	0.0157	1.69	56.80	32.32	10.87	11.80	88.20	17.67	31.48	49.19	1.46	12.48	10.17
6.	262	1261	14	1.99	1.57	.....	0.0137	1.63	58.25	32.35	9.39	12.00	88.00	18.39	31.80	48.29	1.32	12.94	10.24
20.	358	1387	15	2.16	1.56	7.20	0.0140	1.58	56.26	32.64	11.10	12.58	87.42	18.07	29.30	51.23	1.40	12.98	9.56
23.	425	1424	16	2.19	1.57	8.86	0.0145	1.70	54.95	34.07	10.97	12.88	87.12	17.52	31.20	49.71	1.57	13.05	10.64
24.	437	1436	17	2.14	1.58	8.78	0.0190	1.68	52.77	34.65	12.59	12.23	87.72	18.75	30.27	48.40	1.58	12.95	10.50
26.	459	1458	18	2.33	1.57	10.75	0.0164	1.78	52.41	35.12	12.48	12.46	87.54	18.41	30.72	49.18	1.33	12.98	10.82
28.	483	1482	19	2.19	1.62	3.43	0.0117	1.75	55.82	35.50	8.68	11.74	88.36	17.97	31.36	48.98	1.69	12.95	11.14
Totals.....							0.2793	33.35	1027.68	667.24	179.84	201.26	1498.74	328.22	612.69	980.16	28.93	212.31	212.77
Averages.....				2.18	1.60	6.439	0.0147	1.75	54.088	35.118	10.58	11.84	88.16	17.27	32.247	48.95	1.52	12.49	11.198

PLYMOUTH ROCK No. 10.

DATE.	Analysis No.	Laboratory No.	No. of egg	Long diameter of egg	Short diameter of egg	Weight to per- forate shell.	Av. thickness of shell, in inches	Wt. of egg, in ounces.	Percentage of white	Percentage of yolk	Percentage of protein in white	Percentage of protein in yolk	Percentage of other ex- tract in yolk.	Percentage of water in yolk.	Percentage of ash in yolk.	Percentage of protein in egg	Percentage of other ex- tract in egg
Jun. 19.	18	1017	1	2.20	1.73	.....	0.0154	2.14	56.90	31.06	10.27	13.88	17.46	5.95	11.11	9.99
.. 20.	30	1029	2	2.23	1.74	.....	0.0150	2.20	56.93	31.79	19.37	13.88	19.37	6.45	11.11	9.99
.. 22.	55	1054	2	2.22	1.71	.....	0.0139	2.02	61.32	30.14	8.67	14.63	17.90	6.23	11.11	9.99
.. 24.	88	1087	2	2.34	1.61	.....	0.0157	1.87	51.37	35.22	10.44	12.08	18.78	4.71	11.11	9.99
.. 26.	114	1113	2	2.25	1.76	2.34	0.0137	2.12	60.50	30.31	9.16	12.34	16.67	4.60	11.11	9.99	
.. 28.	141	1140	2	2.24	1.71	5.25	0.0141	2.01	61.02	29.43	9.56	12.29	17.72	4.56	11.11	9.99	
.. 28.	160	1159	2	2.08	1.63	6.97	0.0157	1.87	59.47	30.09	12.30	12.56	17.30	4.61	11.11	9.99	
.. 29.	175	1174	2	2.12	1.67	6.30	0.0148	1.82	58.46	31.53	9.95	12.00	17.47	4.56	11.11	9.99	
.. 30.	246	1205	2	2.10	1.69	6.30	0.0151	1.84	58.45	31.46	10.11	12.54	17.51	4.56	11.11	9.99	
.. 1.	239	1238	10	2.21	1.71	.....	0.0151	2.10	61.20	29.17	9.62	12.22	17.75	4.56	11.11	9.99
.. 4.	273	1272	11	2.12	1.70	6.60	0.0143	1.95	62.61	23.92	10.47	11.31	18.02	4.56	11.11	9.99	
.. 7.	279	1279	12	2.04	1.74	8.27	0.0141	1.98	60.34	29.61	10.05	12.62	18.13	4.56	11.11	9.99	
.. 9.	291	1290	13	2.23	1.72	.....	0.0138	2.03	60.81	29.89	9.81	12.50	18.51	4.56	11.11	9.99
.. 11.	300	1308	13	2.45	1.82	.....	0.0145	2.46	63.27	27.73	9.00	11.57	18.41	4.56	11.11	9.99
.. 12.	319	1318	14	2.25	1.71	9.62	0.0149	2.04	58.49	31.06	10.46	12.16	17.95	4.56	11.11	9.99	
.. 13.	328	1327	15	2.15	1.72	4.98	0.0141	1.92	61.12	29.97	8.89	11.92	17.20	4.56	11.11	9.99	
.. 15.	345	1344	16	2.18	1.68	.....	0.0137	1.87	40.68	31.26	9.28	11.92	17.44	4.56	11.11	9.99
.. 18.	368	1367	17	2.25	1.72	7.17	0.0139	2.10	59.10	31.16	9.74	11.78	17.71	4.56	11.11	9.99	
.. 20.	389	1388	18	2.25	1.72	.....	0.0139	2.10	59.10	31.16	9.74	11.78	17.71	4.56	11.11	9.99
Totals.							0.2616	38.36	1654.96	547.36	157.51	208.66	1492.44	326.65	569.63	1142.51	
Averages			2.26	1.71	6.98	0.0145	2.02	58.61	30.41	9.845	12.27	12.27	18.148	4.89	12.82	10.49	

Mar. 1909.]

Analyses of Eggs.

PLYMOUTH ROCK No. 45.

DATE.	Analysis No.	Laboratory No.	No. of eggs.	Long diameter of egg.	Short diameter of egg.	Weight to perforate shell.	Av. thickness of shell, in inches.	Wt. of egg, in ounces.	Percentage of white.	Percentage of yolk.	Percentage of shell.	Percentage of protein in white.	Percentage of water in white.	Percentage of protein in yolk.	Percentage of ether extract in yolk.	Percentage of water in yolk.	Percentage of ash in yolk.	Percentage of protein in egg.	Percentage of ether extract in egg.	Percentage of water in egg.
Jun. 19.	19	1018	1	2.23	1.63		0.0149	1.98	55.64	33.39		11.33	88.67	18.40	31.32	1.66	12.44	10.48	65.09	
20.	31	1030	3	2.40	1.62	5.10	0.0162	1.91	55.49	32.73		10.79	89.21	15.89	29.40	1.28	11.18	9.65	67.08	
21.	41	1040	4	2.24	1.60		0.0149	1.85	55.54	35.26		10.90	89.10	17.18	33.28	1.62	12.11	11.31	66.31	
22.	56	1165	4	2.21	1.60	6.49	0.0160	1.79	54.78	34.32	10.88	11.12	88.88	18.06	32.42	1.60	12.29	11.13	65.12	
25.	100	1099	4	2.27	1.63	7.09	0.0166	1.82	56.24	33.03	10.72		88.82	17.94	32.56	1.47		10.86		
26.	129	1128	6	2.28	1.59	6.00	0.0142	1.26	56.57	33.50	9.91	11.69	88.31	16.99	33.67	1.44	12.30	11.28	65.99	
27.	142	1141	6	2.33	1.62	7.16	0.0140	1.94	59.89	29.89	10.20	10.77	88.23	17.32	33.04	1.63	11.58	9.82	67.72	
28.	176	1206	6	2.23	1.63	7.89	0.0150	1.89	57.45	32.43	10.11	11.24	88.76	18.33	31.76	1.65	12.41	10.18	66.72	
30.	207	1175	8	2.23	1.63	4.50	0.0142	1.85	57.09	33.11	9.80	11.86	88.14	19.00	32.25	1.52	12.67	10.29	65.90	
Jul. 2.	222	1221	10	2.26	1.60	4.11	0.0147	1.84	55.91	33.79	10.33		88.82	18.82	31.64	1.54		10.70		
3.	240	1239	11	2.25	1.58	6.96	0.0150	1.84	57.15	32.45	10.33		88.36	18.66	31.86	1.44	12.14	10.34	65.65	
6.	263	1262	12	2.32	1.59		0.0144	1.87	58.95	31.59	9.44	11.06	88.94	18.28	32.77	1.62	12.21	10.35	67.42	
8.	281	1280	13	2.29	1.62	8.06	0.0132	1.82	58.39	31.49	10.13	11.78	88.22	18.71	32.44	1.54	12.31	10.14	66.39	
9.	292	1291	14	2.32	1.56	6.80	0.0153	1.84	57.88	30.91	11.22	10.98	88.02	17.74	33.67	1.46	11.74	10.07	66.45	
11.	310	1309	15	2.32	1.62	6.12	0.0131	1.93	59.80	31.57	9.98	11.55	88.45	18.24	32.14	1.59	12.22	10.15	67.90	
12.	320	1319	16	2.32	1.59	6.32	0.0153	1.90	57.99	31.09	10.67	11.37	88.63	17.89	32.50	1.69	12.11	10.11	66.33	
13.	329	1328	17	2.28	1.61		0.0154	1.89	57.85	31.15	10.99	11.12	88.86	17.72	31.33	1.35	11.35	9.75	66.88	
15.	346	1345	18	2.33	1.62	4.56	0.0142	1.93	57.61	32.44	9.96	11.78	88.22	18.41	31.87	1.67	12.77	10.35	66.48	
16.	353	1352	19	2.29	1.60	6.28	0.0137	1.84	56.63	33.19	10.17	12.06	88.94	18.31	32.26	1.48	13.01	10.68	65.82	
17.	361	1360	20	2.22	1.57	9.00	0.0142	1.74	55.22	33.78	10.92	11.84	88.16	18.53	32.00	1.53	12.92	10.92	64.87	
19.	377	1376	21	2.17	1.57		0.0130	1.72	56.10	34.08	9.83	10.98	88.02	17.90	32.06	1.69	12.26	10.24	66.47	
21.	400	1399	22	2.18	1.59	3.46	0.0127	1.76	57.44	33.31	9.27	10.03	88.97	18.76	30.77	1.52	12.02	10.26	68.01	
23.	426	1425	23	2.26	1.56		0.0117	1.73	58.83	32.29	8.87	10.52	88.46	18.33	32.08	1.56	12.11	10.37	68.15	
Totals.....							0.3319	42.66	1314.44	750.79	203.78	235.79	1864.21	414.06	737.62	1114.75	35.39	257.94	240.48	1398.31
Averages.....				2.276	1.60	6.23	0.0144	1.85	57.15	32.64	10.189	11.23	88.77	18.00	32.07	48.467	1.529	12.28	10.456	66.56

PLYMOUTH ROCK No. 67.

