

Author	Date	Eosinophilic rods	Eosinophilic granules
Bizzozero and Torre	1880	Eosinophilic leukocytes "Little spindle-shaped bodies."	Granular forms.
Grunberg	1901	Eosinophilic leukocytes Crystalloid	Globular-like granules
Cullen	1903	Eosinophilic leukocytes Crystalloid	Granular forms
Warthin	1907	Polymorphonuclear eosinophils Crystalloid type	Granular type
Goodall	1910	Polymorphonuclear leucocyte with rods	Eosinophil
Kleineberger and Carl	1912	Pseudo-eosinophil	Eosinophil (with small granules).
Schmeisser	1916	Polymorphonuclears Eosinophilic rods	Eosinophilic granules
Burnett	1917	"Polymorphs"	"Eosins"
Fritsch	1920	Pseudo-eosinophils	Eosinophils
Hayden	1927	Polymorphonuclears	Eosinophils
Blain	1928	Polymorphonuclears Eosinophilic rods	Eosinophilic granules
Forkner	1929	Eosinophils	Pseudo-eosinophils
Thompson and Engelbreth-holm	1931	Polymorphonuclears Pseudo-eosinophils	Eosinophils
Maximow and Bloom (1)	1931	Heterophil	Eosinophil
Wirth (1)	1934	Pseudo-eosinophils	Eosinophils

Burnett (1917) considers that the name "polymorphonuclear leucocyte with eosinophilic rods" is inexcusable. A "polymorphonuclear leucocyte" in his opinion signifies not merely a leucocyte with a polymorphous nucleus but the specific name of a certain kind of leucocyte, otherwise called "neutrophil."

Maximow and Bloom (1931) adopted the term

(1) Investigators listed by the writer.

"heterophil", first used by Kyes, as a comprehensive term to include the group of cells whose granules, though constant in a particular species, differ in form, size and staining reaction according to species. Hence the cell with the spindle-shaped granules was named "heterophil", and in avian haematology investigators have apparently applied this term only to that particular cell.

The names "heterophile" and "eosinophile" for the cells with the spindle-shaped granules and for those with the round granules respectively appear to the writer the most appropriate and in this study they will be so used henceforth.

In smears prepared from ostrich blood and stained with Wright's stain the cells are differentiated by the following characters:

ERYTHROCYTES.

Special interest attaches to the erythrocytes of the ostrich, for in smears of the blood of normal birds these cells may sometimes be seen in various stages of development. Following terminology applied to corresponding cell types in the fowl, the forms which are almost mature will in this work be called "polychrome erythrocytes" (Emmel 1935) and the very young forms "basophil erythroblasts" (Ferrata cited by Furth 1931).

Mature erythrocytes: (Plate 1, Figure *) These cells vary in shape from elliptical to almost circular, the younger forms tending to be round, but in smears many irregular shapes may occur owing to pressure. Occasionally a cell may be seen without a nucleus. The cytoplasm is homogeneous and as stated under/when correctly stained with

"Staining of Smears"

Wright's

* If funds are available, coloured pictures of the various types of cells described will be inserted when the article is being published.

Wright's stain it ^{is} shows a fawn colour.

The nucleus which is usually oval is of an extremely pachychromatic and trachychromatic type. The

basichromatin is arranged to form a coarse pattern in angular or roughly rounded blotches which frequently cause irregular elevations of the nuclear membrane and between which the *oxychromatin* forms a lighter meshwork. Very occasionally a mature cell may be seen with two nuclei or one in which the long axis of the nucleus is situated transversely to the long axis of the cell. The nucleus may also be small and pycnotic.

Two hundred regularly shaped, fully developed, cells were measured at random in dried, stained smears and the length varied from 11.5u. to 15.93u and the breadth from 7.08u. to 9.73u, the average length being 13.98u and the breadth 7.92u. The measurements of the nuclei were as follows: Length 4.07u. - 7.96u, average length 6.33u, breadth 1.77u. - 2.65u, average breadth 2.19u.

In practically every smear there may be seen roundish structures which are light purple in colour and irregular in outline. They are of loose structure and measure about 8u. in diameter. These are injured nuclei of ruptured erythrocytes (smudges). Sometimes part of the cytoplasmic rim enclosing a certain amount of cytoplasm similarly stained to the cytoplasm of the ripe erythrocyte may still be seen partly surrounding the body. These structures occur no matter in what way or how carefully smears are prepared.