DATE.	Analysis No.	Laboratory No.	No. of eggs.	Long diameter of egg.	Short diameter of egg.	Wt. to perforate shell.	Av. thickness of shell in inches.	Wt. of egg, in ounces.	Percentage of white.	Percentage of yolk.	Percentage of shell.	Percentage of protein in white.	Percentage of water in white.	Percentage of ether extract in yolk.	Percentage of ash in yolk.	Percentage of water in egg.	Percentage of ether extract in egg.	Percentage of protein in egg.	Percentage of water in egg.	
Jun. 18.	7	1006	1	2.23	1.63			1.93	56.24	32.84		11.59	88.41	29.13	49.16	1.55	13.13	9.57	65.85	
19.	8	1019	2	2.22	1.65			1.96	56.69	33.06		11.90	88.10	31.03	47.46	1.55	13.34	10.22	63.62	
20.	9	1031	2	2.43	1.65	6.12	0.0145	1.99	57.32	31.81		11.14	88.86	17.89	32.21	1.68	12.97	10.30	68.26	
21.	10	1011	4	2.14	1.64	5.50	0.0135	1.86	55.04	33.93		11.73	88.27	17.10	33.24	1.55	12.97	11.19	64.80	
22.	11	1056	5	2.16	1.63	4.02	0.0143	1.84	57.28	34.63	9.40	11.55	88.45	16.92	33.46	1.61	12.54	11.43	67.33	
23.	12	1073	6	2.13	1.63	5.38	0.0139	1.79	57.18	33.12	9.70	11.53	88.47	15.22	33.24	1.55	12.97	11.01	67.13	
24.	13	1088	7	2.12	1.63		0.0145	1.79	56.61	34.14	10.02	12.38	87.62	16.49	33.77	1.52	12.97	11.55	67.46	
25.	14	1114	9	2.21	1.64	6.61	0.0128	1.86	57.48	33.89	9.12	13.30	86.70	17.32	33.06	1.52	12.97	11.01	67.13	
26.	15	1129	9	2.17	1.69	5.38	0.0133	1.89	58.29	32.36	9.33	12.04	87.96	17.15	33.08	1.52	12.97	10.70	68.22	
27.	16	1112	10	2.12	1.63	5.31	0.0142	1.81	58.95	31.14	9.91	11.98	86.70	17.05	33.34	1.63	12.97	10.40	68.22	
28.	17	1090	11	2.07	1.62	4.77	0.0147	1.72	57.48	31.95	10.59	12.40	87.96	16.91	33.65	1.48	12.97	10.31	66.16	
29.	18	1090	11	2.16	1.66	3.34	0.0133	1.88	57.85	32.48	9.69	12.94	87.02	16.70	33.29	1.57	12.97	10.30	66.27	
Jul. 1.	19	1191	12	2.14	1.65	4.83	0.0133	1.82	58.99	31.44	9.57	12.28	87.60	17.65	32.78	1.54	12.97	10.35	67.18	
2.	20	1207	13	2.10	1.57	5.71	0.0132	1.78	58.59	32.00	9.40	12.46	87.06	16.52	32.32	1.54	12.97	9.72	67.51	
3.	21	1222	14	2.10	1.57	5.71	0.0132	1.78	58.59	32.00	9.40	12.46	87.06	16.52	32.32	1.54	12.97	9.72	67.51	
4.	22	1210	15	2.06	1.63	5.52	0.0129	1.76	59.91	30.51	9.58	12.36	87.72	17.84	31.55	1.54	12.97	9.92	67.11	
20.	23	1389	15	2.37	1.57		0.0127	1.81	59.23	31.15	9.64	12.46	87.54	17.80	31.82	1.54	12.97	10.41	66.63	
21.	401	1190	17	2.18	1.63	6.16	0.0130	1.84	56.08	34.23	9.76	11.53	88.47	18.19	30.80	1.36	12.97	11.03	66.86	
22.	413	1112	18	2.14	1.62		0.0127	1.74	57.01	33.57	9.42	11.96	88.04	17.41	32.86	1.59	12.97	11.16	66.50	
23.	427	1126	19	2.20	1.67	5.92	0.0132	1.82	57.45	33.11	9.53	11.45	88.55	17.40	33.75	1.62	12.97	10.40	66.81	
24.	428	1137	20	2.19	1.68		0.0141	1.82	58.66	31.34	9.93	11.67	88.33	17.30	33.20	1.54	12.97	10.04	65.53	
26.	460	1459	21	2.32	1.69	3.76	0.0131	1.85	56.74	33.26	9.92	12.48	87.52	17.35	33.20	1.57	12.97	11.29	65.78	
27.	472	1471	22	2.19	1.66	6.24	0.0129	1.83	56.59	33.59	9.73	12.40	87.60	16.22	33.65	1.57	12.97	10.50	76.00	
28.	484	1183	23	2.11	1.63	6.02	0.0126	1.82	58.03	32.29	9.67	12.16	87.54	18.31	32.50	1.67	12.97	10.50	76.00	
29.	493	1182	24	2.11	1.63	7.41	0.0127	1.73	59.51	32.28	10.20	12.68	87.32	16.94	33.13	1.56	12.97	10.70	65.81	
Totals.																				
Averages				2.18	1.63	5.448	0.01346	1.83	57.63	32.65	9.717	12.10	87.90	17.32	32.68	1.577	12.596	10.60	66.40	

SINGLE COMB WHITE LEGHORN No. 3.

DATE.	Analysis No.	Laboratory No.	No. of egg	Long diameter of egg.	Short diameter of egg.	Weight to per-ferate shell.	Av. thickness of shell, in inches.	Wt. of egg, in ounces.	Percentage of white.	Percentage of yolk.	Percentage of shell.	Percentage of protein in white.	Percentage of water in white.	Percentage of ether extract in yolk.	Percentage of ash in yolk.	Percentage of protein in egg.	Percentage of ether extract in egg.	Percentage of water in egg.		
Jun. 18.	1	1000	1	2.18	1.60	.....	.....	1.81	58.32	30.26	.....	11.88	88.12	18.98	30.66	48.84	1.52	12.66	9.25	66.20
19.	12	1011	1	2.08	1.63	.....	0.0150	1.78	57.41	31.16	.....	12.12	87.88	17.79	31.30	49.45	1.46	12.50	9.47	65.90
22.	50	1049	1	2.21	1.61	6.84	0.0162	1.83	58.93	31.91	11.15	12.92	87.08	19.24	31.30	49.10	1.36	13.48	9.99	64.93
23.	68	1067	1	2.13	1.60	6.64	0.0159	1.71	56.57	32.50	10.97	13.34	86.66	17.96	31.83	49.49	1.70	13.37	10.35	64.79
24.	82	1081	1	2.03	1.59	.....	0.0166	1.63	56.87	31.35	11.81	12.88	87.12	19.01	30.92	48.52	1.55	12.28	9.70	64.74
25.	107	1106	1	2.27	1.63	7.78	0.0155	1.89	59.27	29.84	10.70	12.64	87.35	18.84	30.76	49.09	1.66	12.53	9.36	66.39
27.	115	1121	1	2.07	1.59	8.23	0.0146	1.65	59.12	30.16	10.75	12.54	87.46	18.28	31.03	48.79	1.35	13.54	9.66	66.55
29.	121	1132	1	2.16	1.65	8.12	0.0154	1.83	60.60	29.16	10.24	13.18	86.82	19.15	30.74	48.00	1.53	12.85	9.48	65.65
30.	173	1169	1	2.18	1.58	7.29	0.0151	1.63	57.94	30.77	11.23	12.72	87.28	17.93	31.32	49.00	1.53	12.85	9.60	65.29
Jul. 1.	1	1184	10	2.05	1.64	7.12	0.0155	1.63	57.28	32.12	10.71	13.64	86.36	18.37	30.90	49.51	1.46	12.92	9.61	65.22
2.	1	1201	11	2.03	1.61	6.14	0.0167	1.63	57.19	31.03	11.77	12.78	87.22	18.09	30.94	49.29	1.74	13.71	9.60	65.29
4.	1	1212	12	2.12	1.66	.....	0.0142	1.83	58.64	30.67	10.73	13.52	86.48	18.35	31.39	48.62	1.66	13.56	9.63	65.22
5.	1	1217	13	2.17	1.60	6.62	0.0152	1.78	58.52	30.21	10.92	.....	.....	18.84	31.24	48.38	1.54	13.22	9.36	65.90
7.	1	1256	14	2.14	1.65	6.26	0.0155	1.84	58.48	29.29	10.86	13.50	86.50	18.15	32.08	48.29	1.62	13.18	9.57	65.62
9.	1	1263	15	2.27	1.62	7.21	0.0146	1.87	57.92	30.76	11.21	12.94	87.05	18.33	30.85	49.15	1.62	14.18	9.33	65.74
11.	1	1291	16	2.04	1.65	9.25	0.0141	1.72	63.36	29.07	10.47	14.30	85.70	18.68	32.20	47.57	1.74	13.24	9.73	65.53
13.	1	1304	17	2.18	1.66	7.27	0.0144	1.83	58.99	30.27	10.74	13.20	86.80	18.02	32.28	47.96	1.55	12.73	9.69	65.90
14.	1	1311	18	2.12	1.63	.....	0.0139	1.85	61.25	30.80	9.84	11.55	88.65	18.82	31.00	47.89	1.69	12.73	9.69	65.79
15.	1	1320	19	2.13	1.60	.....	0.0141	1.74	56.39	33.27	10.35	12.44	87.56	18.18	31.08	49.37	1.41	13.06	10.34	65.25
16.	1	1350	20	2.18	1.59	.....	0.0140	1.70	56.56	33.05	10.42	12.92	87.08	17.79	32.16	48.37	1.65	12.96	10.17	65.48
17.	1	1351	21	2.11	1.59	5.06	0.0143	1.66	56.57	32.59	10.84	12.54	87.46	17.99	31.20	49.16	1.65	12.92	10.18	65.48
18.	1	1362	22	2.10	1.59	5.38	0.0139	1.65	56.97	32.39	10.47	12.32	87.68	18.23	31.45	48.48	1.64	12.92	10.18	65.68
20.	1	1384	23	2.21	1.64	8.30	0.0138	1.85	57.83	32.21	9.98	12.86	87.14	18.57	31.68	48.19	1.56	13.42	10.26	65.93
21.	1	1395	24	2.11	1.62	9.22	0.0147	1.75	56.71	32.53	10.74	12.10	87.90	18.81	30.95	48.71	1.53	12.98	10.08	65.74
22.	109	1408	25	2.08	1.59	7.42	0.0145	1.63	56.03	32.91	11.27	12.26	87.74	18.05	31.66	48.67	1.62	12.82	10.44	65.28
24.	111	1432	26	2.14	1.68	9.00	0.0144	1.89	58.41	30.55	10.81	13.18	86.82	18.02	21.34	49.06	1.55	13.20	9.57	65.73
25.	411	1441	27	2.12	1.58	5.85	0.0150	1.67	56.83	31.61	11.54	12.56	87.50	17.93	32.48	47.93	1.60	12.78	10.25	65.97
27.	457	1495	28	2.27	1.62	3.63	0.0153	1.87	58.62	30.09	11.29	12.94	87.06	17.21	31.86	49.21	1.72	12.76	9.60	65.98
28.	473	1478	29	2.10	1.64	6.73	0.0148	1.76	57.99	30.95	11.06	12.44	87.55	16.47	31.00	48.90	1.63	12.92	9.60	65.86
Totals.	.....	.....	.....	2.137	1.62	7.016	0.0149	1.758	58.04	31.157	10.85	12.77	87.23	18.347	31.39	48.69	1.564	13.09	9.975	65.85
Averages	.....	.....	.....	2.137	1.62	7.016	0.0149	1.758	58.04	31.157	10.85	12.77	87.23	18.347	31.39	48.69	1.564	13.09	9.975	65.85

Mar. 1909.]

Analyses of Eggs.

SINGLE COMB WHITE LEGHORN No. 7.