In moist preparations the erythrocytes of the ostrich have a buff yellow colour and the nuclei appear indistinct against the colour of the haemoglobin. The nuclear structure is almost invisible but in a cell with little haemoglobin the oval shape and the clumps of chromatin

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of the nucleus can be seen. Cells with little haemoglobin cannot always be easily recognised in the counting chamber and they may be mistaken for free nuclei, thrombocytes or even small lymphocytes. Only by close observation and suitable ^{manipulation of the condenser} focussing can the faint cell membrane be discerned.

Neser (1923) states with reference to equine erythrocytes: "In smears, however, the cells are more or less stretched out and the measurements are in consequence larger than those obtained in moist preparations," but Ponder (1934) remarks, "Although the point has been the subject of considerable controversy in the past I think it can fairly be said that it is now established that the red cell diameter is from 8 - 16 per cent. less when the cell is dried than when it is floating in plasma or serum." The writer ^{also} made measurements ^{red} also of ostrich ^{red} cells bathed in plasma, the following procedure being followed: Fresh heparinised blood was diluted a hundred times with its own plasma. The diluted blood was then introduced into a red cell counting chamber and the preparation ringed with vaseline. Thus the cells were not subjected to any pressure and the preparation remained suitable for a long time. Two hundred cells were measured and the dimensions were as follows: Length 15u. - 16.5u., average length 15.25u., breadth 7.75u. - 10.25u., average breadth 9.25u. From table 1 it will be seen that these measurements approximate closely the figures given by Gulliver and by Hayem.

Polychrome Erythrocytes (Plate 1, Figure ?):-

The cells approaching maturity resemble closely in shape and size the fully developed cell. The cytoplasm shows only slight polychromasia, staining a light grey colour.

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The nuclei are larger and more oval than those of the mature cells and they show large angular clumps of chromatin which stain a slightly paler colour than the nuclear chromatin of the ripe cell.

Basophil Erythroblasts (Plate 1, Figure 7):-

These cells are usually almost round but may be oval and they vary considerably in size. The larger forms usually measure about 12.4u. in diameter. The cytoplasm is *very* ~~ly~~ basophilic and the cytoplasmic layer around the nucleus is narrower than ~~in~~ that of the polychrome erythrocyte. There may be sometimes seen in the cytoplasm granules which appear in staining reaction and size very similar to the azurophil granules of lymphocytes. The nuclei are as a rule circular and large and though the chromatin particles which stain a dark purple colour may be denser than in the more mature cells yet the tendency toward a checkerboard distribution of angular particles of chromatin is apparent.

Between the polychrome erythrocytes and the basophil erythroblasts may be seen various intermediate forms varying in shape, size and staining reaction. Some may be round and others oval. Round forms may be seen measuring only 7.9u. Immature forms are very occasionally also seen in a state of mitosis and the cytoplasm of such cells is usually less basophilic than that of basophil erythroblasts.

Reticulation can be favourably studied in the immature cells by staining them by the method used by Magath and Higgins (1934). The reticulations are heavy and look like a network in the very young cells, whereas in the older cells only a few strands or dots are to be seen (Plate 1, figure).

The percentage of immature red cells which can be recognised in smears stained with Romanowsky stains was
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determined by counting, with the use of an Ehrlich eyepiece, 400 red cells. The results are shown in tables 3 - 10 and a statistical analysis of them is given in table 11.

The data were analysed statistically by the following formulae:-

(a) Standard deviation (σ) $\sqrt{\frac{\sum d^2}{n - 1}}$

(b) Standard error $\frac{\sigma}{\sqrt{n}}$

(c) Coefficient of variability $\frac{\sigma}{M} 100$

$\sum d^2$ = Sum of the differences squared.

n = Number of observations.

M = Mean.

In the smears prepared from the normal ostriches (1 - 5) these cells constituted 2.5 ± 0.1 per cent (Standard deviation 1.1; Coefficient of variability 47.2 per cent) of the red cells ranging from 0 per cent. to 7.0 per cent. It will be seen that the results from birds 6 - 17 closely agree with those from the normal birds, but it is noteworthy that only one immature erythrocyte was seen in the smears from the worm-infested birds 18 - 22.

The number of basophil erythroblasts per c.mm. was estimated by determining from the smear the ratio between these and the leucocytes and applying this ratio to the total leucocyte count. The ratio was computed from

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the number of basophil erythroblasts enumerated each time 200 leucocytes were counted.