DATE.	Analysis No.	Laboratory No.	No. of eggs.	Long diameter of eggs.	Short diameter of eggs.	Weight to porous layer shell.	Av. thickness of shell, in inches.	Wt. of egg, in ounces.	Percentage of white.	Percentage of yolk.	Percentage of shell.	Percentage of protein in white.	Percentage of water in white.	Percentage of ether extract in yolk.	Percentage of water in yolk.	Percentage of ash in yolk.	Percentage of protein in egg.	Percentage of ether extract in egg.	Percentage of water in egg.	Percentage of yolk.	
Jun. 19.	13	1012	1	2.23	1.67	.....	0.0142	1.95	57.53	31.66	.....	13.44	26.56	12.41	32.53	47.75	1.74	13.55	10.22	64.91
.. 20.	26	1025	2	2.27	1.69	6.85	0.0139	2.07	58.84	30.73	.....	12.12	27.82	17.29	31.99	49.11	1.71	12.48	9.92	66.78
.. 22.	51	1050	3	2.34	1.62	5.50	0.0149	1.93	59.48	30.82	9.82	13.51	26.49	12.20	32.18	42.16	1.56	13.64	9.92	66.82	
.. 23.	69	1038	2	2.24	1.67	7.34	0.0138	1.89	52.30	32.75	9.45	13.84	26.16	16.33	34.26	47.93	1.42	12.58	11.23	60.75	
.. 24.	82	1082	4	2.24	1.65	.....	0.0148	1.89	57.94	31.76	10.28	12.92	27.08	17.52	32.63	48.10	1.73	13.04	10.37	65.73
.. 25.	108	1107	5	2.36	1.71	5.17	0.0131	2.14	61.27	29.64	9.14	13.46	26.54	17.63	32.60	48.07	1.70	13.46	9.65	67.33	
.. 27.	126	1135	2	2.31	1.71	6.11	0.0139	2.05	59.25	31.79	9.52	11.59	28.41	18.41	32.45	47.56	1.58	12.71	10.31	67.51	
.. 29.	134	1133	7	2.41	1.72	.....	0.0142	2.08	61.51	29.27	9.23	13.36	28.64	17.74	32.84	47.73	1.99	13.38	9.60	67.30
.. 30.	171	1170	9	2.39	1.71	7.16	0.0136	2.06	58.65	31.70	9.65	12.90	27.10	16.62	32.42	49.58	1.38	12.44	10.23	66.78	
Jul. 2.	203	1200	10	2.38	1.72	.....	0.0133	2.17	60.30	30.19	9.30	13.60	26.20	17.27	33.19	47.19	1.69	13.55	10.02	66.64
.. 3.	217	1213	11	2.30	1.66	3.64	0.0141	1.94	58.58	31.71	9.98	13.62	26.65	16.65	32.33	49.52	1.50	13.20	10.25	66.69	
.. 5.	249	1248	12	2.35	1.71	4.58	0.0139	2.11	60.70	29.47	9.81	13.18	26.06	18.06	32.15	47.33	1.46	13.33	9.45	66.95	
.. 6.	259	1271	13	2.30	1.65	.....	0.0138	1.96	59.24	30.53	10.09	13.24	25.39	18.39	32.61	47.62	1.32	13.45	9.96	65.94
.. 8.	278	1271	14	2.36	1.70	.....	0.0136	2.21	63.56	27.11	9.31	13.20	25.20	18.31	31.78	47.93	1.42	13.47	9.625	65.15
.. 9.	288	1295	15	2.25	1.66	4.96	0.0126	1.88	59.74	30.75	9.49	13.66	25.54	17.54	32.45	42.48	1.56	13.55	9.975	66.49	
.. 11.	303	1305	16	2.35	1.71	6.76	0.0137	2.11	62.65	27.70	9.79	14.06	25.94	18.54	31.57	42.04	1.55	13.53	8.22	67.14	
.. 12.	315	1314	17	2.27	1.66	5.68	0.0129	1.92	60.20	29.71	10.07	10.59	29.41	17.35	31.95	49.00	1.70	11.54	9.50	68.40	
.. 14.	336	1335	18	2.46	1.73	.....	0.0130	2.29	63.60	27.87	8.54	12.86	27.14	18.05	32.37	48.11	1.47	13.21	9.02	68.26
.. 15.	341	1340	19	2.05	1.70	7.31	0.0139	1.84	58.34	31.45	10.21	14.12	25.82	17.50	31.74	49.14	1.615	13.71	9.98	65.54	
.. 17.	358	1347	20	2.37	1.75	.....	0.0128	2.19	62.87	28.69	8.44	13.10	26.90	18.68	31.30	48.71	1.31	13.60	8.913	68.67
.. 18.	364	1333	21	2.10	1.67	.....	0.0128	1.95	59.01	31.45	9.34	13.26	26.74	18.19	31.96	48.45	1.42	13.56	10.06	66.46
.. 19.	375	1374	22	2.10	1.65	5.59	0.0124	1.85	52.12	31.71	9.37	14.91	25.09	17.76	32.55	48.01	1.62	13.40	10.33	59.57	
.. 22.	410	1409	23	2.35	1.68	.....	0.0119	2.08	60.46	30.09	9.42	13.82	26.18	17.93	31.62	48.78	1.67	13.75	9.52	66.78
.. 23.	422	1421	24	2.30	1.66	6.76	0.0129	1.95	58.37	31.76	9.87	13.28	26.72	18.04	31.65	48.75	1.555	13.47	10.10	66.08	
.. 24.	434	1433	25	2.20	1.68	7.78	0.0143	1.90	57.93	32.03	10.02	13.34	26.66	17.22	32.40	48.71	1.67	13.22	10.38	65.83	
.. 25.	457	1456	26	2.33	1.71	4.87	0.0129	2.08	60.63	29.61	9.74	13.46	26.54	17.91	31.95	48.44	1.70	13.47	9.46	66.87	
.. 27.	468	1467	27	2.23	1.67	3.92	0.0130	1.91	59.41	31.02	9.57	12.90	27.10	17.04	32.95	48.20	1.81	12.96	10.22	66.77	
.. 28.	480	1470	28	2.26	1.64	7.50	0.0126	1.82	58.39	31.89	9.68	12.96	27.04	16.99	32.20	49.09	1.72	12.98	10.27	66.50	
Totals.																					
Averages				2.27	1.686	5.93	0.01349	2.02	59.39	30.53	9.58	13.23	26.76	17.71	32.32	48.37	1.58	13.25	9.87	66.82	

SINGLE COMB WHITE LEGHORN, No. 19.

DATE.	1905.	Analysis No.	Laboratory No.	No. of eggs	Long diameter of eggs	Short diameter of eggs	Weight to per-centage of shell.	Av. thickness of shell, in thickness	Wt. of egg, in ounces	Percentage of white	Percentage of yolk	Percentage of shell	Percentage of protein in white	Percentage of ether extract in yolk	Percentage of water in yolk	Percentage of ash in yolk	Percentage of protein in egg	Percentage of ether extract in egg	Percentage of water in egg	Percentage of water in egg	
Jun. 18	2	1001	1	2	2.24	1.63		0.0117	1.92	57.49	31.78		11.82	28.18	58.80	1.25	12.15	8.94	17.65	73.16	
19	1	1013	2	2	2.11	1.61		0.0143	1.77	55.20	33.54		11.94	31.63	49.41	1.50	12.41	10.58	19.45	74.73	
20	2	1026	3	2	2.13	1.59	8.07	0.0143	1.75	54.21	33.73		11.09	18.02	49.01	1.46	12.09	10.73	19.33	74.85	
21	3	1036	4	2	2.06	1.58	7.24	0.0143	1.63	53.03	35.02		12.33	31.93	49.57	1.45	12.53	11.06	19.63	74.34	
23	4	1069	5	2	2.16	1.61	5.56	0.0143	1.76	55.87	33.81	10.40	12.24	31.44	48.19	1.69	13.15	10.63	19.99	74.30	
25	6	1095	6	2	2.08	1.59	7.43	0.0169	1.63	54.08	34.89	11.63	12.70	30.79	49.71	1.52	13.01	10.55	19.86	74.30	
26	7	1108	7	2	2.24	1.59		0.0162	1.70	60.36	33.05	6.82	12.72	31.42	48.39	1.66	13.74	10.39	19.96	74.55	
27	8	1125	8	2	2.10	1.56	6.92	0.0125	1.54	55.99	34.99	9.62	12.35	31.99	49.44	1.51	12.73	10.96	19.86	74.30	
29	9	1151	9	2	2.19	1.57	4.25	0.0143	1.70	58.83	34.52	10.68	14.73	31.30	49.32	1.42	14.13	9.55	19.87	74.76	
Jul. 1	10	1187	10	2	2.17	1.65	6.07	0.0153	1.76	57.36	32.03	10.87	13.60	30.96	49.58	1.36	13.25	9.99	19.86	74.76	
2	11	1206	11	2	2.07	1.54	5.75	0.0153	1.49	57.14	34.03	11.20	12.82	31.63	48.98	1.34	13.47	10.76	19.86	74.66	
4	12	1233	12	2	2.15	1.58	4.61	0.0133	1.70	59.11	31.75	10.16	12.50	31.46	47.55	1.43	13.37	9.99	19.86	74.66	
5	13	1249	13	2	2.13	1.56	5.00	0.0123	1.62	56.71	32.52	10.48	12.36	31.03	48.94	1.49	12.90	10.27	19.86	74.66	
7	14	1270	14	2	2.17	1.57	7.48	0.0112	1.68	57.22	31.84	10.95	12.54	31.03	49.26	1.43	13.00	9.88	19.86	74.66	
8	15	1278	15	2	2.04	1.53		0.0113	1.51	56.37	32.32	11.11	12.54	31.23	48.04	1.45	12.92	10.15	19.86	74.66	
11	16	1296	16	2	2.06	1.57	7.60	0.0129	1.72	61.41	28.67	9.95	12.03	30.52	49.45	1.36	12.94	9.65	19.86	74.66	
13	17	1324	17	2	2.16	1.55	5.64	0.0136	1.62	61.41	28.67	10.57	12.72	30.83	50.47	1.35	12.94	9.37	19.86	74.66	
15	18	1341	18	2	2.29	1.58	7.24	0.0137	1.75	58.52	31.17	9.56	13.42	30.75	50.17	1.41	13.42	9.56	19.86	74.66	
17	19	1358	19	2	2.17	1.61		0.0126	1.70	57.31	33.07	9.62	13.42	31.25	49.18	1.39	13.69	10.35	19.86	74.66	
18	20	1374	20	2	2.18	1.57	6.75	0.0158	1.60	53.48	35.81	10.72	12.33	31.17	49.69	1.42	12.73	11.37	19.86	74.66	
20	21	1384	21	2	2.23	1.59	6.76	0.0115	1.72	32.20	35.39	11.22	13.13	31.95	54.50	1.47	12.69	10.34	19.86	74.66	
21	22	1396	22	2	2.10	1.61	7.86	0.0133	1.64	53.63	35.97	10.33	11.92	31.00	49.56	1.38	11.15	11.15	19.86	74.66	
22	23	1411	23	2	2.14	1.58	6.68	0.0139	1.65	53.59	36.22	10.85	11.65	31.02	49.10	1.58	12.54	11.57	19.86	74.66	
24	24	1434	24	2	2.18	1.63	5.77	0.0111	1.78	55.80	33.58	10.82	12.94	32.07	48.55	1.59	13.19	10.77	19.86	74.66	
25	25	1441	25	2	2.09	1.56	5.16	0.0143	1.56	54.92	34.05	11.03	12.34	32.35	48.84	1.62	12.63	11.02	19.86	74.66	
27	26	1468	26	2	2.16	1.60	5.58	0.0139	1.66	51.94	31.20	10.86	12.22	32.43	48.64	1.72	12.45	10.13	19.86	74.66	
29	27	1489	27	2	2.11	1.54	4.76	0.0133	1.53	56.65	32.54	10.51	12.13	31.54	49.72	1.55	12.54	10.37	19.86	74.66	
Totals					2.141	1.58	6.327	0.0139	1.67	56.38	31.136	10.42	12.53	30.828	49.51	1.49	12.95	10.337		65.73	
Averages																					

Historical Document
Kansas Agricultural Experiment Station

SINGLE COMB WHITE LEGHORN No. 21.