The number of erythroblasts observed in smears per 200 leucocytes counted vary for the normal ostriches from 0 to 61 averaging 2.6, and the calculated total counts, which are listed in tables 3 - 10, range from 0 to 6283, averaging 264 per c.mm. These cells constitute from 0 to 0.33 per cent. of the erythrocytes, averaging 0.013 per cent.

The maximum count of 6283 is exceptionally high, considering that it is over three times as high as the count nearest to it. It is not clear why bird No.5 showed such a high count on 24/11/36 as no cause for unusual erythrocyte regeneration was evident. The bird always seemed healthy and only 5 c.c. of blood were drawn from it about two months previously. However, the counts from this bird during the period 28/9/36 - 4/2/37, are suggestive of unusual erythropoiesis.

The blood of ostriches Nos. 7 - 17 contained comparatively few basophil erythroblasts.

TABLE 3.

Blood cell counts, etc., of ostrich clinically healthy and found free from disease on post mortem examination.
Bird reared on farm Mariendahl, Stellenbosch district. (See pages 9 - 10).

No.	Sex	Date bled	Age	R.P. ¹⁾	Erythrocytes per C. mm.	Percentage erythrocytes which in Romanowsky stained smears showed either polychromatic or basophil cytoplasm.	Basophil erythroblasts per C. mm.	R.P. R.C.	Thrombocytes per C. mm.	Leucocytes per C. mm.	Per cent.				
											L.	M.	H.	E.	B.
1	Male	25/5/35	6 mths. 25 days	45.9	1,840,000	2.5	0	24.94	12235	21049	21.7	3.7	54.0	11.7	8.7
		17/6/35	7 " 17 "	45.8	1,944,000	2.0	0	23.60	13860	25301	23.0	2.2	55.7	10.5	8.5
		29/8/35	9 " 29 "	47	1,927,000	2.0	0	24.35	6223	25444	32.5	2.0	57.5	4.5	3.5
		25/9/35	10 " 25 "	47	1,910,000	4.0	0	24.60	11869	28672	24.2	2.7	60.0	5.0	8.0
		30/11/35	13 "	48	1,880,000	1.0	0	25.53	12397	15578	21.0	2.7	64.0	4.2	8.0
		30/1/36	15 "	50.2	1,950,000	1.5	0	25.74	7526	21344	21.2	3.5	58.2	10.7	6.2
		13/2/36	15 " 13 "	49.2	2,064,000	2.2	0	23.88	14076	27671	29.0	2.7	44.5	15.3	8.3
		15/4/36	17 " 15 "	50.6	1,970,000	2.0	0	25.68	6136	20408	32.5	3.7	48.5	8.0	7.2
		9/5/36	18 " 9 "	51.4	2,117,000	1.0	0	24.36	9234	22852	26.5	3.0	56.0	4.0	0.5
		20/7/36	20 " 20 "	51	1,920,000	3.0	146	26.56	12264	29255	23.7	8.5	58.7	2.7	6.2
		26/8/36	21 " 26 "	54	2,199,000	2.2	0	24.59	8925	21059	29.2	1.7	41.5	19.7	7.7
		22/9/36	22 " 22 "	52	2,000,000	2.0	0	26	12190	22966	23.2	5.0	58.5	3.4	9.7
		1/12/36	25 " 1 "	52	1,927,000	4.0	183	26.94	6014	12326	30.6	4.3	51.2	4.5	9.2
		4/2/37	27 " 4 "	52.4	1,967,000	4.7	258	26.59	8944	17253	27.7	3.2	52.7	6.5	9.7
		19/5/37	30 " 19 "	54	2,020,000	3.0	465	26.73	9207	18600	28.1	4.1	51.5	5.7	0.3

1) Abbreviations: R.P. for percentage volume of the erythrocytes.
R.C. " number of erythrocytes per C. mm. of blood expressed in millions.
L. " lymphocytes.
M. " monocytes.
H. " heterophiles.
E. " eosinophiles.
B. " basophiles.

TABLE 4.

Blood cell counts, etc., of ostrich clinically healthy and found free from disease on post mortem examination.
Bird reared on farm Mariendahl, Stellenbosch district. (See pages 9 - 10).

No.	Sex	Date bled	Age	R.P. ¹⁾	Erythrocytes per c. mm.	Percentage erythrocytes which in Romanowsky stained smears showed either polychromatic or basophilic cytoplasm.	Basophil erythroblasts per c. mm.	R.P. R.C.	Thrombocytes per c. mm.	Leucocytes per c. mm.	Per cent.				
											L.	M.	H.	E.	B.
2	Male	9/7/35	8 mths. 9 days	44.4	1,720,000	2.5	246	25.81	12160	24751	27.0	2.5	60.0	8.7	1.7
		29/7/35	8 " 29 "	46	1,756,000	1.0	0	26.13	2478	23617	30.7	2.2	50.5	14.7	1.7
		25/9/35	10 " 25 "	44.4	1,729,000	2.2	0	25.66	8554	18251	27.0	4.7	58.2	8.2	1.7
		26/10/35	11 " 26 "	45	1,749,000	1.5	0	25.71	10509	18729	33.0	3.5	50.5	9.0	4.0
		7/12/35	13 " 7 "	43.8	1,653,000	1.5	0	26.54	10608	15543	32.5	4.5	48.2	9.5	5.2
		19/2/36	15 " 19 "	45.1	1,757,000	2.0	111	25.77	13328	22333	37.0	3.1	46.3	7.2	6.2
		15/4/36	17 " 15 "	43.8	1,700,000	1.7	0	25.76	9660	23103	34.5	2.5	52.0	1.5	6.5
		22/5/36	18 " 22 "	49	1,840,000	4.0	184	26.63	19623	18571	26.7	3.2	63.0	3.5	3.5
		14/7/36	20 " 14 "	49.1	1,830,000	1.0	0	26.77	7020	21567	22.2	3.0	60.0	9.7	5.0
		26/8/36	21 " 26 "	47.4	1,844,000	2.7	0	25.76	9114	19768	25.5	3.5	53.7	10.5	6.7
		26/9/36	22 " 26 "	46	1,983,000	1.0	0	23.23	13746	17461	25.0	3.0	62.5	4.7	4.7
		27/11/36	24 " 27 "	46.4	1,710,000	1.0	88	27.13	8272	17665	25.0	3.2	63.2	4.0	4.5
		21/12/36	25 " 21 "	47.1	1,831,000	2.2	318	25.73	11554	21312	25.5	6.0	59.2	6.0	3.2
		4/2/37	27 " 4 "	47.5	1,845,000	5.2	660	25.81	9130	22070	27.0	1.7	55.2	7.5	8.5
		19/5/37	30 " 19 "	50	1,903,000	2.2	195	26.31	11088	13157	25.5	6.0	59.2	6.0	3.2

1) For abbreviations see Table 3.

TABLE 5.

Blood cell counts, etc., of ostrich clinically healthy and found free from disease on post-mortem examination.
Bird reared on farm Mariendahl, Stellenbosch district. (See pages 9 - 10).

No.	Sex	Date bled	Age	1) R.P.	Erythrocytes per c. mm.	Percentage erythro- cytes which in Romanowsky stained smears showed either polychro- matic or basophilic cytoplasm.	Baso- phil erythro- blasts per c. mm.	R.P. R.C.	Throm- bo- cytes per c. mm.	Leuco- cytes per c. mm.	Per cent.				
											L.	M.	H.	E.	B.
3	Male	12/7/35	8 mths. 12 days	48.9	1,916,000	1.2	156	24.45	9984	31303	26.7	2.5	60.7	8.2	1.7
		26/9/35	10 " 26 "	48	1,862,000	2.7	110	25.80	10560	22098	25.2	2.7	63.2	7.7	1.0
		9/12/35	13 " 9 "	46.5	1,806,000	2.2	200	25.69	14600	20044	26.5	3.7	59.0	7.7	3.0
		21/2/36	15 " 21 "	47	1,837,000	4.0	336	25.68	14803	22548	36.2	2.5	54.2	4.2	2.7
		15/4/36	17 " 15 "	45.4	1,873,000	2.5	0	24.27	14060	29596	26.5	3.2	65.5	3.0	1.7
		27/5/36	18 " 27 "	49.4	1,940,000	2.0	392	25.46	9800	19673	29.7	1.2	62.0	5.2	1.7
		14/7/36	20 " 14 "	52	1,920,000	3.0	488	27.08	10248	24495	28.7	1.7	59.0	7.2	3.2
		28/9/36	22 " 28 "	52	2,017,000	3.0	721	25.87	9064	20611	28.0	3.0	60.0	6.5	2.5
		27/11/36	24 " 27 "	48.5	1,980,000	3.0	206	24.49	5562	20618	28.5	3.5	55.2	8.7	4.0
		21/12/36	25 " 21 "	50.5	1,963,000	2.0	220	25.76	12210	22077	23.2	2.7	64.2	6.5	3.2
		4/2/37	27 " 4 "	50.5	1,962,000	4.0	792	25.76	10593	19994	28.5	3.2	57.2	7.0	4.0
		19/5/37	30 " 19 "	51	1,963,000	6.0	388	26.02	8148	19436	23.0	4.2	64.7	4.7	3.2