DATE.	Analysis No.	Laboratory No.	No. of eggs.	Long diameter of eggs.	Short diameter of eggs.	Weight to percentage of shell.	Average thickness of shell in inches.	Weight of egg in ounces.	Percentage of white.	Percentage of yolk.	Percentage of shell.	Percentage of protein in white.	Percentage of water in white.	Percentage of ether extract in yolk.	Percentage of ash in yolk.	Percentage of water in egg.	Percentage of ether extract in egg.	Percentage of protein in egg.	Percentage of water in egg.
Jun. 21.	38	1037	1	2.14	1.57	5.58	0.0185	1.69	55.05	32.02	12.36	12.08	87.92	17.23	32.10	48.93	1.69	12.14	64.06
22.	39	1051	2	2.13	1.57	7.56	0.0162	1.64	54.99	34.96	12.06	12.06	87.94	17.49	32.06	48.15	1.71	12.74	63.92
24.	40	1083	3	2.14	1.57	.....	0.0174	1.67	56.43	33.85	11.90	12.60	87.40	18.39	32.02	48.03	1.55	12.32	64.59
25.	97	1096	4	2.15	1.58	5.51	0.0165	1.67	55.46	32.78	11.79	11.49	88.51	17.10	33.32	47.07	1.51	11.96	64.56
26.	110	1163	5	2.23	1.59	7.90	0.0150	1.77	57.02	32.22	10.76	12.46	87.54	18.48	32.06	48.06	1.46	13.06	64.74
27.	124	1127	6	2.10	1.56	5.60	0.0152	1.60	54.57	33.80	11.53	12.22	87.73	17.49	31.95	48.96	1.60	13.06	64.56
29.	125	1127	7	2.26	1.59	5.83	0.0155	1.83	55.71	33.08	11.18	12.52	86.45	17.60	32.22	48.48	1.39	13.06	64.74
30.	171	1171	8	2.21	1.61	.....	0.0154	1.78	54.53	33.96	11.52	12.80	87.20	17.53	32.53	48.75	1.47	13.06	64.74
Jul. 1.	172	1171	9	2.21	1.58	9.94	0.0170	1.66	54.08	33.84	11.99	12.86	87.14	17.23	32.33	48.34	1.42	13.06	64.74
3.	173	1217	10	2.23	1.55	5.06	0.0148	1.74	55.63	33.74	10.65	12.98	86.02	17.69	31.34	49.30	1.57	13.14	64.91
4.	235	1231	11	2.17	1.60	7.10	0.0163	1.78	54.30	34.57	11.10	12.28	87.72	17.58	31.55	49.29	1.58	13.14	64.91
5.	251	1259	12	2.13	1.61	8.24	0.0144	1.70	55.39	34.08	10.21	13.08	86.92	18.57	31.56	48.68	1.21	13.32	65.75
6.	260	1259	13	2.19	1.54	8.79	0.0159	1.64	53.88	34.34	11.79	12.20	87.80	18.39	32.25	47.98	1.43	13.32	65.90
7.	271	1270	14	2.08	1.57	8.63	0.0144	1.62	56.50	33.56	9.92	12.06	88.00	18.01	32.16	48.32	1.51	13.32	65.90
9.	282	1270	15	2.22	1.61	9.53	0.0151	1.78	56.23	31.72	12.00	12.72	87.28	18.37	32.20	47.78	1.99	13.32	64.34
10.	295	1295	16	2.17	1.61	5.26	0.0151	1.82	56.01	32.59	11.41	11.74	88.26	18.63	31.42	48.48	1.46	13.32	65.25
11.	307	1307	17	2.19	1.58	6.80	0.0145	1.70	55.68	33.19	11.14	12.36	87.64	18.31	32.73	47.34	1.62	13.32	64.55
12.	315	1315	18	2.22	1.59	6.90	0.0141	1.75	57.20	32.43	10.37	12.04	87.96	19.22	31.27	47.83	1.68	13.32	65.82
13.	325	1315	19	2.17	1.60	6.95	0.0148	1.75	57.31	31.24	10.93	12.32	87.63	17.38	32.30	48.74	1.48	13.32	66.01
15.	332	1332	20	2.07	1.58	5.94	0.0146	1.77	54.93	33.88	11.27	13.34	86.68	17.83	32.26	47.48	1.45	13.34	66.09
16.	333	1351	21	2.18	1.62	4.73	0.0144	1.77	57.62	33.39	10.85	12.82	87.18	17.93	31.80	48.61	1.66	12.69	64.67
17.	334	1334	22	2.17	1.58	8.76	0.0145	1.66	53.98	35.20	10.34	11.82	88.18	17.93	32.45	47.82	1.63	12.37	64.75
18.	335	1365	23	2.13	1.57	.....	0.0149	1.66	55.17	33.28	11.54	11.57	88.43	17.98	32.45	48.35	1.58	13.03	66.52
20.	337	1374	24	2.22	1.63	.....	0.0132	1.87	58.01	32.51	9.45	12.48	87.52	17.78	32.28	48.35	1.63	13.03	66.52
21.	339	1397	25	2.23	1.60	5.83	0.0138	1.76	54.66	34.69	10.65	12.22	87.78	19.23	30.72	48.57	1.54	13.35	66.67
22.	341	1411	26	2.14	1.58	6.90	0.0141	1.64	55.35	35.25	11.38	12.52	87.25	18.82	31.90	48.55	1.52	13.31	67.03
23.	342	1422	27	2.09	1.57	6.00	0.0149	1.77	54.79	33.63	11.56	12.08	86.92	17.95	32.00	48.32	1.67	13.20	66.16
25.	345	1445	28	2.19	1.61	5.59	0.0147	1.76	54.63	34.23	11.15	12.10	87.90	18.10	31.78	48.05	1.97	12.81	65.16
26.	347	1457	29	2.26	1.58	4.59	0.0133	1.70	55.73	33.64	10.04	12.54	87.46	17.08	32.93	48.18	1.81	12.74	64.92
27.	349	1470	30	2.16	1.57	4.53	0.0139	1.66	56.61	32.86	10.53	12.42	87.58	18.10	31.85	48.35	1.70	12.98	65.50
28.	351	1490	31	2.16	1.55	.....	0.0138	1.60	55.33	33.84	10.83	12.22	87.78	17.56	32.12	48.70	1.62	12.70	65.06
29.	352	1501	32	2.11	1.56	.....	0.0139	1.57	55.01	33.64	11.34	12.80	87.20	17.50	32.40	48.35	1.75	12.94	64.27
30.	353	1501	34	2.19	1.57	6.75	0.0144	1.68	54.79	33.63	11.57	13.04	86.96	18.07	31.60	48.71	1.61	13.22	64.01
Totals.	.....	.....	.....	2.17	1.583	6.74	0.0150	1.708	55.476	33.21	11.45	12.477	87.52	17.90	32.08	48.43	1.58	12.97	64.91
Averages	.....	.....	.....	2.17	1.583	6.74	0.0150	1.708	55.476	33.21	11.45	12.477	87.52	17.90	32.08	48.43	1.58	12.97	64.91

SINGLE COMB WHITE LEGHORN No. 50.

DATE.	Analysis No.	Laboratory No.	No. of eggs.	Long diameter of egg.	Short diameter of egg.	Weight to perforate shell.	Av. thickness of shell, in inches.	Wt. of egg, in ounces.	Percentage of white.	Percentage of yolk.	Percentage of shell.	Percentage of protein in white.	Percentage of water in white.	Percentage of ether extract in yolk.	Percentage of water in yolk.	Percentage of ash in yolk.	Percentage of ether extract in egg.	Percentage of protein in egg.	Percentage of water in egg.
Jun. 19	15	1014	1	2.81	1.67	0.0138	2.02	55.07	32.39	13.80	86.20	18.11	31.27	49.22	1.40	13.64	10.85	63.55	
.. 20	16	1015	1	2.85	1.66	0.0155	1.96	54.79	32.73	12.12	87.88	17.67	32.36	48.55	1.40	12.59	10.96	64.51	
.. 22	17	1053	1	2.82	1.63	0.0157	1.78	54.23	35.69	12.06	87.94	17.30	32.39	48.82	1.43	12.75	11.62	65.33	
.. 23	18	1070	2	2.17	1.64	0.0141	1.82	54.14	35.43	12.80	87.20	17.36	31.93	49.12	1.59	13.18	11.30	64.61	
.. 24	19	1081	4	2.06	1.60	0.0156	1.64	53.76	35.85	12.36	87.66	17.74	32.20	48.48	1.53	12.88	11.54	64.64	
.. 26	111	1110	1	2.83	1.65	0.0137	1.71	57.06	32.88	10.84	89.16	16.99	31.78	49.80	1.43	12.77	10.87	66.00	
.. 28	118	1137	1	2.83	1.66	0.0136	1.96	56.10	34.09	9.82	90.18	16.60	31.92	49.89	1.59	12.77	10.87	66.00	
.. 29	118	1137	1	2.83	1.66	0.0136	1.73	54.94	34.74	10.30	89.70	16.63	32.00	49.80	1.57	12.67	11.12	65.42	
.. 30	118	1137	1	2.83	1.66	0.0136	1.63	55.88	33.82	10.54	89.46	16.56	31.97	50.14	1.53	12.98	10.81	65.42	
.. 31	118	1137	1	2.83	1.66	0.0136	1.63	55.88	33.82	10.54	89.46	16.56	31.97	50.14	1.53	12.98	10.81	65.42	
Jul. 1	120	1181	2	2.83	1.65	0.0137	1.93	57.33	33.75	8.92	91.08	16.75	31.23	50.44	1.58	13.58	10.54	66.65	
.. 3	119	1155	10	2.80	1.65	0.0137	1.74	52.80	36.72	10.68	89.32	16.26	31.59	50.02	1.53	13.27	11.60	67.02	
.. 4	119	1155	11	2.81	1.63	0.0137	1.83	60.30	30.42	9.27	90.73	18.20	31.84	48.56	1.46	12.91	9.70	67.57	
.. 5	119	1155	12	2.81	1.63	0.0137	1.83	60.30	30.42	9.27	90.73	18.20	31.84	48.56	1.46	12.91	9.70	67.57	
.. 8	120	1203	13	2.85	1.66	0.0116	1.90	57.84	33.28	8.90	91.10	18.47	30.37	49.58	1.52	13.17	10.12	67.85	
.. 10	120	1203	13	2.85	1.66	0.0116	1.90	57.84	33.28	8.90	91.10	18.47	30.37	49.58	1.52	13.17	10.12	67.85	
.. 12	117	1216	14	2.21	1.59	0.0079	1.74	58.59	35.26	6.07	93.93	19.02	31.07	48.54	1.37	13.60	10.96	68.91	
Totals																			
Averages				2.21	1.637	0.0137	1.996	55.91	34.23	9.66	90.34	17.15	31.71	49.35	1.49	13.06	10.85	65.71	

SINGLE COMB WHITE LEGHORN No. 51.

DATE.	Analysis No.	Laboratory No.	No. of eggs.	Long diameter of eggs.	Short diameter of eggs.	Weight to percent of egg.	Av. thickness of shell, in inches.	Wt. of egg, in ounces.	Percentage of white.	Percentage of yolk.	Percentage of shell.	Percentage of protein in white.	Percentage of water in white.	Percentage of ether extract in yolk.	Percentage of water in yolk.	Percentage of ash in yolk.	Percentage of ether extract in egg.	Percentage of protein in egg.	Percentage of water in egg.
Jun. 18.	1003	1003	1	2.26	1.64	.....	.....	1.91	54.80	.....	.....	.....	61.94	24.67	1.10	11.15	.....	.....
19.	1015	1015	2	2.26	1.65	.....	0.0151	1.94	54.55	33.76	.....	10.96	88.86	31.73	1.60	65.06	.....	.....
20.	1020	1020	2	2.21	1.62	5.41	0.0147	1.89	54.24	33.87	.....	11.14	88.86	31.34	1.48	64.27	.....	.....
21.	1033	1033	4	2.15	1.62	5.12	0.0162	1.76	51.89	35.14	.....	11.74	87.20	32.57	1.69	63.32	.....	.....
23.	1071	1071	2	2.24	1.63	5.00	0.0150	1.82	53.88	35.65	10.52	11.67	88.88	32.51	1.59	64.80	.....	.....
24.	1072	1072	2	2.20	1.62	.....	0.0160	1.77	53.92	35.67	10.36	12.05	87.94	33.02	1.58	64.29	.....	.....
25.	1075	1075	7	2.23	1.62	7.03	0.0134	1.75	55.42	34.87	9.73	11.67	87.94	32.79	1.55	65.64	.....	.....
26.	1111	1111	3	2.23	1.62	.....	0.0154	1.83	55.17	34.50	10.34	11.47	88.88	33.06	1.59	65.34	.....	.....
28.	1133	1133	2	2.23	1.62	7.59	0.0144	1.86	54.41	34.93	10.67	11.06	88.88	33.35	1.66	65.64	.....	.....
29.	1147	1147	10	2.21	1.62	9.20	0.0156	1.79	53.63	34.82	11.55	11.63	88.88	33.66	1.67	63.70	.....	.....
30.	1172	1172	11	2.14	1.62	7.77	0.0146	1.70	52.23	35.68	11.11	11.78	87.96	32.03	1.64	63.81	.....	.....
Jul. 2.	1204	1204	12	2.19	1.65	8.40	0.0153	1.81	55.92	35.83	11.19	12.94	87.06	31.90	1.66	61.70	.....	.....
3.	1211	1211	13	2.23	1.76	.....	0.0150	1.78	55.11	33.97	10.92	11.84	87.16	31.69	1.44	62.48	.....	.....
4.	1226	1226	14	2.17	1.61	8.56	0.0153	1.73	52.30	36.32	11.47	12.18	87.82	32.58	1.61	63.64	.....	.....
6.	1239	1239	15	2.29	1.64	.....	0.0152	1.94	55.95	33.57	10.65	11.28	88.88	32.29	1.52	62.67	.....	.....
7.	1271	1271	16	2.27	1.63	.....	0.0145	1.97	55.64	33.48	10.81	11.53	87.47	31.52	1.59	63.39	.....	.....
9.	1293	1293	17	2.26	1.64	7.48	0.0132	1.85	56.99	32.98	11.27	12.08	88.88	31.10	1.55	63.18	.....	.....
10.	1297	1297	18	2.17	1.62	8.47	0.0147	1.86	54.53	34.28	11.20	11.49	87.51	31.36	1.41	64.77	.....	.....
12.	1317	1317	19	2.23	1.66	5.62	0.0141	1.93	57.01	32.98	10.61	12.58	87.42	31.20	1.56	65.41	.....	.....
13.	1326	1326	20	2.23	1.68	7.90	0.0143	1.86	53.35	36.08	10.56	12.28	87.72	32.70	1.46	64.12	.....	.....
14.	1335	1335	21	2.24	1.69	.....	0.0146	1.83	54.09	35.54	10.37	11.47	88.88	32.24	1.56	64.93	.....	.....
15.	1343	1343	22	2.18	1.65	9.24	0.0145	1.77	50.86	38.18	10.96	12.54	87.46	31.19	1.72	62.87	.....	.....
18.	1363	1363	23	2.11	1.66	5.01	0.0133	1.94	55.34	35.69	8.99	11.55	88.88	31.00	1.65	63.03	.....	.....
19.	1375	1375	24	2.03	1.64	6.48	0.0128	1.79	52.65	37.17	10.18	11.72	88.28	31.10	1.57	64.42	.....	.....
20.	1378	1378	25	2.23	1.62	4.70	0.0135	1.74	51.74	38.23	10.06	11.63	88.47	31.95	1.59	64.10	.....	.....
21.	1394	1394	26	2.34	1.59	9.26	0.0148	1.62	52.01	36.31	11.66	11.37	88.63	31.85	1.32	61.01	.....	.....
23.	1413	1413	27	2.20	1.65	5.32	0.0146	1.83	53.80	35.23	10.97	12.52	87.48	33.20	1.56	63.92	.....	.....
24.	1435	1435	28	2.22	1.61	8.18	0.0151	1.77	58.95	34.85	11.19	11.47	88.53	33.21	1.61	64.33	.....	.....
25.	1446	1446	29	2.15	1.62	6.28	0.0153	1.71	52.55	35.97	11.79	11.62	88.08	31.31	1.74	63.34	.....	.....
27.	1470	1470	31	2.25	1.64	6.81	0.0144	1.83	54.73	34.46	10.79	12.62	88.88	31.11	1.67	64.53	.....	.....
28.	1481	1481	32	2.22	1.62	8.04	0.0148	1.82	53.83	35.26	10.91	11.63	88.88	31.90	1.64	64.70	.....	.....
29.	1491	1491	32	2.22	1.65	.....	0.0144	1.90	54.13	34.85	11.02	11.43	88.88	32.78	1.67	64.64	.....	.....
Totals.....																			
Averages.....				2.209	1.637	7.238	0.0146	1.82	54.08	35.29	10.816	11.78	88.22	32.49	1.58	12.58	11.375	64.715	

WHITE WYANDOTTE No. 4A4.

DATE.	Analysis No.	Laboratory No.	No. of eggs	Long diameter of egg.	Short diameter of egg.	Weight to percent of shell.	Average thickness of shell, in inches.	Wt. of egg, in ounces.	Percentage of white.	Percentage of yolk.	Percentage of shell.	Percentage of protein in white.	Percentage of water in white.	Percentage of protein in yolk.	Percentage of ether extract in yolk.	Percentage of water in yolk.	Percentage of ash in yolk.	Percentage of protein in egg.	Percentage of ether extract in egg.	Percentage of water in egg.	Percentage of white.
Jun. 19.	21	1020	1	2.23	1.65	.....	0.0161	1.96	54.56	33.34	.....	13.04	86.96	20.09	30.77	47.71	1.44	13.79	10.27	63.82
20.	33	1032	2	2.22	1.67	6.59	0.0143	2.01	58.35	30.00	.....	14.49	17.39	17.34	32.06	47.57	1.63	9.63	10.76	62.57
21.	44	1043	3	2.18	1.66	.....	0.0125	1.89	54.34	33.34	.....	10.37	17.19	17.19	32.51	47.70	1.60	11.04	10.24	62.75
22.	59	1058	4	2.13	1.68	6.00	0.0121	1.90	59.70	31.52	.....	8.77	16.95	16.95	33.12	47.47	1.51	11.74	10.24	62.75
23.	76b	1075b	5	2.10	1.62	.....	0.0135	1.89	54.95	33.32	.....	11.47	16.76	16.76	33.12	47.47	1.51	11.74	10.24	62.75
25.	101	1100	6	2.09	1.63	10.06	0.0132	1.74	57.82	32.78	.....	10.71	16.76	16.76	33.12	47.47	1.51	10.98	10.98	63.97
26.	117	1110	7	2.15	1.67	8.30	0.0132	1.74	54.40	34.30	.....	9.95	16.45	16.45	33.91	47.20	1.44	13.34	12.16	63.97
27.	133	1131	8	2.15	1.69	7.51	0.0150	1.83	55.40	34.30	.....	10.76	16.20	16.20	33.28	47.47	1.51	13.41	11.48	64.51
29.	143	1143	9	2.14	1.64	9.05	0.0144	1.83	55.05	34.39	.....	10.34	16.24	16.24	33.24	47.47	1.51	13.77	11.43	64.83
30.	153	1157	10	2.14	1.69	9.12	0.0144	1.91	55.15	34.14	.....	9.75	16.33	16.33	33.29	47.47	1.56	13.35	11.37	64.83
Jul. 1.	165	1171	11	2.11	1.71	9.14	0.0150	1.92	55.02	33.61	.....	10.27	16.73	16.73	33.28	47.46	1.55	12.96	11.20	64.04
3.	175	1183	12	2.14	1.64	.....	0.0146	1.83	55.60	33.95	.....	10.42	16.33	16.33	33.28	47.46	1.59	13.27	11.15	64.56
4.	183	1191	13	2.15	1.69	7.74	0.0147	1.96	56.43	33.33	.....	10.37	16.33	16.33	33.28	47.46	1.49	13.27	11.04	64.60
5.	193	1203	14	2.13	1.68	9.55	0.0140	1.89	56.14	33.67	.....	10.16	16.33	16.33	33.28	47.46	1.52	13.63	10.96	64.84
7.	203	1213	15	2.11	1.61	.....	0.0110	1.73	58.99	32.62	.....	8.38	16.22	16.22	33.16	47.46	1.61	13.01	10.35	64.59
Totals.	.....	.....	.....	.....	.....	8.06	0.0141	1.867	56.145	33.43	.....	13.12	86.88	17.578	32.72	47.17	1.53	13.24	10.94	64.76
Averages	.....	.....	.....	2.144	1.664	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

WHITE WYANDOTTE No. 4A7.