1)

For abbreviations see Table 3.

TABLE 6.

Blood cell counts, etc., of ostrich clinically healthy and found free from disease on post-mortem examination.
Bird reared on farm Mariendahl, Stellenbosch district. (see pages 9 - 10).

No.	Sex	Date bled	Age	1) R.P.	Erythrocytes per c. mm.	Percentage red cells which in Romanowsky stained smears showed polychro- matic or basophilic cytoplasm.	Baso- phil erythro- blasts per c. mm.	R.P. R.C.	Throm- bo- cytes per c. mm.	Leuco- cytes per c. mm.	Per cent.				
											L.	M.	H.	E.	B.
4	Fe- male	21/5/35	6 mths, 21 days	45.4	1,693,000	3.0	0	26.86	20086	24296	27	2.7	56.2	12.7	1.2
		26/8/35	9 " 26 "	47	1,870,000	3.0	0	25.13	4752	19871	31	0.5	59.2	7.7	1.5
		24/9/35	10 " 24 "	48	1,750,000	3.2	0	27.42	6018	20459	27.5	2.7	62.5	4.7	2.5
		30/11/35	13 "	49.9	1,926,000	2.7	0	25.85	12500	20148	31	1.0	50.7	11.7	5.5
		27/1/36	14 " 27 "	47.9	1,948,000	2.5	0	24.56	17191	23496	31.5	2.1	46.5	14.6	5.1
		15/4/36	17 " 15 "	48.9	1,840,000	2.5	0	26.57	8814	15663	35.5	3.5	40.5	16.5	4.0
		9/5/36	18 " 9 "	49.9	1,930,000	0	0	25.85	9625	15325	30.5	2.7	52.2	8.0	6.5
		3/6/36	19 " 3 "	50	1,920,000	3.0	0	26.04	12274	23529	19.2	2.5	71.5	3.2	3.5
		20/7/36	20 " 20 "	47.8	1,740,000	2.5	161	27.47	16422	32273	25.2	5.5	61.7	6.0	1.5
		26/8/36	21 " 26 "	51	1,993,000	2.2	106	25.62	12190	21252	26.7	3.0	63.7	3.2	3.2
		22/9/36	22 " 22 "	51	1,890,000	4.2	140	26.98	15194	14157	25	2.7	64.7	2.0	5.5
		24/11/36	24 " 24 "	49	1,920,000	4.0	114	25.52	7980	22866	26.8	0.6	64.8	3.5	4.1
		19/12/36	25 " 19 "	49.6	1,926,000	2.7	71	25.84	10008	14399	30.5	1.5	59.2	3.2	5.5
		4/2/37	27 " 4 "	50.8	1,981,000	2.0	0	25.65	10476	21759	28.2	3.2	55.7	7.2	6.2
		17/5/37	30 " 17 "	50.6	1,900,000	3.5	0	26.63	12852	21514	27.7	3.0	60.5	4.7	4.0

1)
For abbreviations see Table 3.

TABLE 7.

Blood cell counts, etc., of ostrich clinically healthy and found free from disease on post-mortem examination.
Bird reared on farm Mariendahl, Stellenbosch district. (See pages 9 - 10).