DATE.	1905.	Analysis No.	Laboratory No.	No. of eggs.	Long diameter of egg.	Short diameter of egg.	Weight to percentage of shell.	Average thickness of shell, in inches.	Wt. of egg, in ounces.	Percentage of white.	Percentage of yolk.	Percentage of shell.	Percentage of protein in white.	Percentage of water in white.	Percentage of protein in yolk.	Percentage of ether extract in yolk.	Percentage of ash in yolk.	Percentage of water in egg.	Percentage of ether extract in egg.	Percentage of protein in egg.	Percentage of water in egg.	
Jun.	18.	845	1007	1	2.26	1.63			1.96	59.92	28.21		12.94	87.06	17.86	32.10	48.64	1.40	12.78	9.22	65.92	
..	21.	45	1014	2	2.22	1.70	4.52	0.0112	2.05	57.97	30.04		13.56	86.44	16.92	32.61	48.79	1.62	12.97	9.73	65.76	
..	22.	50	1050	3	2.11	1.63	7.55	0.0145	1.82	55.35	34.05	10.59	13.34	86.66	19.62	36.77	41.98	1.65	14.05	12.47	62.53	
..	23.	76	1075	3	2.16	1.67	5.68	0.0147	1.89	59.21	31.80	9.48	12.10	87.90	16.74	33.73	48.02	1.45	12.40	10.55	67.14	
..	24.	92	1091	4	2.12	1.66		0.0143	1.85	51.05	30.31	11.30	12.46	87.54	16.67	33.13	48.79	1.41	12.61	10.67	67.12	
..	25.	117	1117	6	2.13	1.66	6.84	0.0137	1.90	59.17	30.95	9.89	13.92	86.08	15.84	34.02	48.62	1.52	13.15	10.52	66.00	
..	26.	131	1133	7	2.22	1.70	3.65	0.0121	1.99	59.57	31.27	9.15	13.33	86.62	16.59	33.61	48.29	1.51	13.15	10.52	66.75	
..	27.	146	1145	8	2.13	1.70	7.64	0.0135	1.89	60.24	30.19	9.56	13.28	86.72	17.45	33.15	47.87	1.52	13.28	10.01	66.73	
..	28.	161	1163	9	2.15	1.65	6.79	0.0112	1.80	60.17	29.84	9.38	13.56	86.44	17.02	33.67	47.87	1.44	13.21	10.05	66.33	
..	29.	181	1183	9	2.15	1.65	5.96	0.0115	1.87	61.02	28.89	10.07	13.14	86.86	17.03	32.32	49.21	1.39	12.94	9.34	67.26	
..	30.	181	1179	10	2.14	1.66															66.00	
Jul.	2.	210	1200	11	2.16	1.72	6.90	0.0136	1.93	61.56	28.48	9.75	14.28	85.72	17.23	32.36	48.98	1.43	13.69	9.27	66.71	
..	3.	227	1223	12	2.11	1.70	5.53	0.0140	1.86	59.29	30.67	10.02	14.37	85.63	16.64	31.80	50.06	1.50	13.64	9.75	67.97	
..	4.	243	1242	13	2.17	1.69	5.18	0.0132	1.96	61.89	29.34	9.25	13.34	86.66	16.91	32.75	48.78	1.56	13.22	9.39	67.96	
..	5.	254	1253	14	2.13	1.67	3.32	0.0133	1.88	61.89	29.21	8.91	13.56	86.44	17.34	33.52	47.65	1.49	13.46	9.79	67.52	
..	6.	261	1263	15	2.14	1.65	6.80	0.0131	1.80	60.10	29.32	10.59	13.24	86.76	17.60	33.24	47.73	1.43	13.12	9.75	66.17	
..	7.	275	1274	16	2.03	1.63	5.01	0.0134	1.73	62.19	28.03	9.79	12.82	87.18	17.99	32.78	47.78	1.45	13.01	9.19	67.59	
..	9.	291	1293	17	2.19	1.69		0.0135	1.96	62.37	28.00	9.62	13.76	86.30	18.20	32.23	48.10	1.435	13.63	9.04	67.33	
..	10.	300	1299	18	2.18	1.68	6.84	0.0135	1.94	62.26	28.35	9.39	13.14	86.86	17.54	32.60	48.46	1.40	13.16	9.24	67.93	
..	11.	311	1310	19	2.15	1.66	6.83	0.0132	1.85	62.40	28.21	9.38	13.96	86.04	18.85	32.87	46.61	1.67	14.02	9.24	66.74	
..	12.	322	1321	20	2.13	1.66	9.09	0.0134	1.86	63.63	26.61	9.75	13.06	86.94	16.70	33.80	48.11	1.39	12.76	8.995	68.29	
..	25.	419	1418	21	2.19	1.69	5.41	0.0121	1.74	62.72	27.81	9.49	13.72	86.28	16.91	30.66	50.84	1.56	13.31	7.53	68.28	
..	26.	432	1431	22	2.13	1.64		0.0134	1.79	60.16	30.28	9.57	13.44	86.56	17.46	32.38	48.51	1.65	13.36	9.81	68.75	
..	29.	494	1533	23	2.18	1.65	8.71	0.0131	1.79	58.93	31.00	10.04	14.02	85.98	17.32	32.75	48.25	1.675	13.62	10.16	65.62	
Totals.																						
Averages					2.112	1.667	6.17	0.01347	1.87	60.568	29.58	9.79	13.408	86.60	17.35	32.907	48.17	1.50	13.23	9.68	66.71	

WHITE WYANDOTTE No. B1B.

DATE.	1905.	Percentage of water in egg.	Percentage of ether extract in egg.	Percentage of protein in egg.	Percentage of ash in yolk.	Percentage of water in yolk.	Percentage of other extract in yolk.	Percentage of protein in white.	Percentage of shell.	Percentage of yolk.	Percentage of white.	Wt. of egg in ounces.	Av thickness of shell in inches.	Weight per forty shell.	Short diameter of egg.	Long diameter of egg.	No. of egg.	Laboratory No.	Analysis No.
Jun. 18.	1009	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.70	2.03	1	1009	10
19.	1022	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.65	2.03	2	1022	22
21.	1032	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.73	2.15	3	1032	32
23.	1103	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.68	2.20	4	1103	42
25.	1117	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.62	2.11	5	1117	52
26.	1131	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.65	2.11	6	1131	62
30.	1145	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.65	2.19	7	1145	72
10.	1159	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.67	2.30	8	1159	82
11.	1173	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.63	2.29	9	1173	92
12.	1187	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.67	2.30	10	1187	102
13.	1201	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.72	2.15	11	1201	112
14.	1215	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.73	2.29	12	1215	122
15.	1229	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.67	2.12	13	1229	132
16.	1243	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.71	2.07	14	1243	142
17.	1257	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.64	2.16	15	1257	152
18.	1271	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.61	2.09	16	1271	162
22.	1285	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.66	2.17	17	1285	172
23.	1299	72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.71	2.08	18	1299	182
Totals.		72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.67	2.17	180		
Averages.		72.8	10.0	12.9	1.1	58.4	1.8	12.9	1.1	33.2	1.8	1.89	0.0121	4.73	1.749	2.117			

WHITE WYANDOTTE No. 4C9.

DATE.	Analysis No.	Laboratory No.	No. of eggs.	Long diameter of eggs.	Short diameter of eggs.	Weight to perforce shell.	Average thickness of shell, in inches.	Wt. of eggs in ounces.	Percentage of white.	Percentage of yolk.	Percentage of shell.	Percentage of protein in white.	Percentage of protein in yolk.	Percentage of water in white.	Percentage of ether extract in yolk.	Percentage of ash in yolk.	Percentage of water in egg.	Percentage of ether extract in egg.	Percentage of protein in egg.
1905.																			
Jun. 21.	46	1045	1	2.29	1.80	6.99	0.0143	35	57.15	31.82	8.82	13.30	86.70	16.93	33.06	1.60	10.00	12.98	
22.	61	1060	2	2.31	1.73	6.76	0.0155	17	58.45	32.72	8.82	13.13	86.82	18.09	33.01	1.66	10.31	13.69	
23.	77	1076	3	2.26	1.72	6.76	0.0153	12	56.75	32.96	10.29	13.22	86.74	17.10	33.62	1.62	11.26	12.63	
25.	102	1101	4	2.31	1.69	7.12	0.0151	05	57.29	32.31	10.36	13.22	86.74	17.10	33.62	1.62	11.26	12.63	
26.	119	1118	5	2.32	1.77	6.08	0.0137	19	60.15	30.31	9.55	13.74	86.26	16.70	31.36	1.61	10.41	13.33	
28.	147	1146	6	2.21	1.71	7.95	0.0150	02	59.16	32.42	9.94	13.10	86.90	17.53	33.25	1.64	10.77	13.43	
29.	165	1164	7	2.17	1.71	5.74	0.0150	19	60.17	29.84	9.95	13.52	86.48	16.61	34.02	1.45	9.56	13.11	
30.	181	1180	8	2.14	1.69	5.66	0.0116	14	62.76	27.94	9.31	12.42	87.59	17.41	34.12	1.52	12.66	12.66	
Jul. 20.	392	1391	9	2.20	1.64	5.06	0.0123	18	59.26	31.64	9.21	13.64	86.36	18.12	31.57	1.55	13.80	13.80	
21.	403	1402	10	2.27	1.71	6.67	0.0125	03	58.45	32.18	9.36	13.45	86.54	19.42	31.55	1.53	14.10	14.10	
22.	415	1411	11	2.24	1.71	7.90	0.0132	03	57.82	32.59	9.57	12.94	87.06	17.73	33.02	1.64	13.26	13.26	
24.	439	1438	12	2.13	1.75	5.10	0.0143	16	57.51	33.03	9.43	12.84	87.16	18.18	32.40	1.59	13.37	13.37	
25.	450	1449	13	2.25	1.77	4.77	0.0135	12	57.37	33.16	9.46	13.40	86.60	17.10	33.33	1.53	13.71	13.71	
27.	474	1473	14	2.27	1.77	.....	0.0141	11	60.47	29.32	10.21	13.06	86.94	17.19	33.15	1.55	13.92	13.92
29.	495	1494	15	2.27	1.71	7.83	0.0131	09	57.23	32.90	9.92	13.73	86.22	17.43	33.04	1.54	13.94	13.94	
30.	503	1502	16	2.22	1.73	5.32	0.0130	05	58.33	31.78	9.91	13.84	86.16	17.17	32.73	1.54	13.92	13.92	
31.	504	1503	17	2.18	1.78	.....	0.0131	02	59.37	30.73	9.89	13.36	86.64	17.35	33.90	1.61	13.26	13.26
Aug. 1.	506	1505	18	2.18	1.71	7.08	0.0145	16	59.50	30.45	10.05	13.64	86.36	16.78	32.55	1.55	9.46	13.22	
Totals.																			
Averages			2.231	1.725	6.40	0.0139	2.06	58.73	31.56	9.72	13.32	86.68	17.537	33.03	1.576	13.30	10.435	13.09	

WHITE WYANDOTTE No. 4C11.

DATE.	Analysis No.	Laboratory No.	No. of eggs.	Long diameter of eggs.	Short diameter of eggs.	Weight to percentage shell.	Av. thickness of shell, in inches.	Wt. of egg, in ounces.	Percentage of white.	Percentage of yolk.	Percentage of protein in white.	Percentage of protein in yolk.	Percentage of water in white.	Percentage of ether extract in yolk.	Percentage of ash in yolk.	Percentage of protein in egg.	Percentage of ether extract in egg.	Percentage of water in egg.	Percentage of water in egg.
Jun. 19	32	1021	1	34	1.70		0.0156	2.22	56.82	32.22	12.10	87.90	15.25	25.45	11.24	11.79	7.20	68.72	64.86
20	34	1033	2	26	1.72	6.97	0.0145	2.18	56.06	32.03	12.60	87.40	17.31	31.32	11.61	12.61	10.15	64.86	66.59
22	36	1061	3	20	1.71	5.64	0.0143	2.05	57.06	33.14	12.61	87.39	17.03	31.17	11.67	12.79	10.34	66.59	65.74
23	37	1077	4	24	1.70	6.06	0.0145	2.07	56.20	33.71	10.65	89.35	17.55	31.19	11.54	13.03	10.52	64.93	64.93
24	38	1092	5	23	1.70		0.0148	2.03	56.56	32.70	12.62	87.38	17.59	32.48	11.54	13.10	10.86	65.79	64.93
25	103	1102	3	21	1.68	6.90	0.0145	2.02	56.33	33.95	12.16	87.84	17.42	31.96	11.42	12.75	10.57	66.77	64.74
27	135	1134	7	33	1.74	4.42	0.0138	2.24	57.50	33.08	10.94	89.06	17.25	32.64	11.49	12.14	12.14	64.74	65.93
28	138	1147	2	24	1.73	5.43	0.0135	2.12	55.72	34.45	11.92	88.08	16.65	32.73	11.44	12.37	11.27	65.93	64.74
29	166	1165	3	27	1.73	6.79	0.0150	2.33	55.72	34.45	11.92	88.08	16.65	32.73	11.44	12.37	11.27	65.93	64.74
30	171	1180	10	28	1.69	6.48	0.0154	2.09	56.76	32.31	11.45	88.55	17.11	32.23	11.49	12.14	10.28	66.33	64.94
Jul. 2	211	1210	11	23	1.69	7.62	0.0144	2.07	57.62	32.32	10.69	89.31	17.08	31.82	11.68	12.70	10.68	66.33	64.94
3	213	1227	12	23	1.70	7.89	0.0146	1.96	55.85	34.03	10.89	88.26	17.02	32.14	11.59	13.46	10.68	66.33	64.94
5	215	1254	13	29	1.71	4.52	0.0136	2.14	57.95	32.34	11.33	88.67	17.50	32.06	11.40	12.86	10.37	66.57	66.17
6	235	1264	14	26	1.70		0.0149	2.07	57.14	32.80	12.66	87.34	16.14	32.28	11.29	12.59	9.28	66.17	66.17
7	236	1275	15	22	1.67	7.39	0.0137	2.03	58.88	31.16	12.14	87.86	17.26	32.21	11.48	12.52	10.03	67.06	67.06
Totals																			
Averages			2,255	1,704		6.326	0.01446	2.09	56.595	33.197	10.00	87.607	17.125	31.25	50.07	12.697	10.41	66.115	66.115

The preceding tables afford data for much study, though perhaps generalizations cannot be arrived at as rapidly as might be expected. For example, in respect to the weights of the eggs, study of the tables shows that a hen may be credited with an egg each day for several days and then a day is skipped, or perhaps more than one day. In many instances it may be seen that during the time that the eggs are laid daily the weight becomes constantly smaller, then after a day or two of rest the eggs produced are again larger. This succession of variations in the weight is illustrated very well by the Single Comb White Leghorns Nos. 21 and 51. For example, with No. 51, beginning with June 18 the egg weights in ounces for four days were 1.91, 1.94, 1.89 and 1.76; June 22 no egg was laid, and the next four days the weights were 1.82, 1.77, 1.75 and 1.83; no egg was laid June 27, and the next three days the weights were 1.86, 1.79 and 1.70; no egg was laid July 1, and the weights for the next three days were 1.81, 1.78 and 1.73; July 5 was skipped, and on the 6th and 7th the weights were 1.94 and 1.97; none was laid on the 8th, and the weights for the 9th and 10th were 1.85 and 1.80; on the 11th none was laid, and the weights for the next four days were 1.93, 1.86, 1.83 and 1.77; two days were then skipped, and the weights for the next four days were 1.94, 1.79, 1.74 and 1.62; July 22 no egg was laid, and the next three days the weights were 1.83, 1.77 and 1.71; no egg was laid on the 26th, and the weights for the next three days were 1.83, 1.82 and 1.90. It will be seen that there are here several striking series of the kind indicated, in which a day with no egg followed a continued diminution in the size and preceded a series beginning with an increased weight. On the other hand, there are several exceptions to the regularity of change. Such studies as these are possible only where the hens are laying nearly every day. The Single Comb White Leghorn No. 21 affords similar illustrations, but numerous examples may be found in the tables in which this regularity is not exhibited. On the whole, however, a tendency in this direction must be conceded.

In respect to the thickness of shell no great variations are displayed, though, as would be expected, some differences are observable, which in the case of extremes amounts to about 20 per cent. Thus the White Wyandotte B1B shows an aver-

age thickness of .012 inches, while the White Leghorn No. 21 lot gave the average thickness of the shells as .015 inches. The averages for the breeds, as shown in a later table, show differences that are practically negligible.

Closely connected with thickness of shell is the factor of weight necessary to perforate the shell, and as would be expected the thinner shells are on the average shown to be perforated by less weights. If the data for individual eggs be examined, however, it will be found that there are many cases of discrepancy. This is doubtless due to the obvious difficulties in getting correct results, especially as only one point in the shell can be tested with reference to perforation. For these numbers we must depend on averages altogether, such as are shown in a table on a later page.

Leaving then the consideration of tables concerning individual eggs for study by the reader with reference to any points in which he is interested upon which data are recorded, attention may be directed to the table of averages for each hen, each breed, and the four breeds. But little can be done in the way of summarizing so condensed a statement as the table presents, but it will be seen that the different breeds do not on the average show any very marked differences, and even the averages for the individual hens are strikingly near the general averages for the four breeds as a rule. Perhaps as important a difference as any is shown in the percentage of ether extract in the yolk, running from 31.8 in the Single Comb White Leghorns to 32.87 in the American Reds. The percentages of protein in the yolk show a corresponding variation, ranging from 17.83 with the Leghorns to 17.18 in the American Reds.

DATA CONCERNING EGGS, SHOWING AVERAGES OF INDIVIDUALS AND BREEDS AND GENERAL AVERAGES.

HEN.	Long diam-eter of egg...	Short diam-eter of egg...	Weight to per-centage of shell.	Av. thickness of shell, in inches	Wt. of egg, in ounces...	Percentage of white.	Percentage of yolk.	Percentage of shell.	Percentage of protein in white.	Percentage of water in white.	Percentage of protein in yolk.	Percentage of ether ex-tract in yolk.	Percentage of water in yolk.	Percentage of ash in yolk.	Percentage of protein in egg.	Percentage of ether ex-tract in egg.	Percentage of water in egg.
American Red No. 3.....	58.13	41.64	5.95	0.0133	1.91	56.94	33.87	9.27	10.61	89.39	16.82	33.76	47.82	1.58	11.97	11.45	67.20
" No. 6.....	55.50	41.60	6.67	0.0135	1.80	53.43	38.34	9.78	11.35	88.65	16.92	31.72	49.87	1.62	12.30	11.49	65.95
" No. 214.....	55.50	40.40	6.50	0.0140	1.76	57.02	32.38	10.52	12.56	87.44	17.49	31.90	49.06	1.53	12.83	10.33	65.72
" No. 218.....	57.98	43.13	4.80	0.0122	2.00	57.54	33.29	8.66	13.07	86.93	17.25	33.69	47.48	1.57	13.32	11.29	65.89
" No. 340.....	57.40	43.80	6.24	0.0133	2.01	59.12	31.62	9.63	11.70	88.30	17.40	33.27	47.75	1.58	12.32	10.32	64.17
Averages.....	56.90	42.11	6.03	0.0133	1.90	56.81	33.38	9.57	11.86	88.14	17.18	32.87	48.39	1.58	12.55	10.98	65.79
Plymouth Rock No. 7.....	55.50	40.67	6.50	0.0147	1.75	54.09	35.12	10.58	11.84	88.16	17.27	32.25	48.95	1.52	12.49	11.20	65.20
" No. 10.....	56.05	43.67	6.98	0.0145	2.02	58.61	30.41	9.85	12.27	87.79	18.15	31.48	48.93	1.49	12.82	9.49	67.21
" No. 45.....	57.90	40.71	6.23	0.0144	1.85	57.15	32.64	10.19	11.23	88.77	18.00	32.07	48.47	1.54	12.28	10.46	66.56
" No. 67.....	55.50	41.50	5.45	0.0135	1.83	57.63	32.65	9.72	12.10	87.90	17.32	32.68	48.42	1.58	12.59	10.60	66.40
" No. 70.....	55.86	40.70	6.40	0.0140	1.78	55.70	34.02	10.35	11.37	88.63	18.28	31.25	48.92	1.54	12.54	10.71	65.86
" No. 98.....	56.10	41.90	6.40	0.0136	1.87	57.11	33.12	9.87	12.65	87.35	17.49	32.11	48.75	1.63	12.98	10.32	65.95
Averages.....	56.15	41.53	6.33	0.0141	1.85	56.72	32.99	10.09	11.91	88.10	17.75	31.97	48.74	1.55	12.62	10.51	66.20
S. C. White Leghorn No. 3	54.20	41.15	7.02	0.0149	1.76	58.04	31.16	10.85	12.77	87.23	18.35	31.39	48.69	1.56	13.09	9.98	65.85
" No. 7	57.75	42.95	5.93	0.0135	2.02	59.39	30.53	9.58	13.23	86.76	17.71	32.32	48.37	1.58	13.25	9.87	66.32
" No. 19	54.55	40.23	6.33	0.0139	1.87	56.38	31.14	10.42	12.53	87.47	17.79	30.83	49.51	1.49	12.95	10.34	65.73
" No. 21	55.17	40.28	6.74	0.0150	1.71	55.48	33.21	11.45	12.48	87.52	17.90	32.08	48.43	1.58	12.97	10.74	64.91
" No. 50	58.20	41.66	5.28	0.0137	1.99	55.91	34.23	9.66	12.66	87.33	17.45	31.71	49.35	1.49	13.06	10.85	65.71
" No. 51	56.20	41.60	7.24	0.0146	1.82	54.08	35.29	10.82	11.78	88.22	17.77	32.49	48.21	1.58	12.53	11.38	64.78
Averages.....	55.68	41.31	6.42	0.0143	1.83	56.55	32.59	10.46	12.58	87.42	17.83	31.80	48.76	1.53	12.97	10.53	65.55
White Wyandotte No. 4A4	54.60	42.30	8.06	0.0141	1.87	56.15	33.43	10.21	13.12	86.88	17.58	32.72	48.17	1.53	13.24	10.94	64.76
" No. 4A7	54.80	42.30	6.17	0.0135	1.87	60.57	29.58	9.79	13.41	86.60	17.33	32.91	48.17	1.50	13.23	9.68	66.71
" No. B1B	55.00	43.30	4.73	0.0120	1.90	57.48	33.63	8.43	12.97	87.03	17.68	32.26	48.55	1.60	13.36	10.86	66.34
" No. 4C9	56.99	43.78	6.40	0.0139	2.06	58.73	31.56	9.72	13.32	86.68	17.54	33.03	47.85	1.57	13.30	10.44	66.09
" No. 4C11	57.40	43.30	6.33	0.0145	2.09	56.60	33.20	10.00	12.39	87.61	17.13	31.25	50.07	1.48	12.70	10.41	66.12
" No. 4C12	56.60	43.30	7.68	0.0147	2.03	58.14	31.54	10.44	12.46	87.54	17.73	32.05	48.67	1.54	12.83	10.10	66.25
Averages.....	55.88	43.05	6.56	0.0138	1.97	57.95	32.16	9.77	12.95	87.06	17.50	32.37	48.58	1.54	13.11	10.41	66.05
General averages.....	56.12	41.93	6.35	0.0139	1.88	57.01	32.75	9.99	12.34	87.66	17.58	32.23	48.63	1.55	12.83	10.59	65.90

DETERMINATIONS OF PHOSPHORUS IN YOLKS.

In the four accompanying tables are exhibited the results of determinations of phosphorus in composite samples from the yolks of eggs laid within each of the weeks of the experiment. Where no results are shown no eggs were laid within that week by that hen. The results are expressed in terms of phosphoric acid, P_2O_5 . In the determinations one gram of the air-dry yolk was digested in a Kjeldahl flask with potassium sulfate and concentrated sulfuric acid, as for the determination of nitrogen. The product was diluted with 100 cubic centimeters of water and boiled again. This solution was made up to 250 cubic centimeters in a volumetric flask and 100 cubic centimeter portions used in making the duplicate analyses. The phosphoric acid was precipitated by a molybdc solution according to the official methods, and this precipitate was dissolved and the phosphoric acid determined as magnesium pyrophosphate in the usual manner.

The per cent. of ash was also determined in one gram of the air-dry sample. The results in the cases of both ash and phosphoric acid are calculated to the original substance. Study of the results shows considerable variations in the ratio of phosphoric acid to ash in individual composite samples, but the differences are much less for the average results of the different hens. For the four breeds the averages are: American Red, 1 of phosphoric acid to 1.09 of ash in the yolk; Plymouth Rock, 1:1.11; White Leghorn, 1:1.09; White Wyandotte, 1:1.08. The average of these four practically identical results is 1:1.093. It is evident that the ash consists almost entirely of phosphoric acid. This is doubtless produced almost entirely, if not altogether, from the lecithin of the egg yolk. It is proper to mention in this connection that all of the determinations of phosphoric acid and ash were made by Miss Gertrude Hole, a graduate student in the department.

AMERICAN RED.