No.	Sex	Date bled	Age	1) R.P.	Erythrocytes per c. mm.	Percentage erythro- cytes which in Romanowsky stained smears showed either polychro- matic or basophilic cytoplasm.	Baso- phil erythro- blasts per c. mm.	R.P. R.C.	Throm- bo- cytes per c. mm.	Leuco- cytes per c. mm.	Per cent.				
											L.	M.	H.	E.	B.
5	Fe- male	15/7/35	8 mths, 15 days	53	2,266,000	1.5	395	23.34	2686	15880	21.5	3.5	72.0	1.2	1.7
		28/9/35	10 " 28 "	47.9	1,980,000	3.7	110	24.19	10374	23329	21.2	2.5	74.5	0.7	1.0
		20/11/35	12 " 20 "	48	1,856,000	1.0	0	25.80	6439	27495	23.2	2.2	68.5	1.7	4.2
		21/1/36	14 " 21 "	40.6	1,676,000	3.0	0	25.94	8613	19959	17.8	2.5	75.5	1.0	3.1
		24/2/36	15 " 24 "	50	1,863,000	1.0	0	26.88	13000	20862	23.7	4.2	63.2	2.2	6.5
		15/4/36	17 " 15 "	45.7	1,853,000	1.0	0	24.70	4646	20164	17.0	2.0	78.5	0	2.5
		27/5/36	18 " 27 "	53.4	2,110,000	2.0	0	25.30	7426	18041	24.5	1.5	69.7	0.7	3.5
		14/7/36	20 " 14 "	53.8	2,096,000	2.2	182	25.61	15168	19204	25.5	1.5	65.7	1.7	5.5
		28/9/36	22 " 28 "	50.9	1,883,000	3.0	1717	27.07	15958	20214	24.7	2.0	66.2	2.7	4.2
		24/11/36	24 " 24 "	53.5	1,853,000	7.0	6283	28.91	7072	20733	33.5	3.7	53.0	3.2	6.5
		21/12/36	25 " 21 "	54	2,195,000	3.0	1339	25.54	9476	20704	23.7	3.0	68.5	2.0	2.7
		4/2/37	27 " 21 "	53.2	2,167,000	1.2	890	25.64	12905	17890	26.5	2.8	62.0	3.6	5.0
		15/5/37	30 " 15 "	52	1,953,000	3.0	89	26.66	8811	17857	18	3.5	68.7	3.7	6.0

1) For abbreviations see Table 3.

TABLE 8.

Blood cell counts, etc., of ostrich with club-foot (see pages 9 - 10).

No	Sex	Date bled	Age	1) R.P.	Erythrocytes per c. mm.	Percentage erythro- cytes which in Romanowsky stained smears showed either polychro- matic or basophilic cytoplasm.	Baso- phil erythro- blasts per c. mm.	R.P. R.C.	Throm- bo- cytes per c. mm.	Leuco- cytes per c. mm.	Per cent.				
											L.	M.	H.	E.	B.
6	Fe- male	21/7/35	8 mths. 21 days	47	2,053,000	3.0	524	22.92	4061	26210	28.2	1.5	66.0	3.2	1.0
10/8/35		9 "	10 "	49	1,921,000	2.2	296	25.52	12580	29668	28.2	3.2	62.5	4.0	2.0
25/9/35		10 "	25 "	43	1,669,000	3.0	219	25.74	14235	43914	21.7	4.5	67.5	4.5	1.7
20/11/35		12 "	20 "	51	2,010,000	1.2	452	25.37	9266	45372	25.7	3.0	64.7	3.2	3.2
24/2/36		15 "	24 "	49	1,943,000	1.5	290	25.25	18415	29039	26.2	3.2	65.7	0.5	4.2
15/4/36		17 "	15 "	48.2	2,023,000	1.5	0	23.86	12862	23598	21	2.2	71.5	0.7	4.5
20/5/36		19 "		46.9	1,863,000	2.0	0	25.21	26650	40986	14.2	6.0	78.5	0.2	1.0
30/7/36		20 "	20 "	48	2,033,000	3.0	595	23.64	10948	23842	26.7	6.2	61.0	3.7	2.2
7/9/36		22 "	7 "	52.3	2,034,000	2.5	364	25.76	19838	36463	15.7	0.7	80.0	0.5	3.0
28/9/36		22 "	28 "	52.8	2,053,000	1.7	0	25.75	15480	25808	20	3.7	73.7	0.5	2.0
1/12/36		25 "	1 "	50.1	1,913,000	2.2	192	26.23	5238	19323	14.6	2.5	81.0	0.3	1.5
23/12/36		25 "	23 "	50.5	1,961,000	1.7	0	25.76	10956	26510	16	4.2	77.7	0.2	1.7
9/2/37		27 "	9 "	50	1,940,000	2.5	0	25.77	6400	25623	15.5	4.7	75.0	1.5	3.2
17/5/37		30 "	17 "	49	1,970,000	2.5	87	24.87	7221	17422	25.5	1.7	70.5	0.7	1.5

1)

For abbreviations see Table 3.