HEN.	Date limits.	Percentage of ash in yolk.	Percentage of phosphoric acid in yolk.	Ratio of phosphoric acid to ash in yolk.
American Red No. 3.	June 18 to June 25.	1.58	1.50	1:1.05
	June 25 to July 2.	1.52	1.46	1:1.04
	July 2 to July 9.	1.53	1.50	1:1.02
	July 9 to July 16.	1.61	1.42	1:1.13
	July 16 to July 23.	1.64	1.46	1:1.12
	July 23 to July 30.	1.64	1.48	1:1.10
Averages		1.59	1.47	1:1.08
American Red No. 6.	June 18 to June 25.	1.65	1.54	1:1.07
	June 25 to July 2.	1.50	1.67	1:1.40
	July 2 to July 9.	1.41	1.32	1:1.06
	July 9 to July 16.			
	July 16 to July 23.	1.74	1.40	1:1.24
	July 23 to July 30.	1.68	1.52	1:1.10
Averages		1.60	1.37	1:1.17
American Red No. 214.	June 18 to June 25.	1.47	1.33	1:1.15
	June 25 to July 2.	1.48	1.38	1:1.08
	July 2 to July 9.	1.50	1.39	1:1.08
	July 9 to July 16.	1.50	1.35	1:1.11
	July 16 to July 23.	1.53	1.41	1:1.08
	July 23 to July 30.	1.66	1.40	1:1.19
Averages		1.52	1.38	1:1.10
American Red No. 218.	June 18 to June 25.	1.66	1.57	1:1.05
	June 25 to July 2.	1.45	1.31	1:1.10
	July 2 to July 9.	1.54	1.47	1:1.04
	July 9 to July 16.			
	July 16 to July 23.	1.57	1.45	1:1.08
	July 23 to July 30.	1.64	1.50	1:1.09
Averages		1.57	1.46	1:1.07
American Red No. 340.	June 18 to June 25.	1.57	1.51	1:1.04
	June 25 to July 2.	1.48	1.39	1:1.06
	July 2 to July 9.	1.45	1.38	1:1.05
	July 9 to July 16.			
	July 16 to July 23.	1.67	1.49	1:1.12
	July 23 to July 30.	1.65	1.49	1:1.10
Averages		1.56	1.45	1:1.08
Averages of breed		1.57	1.43	1:1.09

PLYMOUTH ROCK.

HEN.	Date limits.	Percentage of ash in yolk.	Percentage of phosphoric acid in yolk.	Ratio of phosphoric acid to ash in yolk.
Plymouth Rock No. 7.	June 18 to June 25	1.55	1.29	1:1.20
	June 25 to July 2	1.47	1.35	1:1.09
	July 2 to July 9	1.47	1.30	1:1.13
	July 9 to July 16	1.46	1.26	1:1.11
	July 16 to July 23	1.63	1.34	1:1.21
Averages		1.50	1.31	1:1.14
Plymouth Rock No. 10.	June 18 to June 25	1.58	1.40	1:1.12
	June 25 to July 2	1.53	1.33	1:1.14
	July 2 to July 9	1.40	1.37	1:1.05
	July 9 to July 16	1.47	1.34	1:1.09
	July 16 to July 23	1.47	1.27	1:1.15
Averages		1.49	1.34	1:1.11
Plymouth Rock No. 45.	June 18 to June 25	1.54	1.44	1:1.07
	June 25 to July 2	1.55	1.43	1:1.08
	July 2 to July 9	1.51	1.35	1:1.09
	July 9 to July 16	1.56	1.41	1:1.10
	July 16 to July 23	1.55	1.43	1:1.08
Averages		1.54	1.40	1:1.10
Plymouth Rock No. 67.	June 18 to June 25	1.56	1.41	1:1.10
	June 25 to July 2	1.55	1.51	1:1.17
	July 2 to July 9	1.55	1.47	1:1.05
	July 9 to July 16	1.53	1.38	1:1.15
	July 16 to July 23	1.64	1.33	1:1.23
Averages		1.57	1.42	1:1.10
Plymouth Rock No. 70.	June 18 to June 25	1.58	1.40	1:1.11
	June 25 to July 2	1.53	1.52	1:1.15
	July 2 to July 9	1.51	1.35	1:1.13
	July 9 to July 16	1.61	1.41	1:1.14
	July 16 to July 23	1.55	1.36	1:1.13
Averages		1.55	1.36	1:1.13
Plymouth Rock No. 84.	June 18 to June 25	1.57	1.43	1:1.04
	June 25 to July 2	1.51	1.59	1:1.07
	July 2 to July 9	1.53	1.39	1:1.10
	July 9 to July 16	1.65	1.52	1:1.10
	July 16 to July 23	1.68	1.35	1:1.15
Averages		1.56	1.41	1:1.09
Averages of food		1.53	1.38	1:1.11

WHITE LEGHORN.

HEN.	Date limits.	Percentage of ash in yolk.....	Percentage of phosphoric acid in yolk.....	Ratio of phosphoric acid to ash in yolk.....
White Leghorn No. 8.....	June 18 to June 25.....	1.52	1.32	1:1.14
" " ".....	June 25 to July 2.....	1.50	1.46	1:1.03
" " ".....	July 2 to July 9.....	1.53	1.39	1:1.10
" " ".....	July 9 to July 16.....	1.60	1.42	1:1.13
" " ".....	July 16 to July 23.....	1.61	1.41	1:1.14
" " ".....	July 23 to July 30.....	1.64	1.37	1:1.20
Averages.....		1.57	1.40	1:1.12
White Leghorn No. 7.....	June 18 to June 25.....	1.62	1.48	1:1.09
" " ".....	June 25 to July 2.....	1.59	1.48	1:1.07
" " ".....	July 2 to July 9.....	1.50	1.43	1:1.05
" " ".....	July 9 to July 16.....	1.58	1.45	1:1.09
" " ".....	July 16 to July 23.....	1.52	1.49	1:1.02
" " ".....	July 23 to July 30.....	1.69	1.38	1:1.22
Averages.....		1.58	1.45	1:1.09
White Leghorn No. 19.....	June 18 to June 23.....	1.46	1.32	1:1.11
" " ".....	June 23 to July 2.....	1.50	1.37	1:1.10
" " ".....	July 2 to July 9.....	1.49	1.44	1:1.08
" " ".....	July 9 to July 16.....	1.45	1.41	1:1.03
" " ".....	July 16 to July 23.....	1.46	1.39	1:1.05
" " ".....	July 23 to July 30.....	1.64	1.42	1:1.15
Averages.....		1.50	1.39	1:1.08
White Leghorn No. 21.....	June 21 to June 28.....	1.55	1.42	1:1.09
" " ".....	June 28 to July 5.....	1.50	1.41	1:1.06
" " ".....	July 5 to July 12.....	1.48	1.44	1:1.03
" " ".....	July 12 to July 19.....	1.66	1.52	1:1.09
" " ".....	July 19 to July 26.....	1.62	1.40	1:1.15
" " ".....	July 26 to Aug. 2.....	1.75	1.44	1:1.21
Averages.....		1.60	1.50	1:1.10
White Leghorn No. 50.....	June 18 to June 25.....	1.48	1.41	1:1.05
" " ".....	June 25 to July 2.....	1.48	1.40	1:1.06
" " ".....	July 2 to July 9.....	1.52	1.39	1:1.09
" " ".....	July 9 to July 16.....	1.48	1.44	1:1.03
" " ".....	July 16 to July 23.....			
" " ".....	July 23 to July 30.....			
Averages.....		1.49	1.41	1:1.06
White Leghorn No. 51.....	June 18 to June 25.....	1.51	1.31	1:1.15
" " ".....	June 25 to July 2.....	1.61	1.48	1:1.11
" " ".....	July 2 to July 9.....	1.56	1.42	1:1.09
" " ".....	July 9 to July 16.....	1.55	1.47	1:1.05
" " ".....	July 16 to July 23.....	1.58	1.41	1:1.12
" " ".....	July 23 to July 30.....	1.65	1.39	1:1.13
Averages.....		1.58	1.41	1:1.12
Averages of breed.....		1.55	1.43	1:1.09

WHITE WYANDOTTE.

HEN.	Date limits.	Percentage of ash in yolk.....	Percentage of phosphoric acid in yolk.....	Ratio of phosphoric acid to ash in yolk.....
White Wyandotte No. 4A4.....	June 18 to June 25.....	1.54	1.44	1:1.07
.. .. .	June 25 to July 2.....	1.51	1.46	1:1.03
.. .. .	July 2 to July 9.....	1.55	1.44	1:1.08
.. .. .	July 9 to July 16.....	.....	.....	.....
.. .. .	July 16 to July 23.....	.....	.....	.....
.. .. .	July 23 to July 30.....	.....	.....	.....
Averages.....	.....	1.53	1.45	1:1.06
White Wyandotte No. B1B.....	June 18 to June 25.....	1.64	1.58	1:1.03
.. .. .	June 25 to July 2.....	1.52	1.35	1:1.12
.. .. .	July 2 to July 9.....	1.50	1.43	1:1.05
.. .. .	July 9 to July 16.....	1.61	1.40	1:1.15
.. .. .	July 16 to July 23.....	1.67	1.43	1:1.18
.. .. .	July 23 to July 30.....	1.68	1.47	1:1.14
Averages.....	.....	1.60	1.44	1:1.11
White Wyandotte No. 4C9.....	June 21 to June 28.....	1.57	1.49	1:1.05
.. .. .	June 28 to July 5.....	1.52	1.39	1:1.09
.. .. .	July 5 to July 12.....	.....	.....	.....
.. .. .	July 12 to July 19.....	.....	.....	.....
.. .. .	July 19 to July 26.....	1.58	1.42	1:1.11
.. .. .	July 26 to Aug. 2.....	1.62	1.48	1:1.09
Averages.....	.....	1.57	1.45	1:1.08
White Wyandotte No. 4A7.....	June 18 to June 25.....	1.51	1.41	1:1.07
.. .. .	June 25 to July 2.....	1.48	1.39	1:1.06
.. .. .	July 2 to July 9.....	1.48	1.39	1:1.06
.. .. .	July 9 to July 16.....	1.48	1.41	1:1.05
.. .. .	July 16 to July 23.....	.....	.....	.....
.. .. .	July 23 to July 30.....	1.63	1.40	1:1.16
Averages.....	.....	1.51	1.40	1:1.08
White Wyandotte No. 4C11.....	June 18 to June 25.....	1.52	1.48	1:1.02
.. .. .	June 25 to July 2.....	1.47	1.40	1:1.05
.. .. .	July 2 to July 9.....	1.47	1.45	1:1.01
.. .. .	July 9 to July 16.....	.....	.....	.....
.. .. .	July 16 to July 23.....	.....	.....	.....
.. .. .	July 23 to July 30.....	.....	.....	.....
Averages.....	.....	1.49	1.44	1:1.03
White Wyandotte No. 4C12.....	June 18 to June 25.....	.....	.....	.....
.. .. .	June 25 to July 2.....	1.50	1.12	1:1.33
.. .. .	July 2 to July 9.....	1.59	1.41	1:1.12
.. .. .	July 9 to July 16.....	1.44	1.41	1:1.02
.. .. .	July 16 to July 23.....	1.58	1.42	1:1.11
.. .. .	July 23 to July 30.....	1.63	1.36	1:1.19
Averages.....	.....	1.55	1.34	1:1.15
Averages of breed.....	.....	1.54	1.42	1:1.08

SUMMARY.

This Bulletin contains the detailed results of the analyses of all the eggs laid by six pure breeds of chickens within the six weeks from June 18 to July 31, 1905. The weights were also taken as well as the measurements of both diameters of the egg, the thickness of the shell, and its breaking strength. Considerable variations are shown among the eggs laid by individual birds, but the averages in respect to composition are strikingly similar. Determinations of phosphorus were made in composite samples from the yolks of eggs laid within each of the weeks of the experiment. The ratio of the phosphoric acid, P_2O_5 , to ash showed considerable variation in individual composite samples, but on the average the results were almost identical for the four breeds, the ratio being 1:1.093.