TABLE 9.

Blood cell counts, etc., of clinically healthy ostriches on which post-mortem examinations were not conducted.
Kept on farm Nagwag, Bredasdorp district (see page 11).

No.	Sex	Date bled	Age	R.P. ¹⁾	Erythrocytes per c.mm.	Percentage erythrocytes which in Romanowsky stained smears showed either polychromatic or basophilic cytoplasm.	Basophil erythroblasts per c.mm.	R.P. R.C.	Thrombocytes per c.mm.	Leucocytes per c.mm.	Per cent.				
											L.	M.	H.	E.	B.
7	Male	1/5/36	Over 3 years	38.4	1,403,000	3.2	0	27.42	12,444	12,239	14.2	4.0	73.0	6.0	2.7
8	"	"	" " "	47.4	1,790,000	0	0	26.48	8,946	8,409	11.7	1.0	69.0	14.2	4.0
9	"	"	" " "	40.4	1,580,000	1.0	0	25.56	17,415	16,146	15.7	3.0	62.0	18.0	1.2
10	"	"	" " "	41.7	1,510,000	3.0	330	27.61	13,002	13,271	8.7	3.2	68.2	15.2	4.5
11	"	"	" " "	42.3	1,553,000	0.5	77	27.29	13,650	15,560	14.0	4.5	69.7	9.0	2.7
12	Female	"	" " "	41.4	1,563,000	3.0	0	26.53	12,300	24,570	5.2	2.0	73.5	18.7	0.5
13	"	"	" " "	42.3	1,620,000	1.7	0	26.13	12,118	14,336	12.2	4.0	69.0	9.5	5.2
14	"	"	" " "	41.5	1,533,000	1.5	0	27.12	7,720	7,868	13.7	4.2	68.7	3.2	10.0
15	"	"	" " "	41.4	1,637,000	0.7	0	25.24	15,330	14,122	8.0	3.0	79.5	7.2	2.2
16	"	"	" " "	49.4	1,790,000	2.0	0	27.59	13,536	9,347	4.0	2.0	83.2	9.5	1.2
17	"	"	" " "	42.4	1,430,000	4.0	70	29.65	15,336	14,154	6.7	4.5	72.7	12.5	3.5

TABLE 10.

Blood cell counts etc. of unthrifty ostrich chicks which on post-mortem examination showed marked verminosis.
From Farm Vanderstelskraal, Bredasdorp district (see page 11).

No.	Sex	Date bled	Age	R.P. ¹⁾	Erythrocytes per c.mm.	Percentage erythrocytes which in Romanowsky stained smears showed either polychromatic or basophilic cytoplasm.	Basophil erythroblasts per c.mm.	R.P. R.C.	Thrombocytes per c.mm.	Leucocytes per c.mm.	Per cent.				
											L.	M.	H.	E.	B.
18	Female	15/3/36	4 mths .	34.3	1,400,000	0	0	24.50	11,256	16,973	26.2	3.0	54.0	13.7	3.0
		2/4/36	4 " 17 days	29.4	1,173,000	0	0	25.12	4,650	30,033	7.2	2.7	89.7	0.2	0
19	"	16/3/36	4 "	29.5	1,330,000	0	0	12.18	14,112	22,561	45.7	2.0	48.2	1.5	2.5
20	Male	16/3/36	4 "	38.0	1,573,000	0	0	24.20	7,392	11,204	26.0	3.5	68.2	1.0	1.2
21	"	20/3/36	4 "	25.3	806,000	0	43	31.23	15,394	8,697	37.5	6.2	47.5	8.2	0.5
22	"	16/12/36	2 "	41.8	1,707,000	1	204	24.44	14,008	13,793	15.5	9.5	70.7	2.2	2.0

1)

For abbreviations see Table 3

TABLE 11.

Statistical analysis of counts of immature erythrocytes.

Bird No.	Sex	No. of counts	Minimum percentage	Maximum percentage	Mean percentage	Standard error of the mean	Standard deviation	Coefficient of variability.
1	Male	15	1.0	4.7	2.4	0.2	1.0	41.6
2	"	15	1.0	4.0	2.1	0.2	1.1	50.0
3	"	12	1.2	6.0	2.9	0.3	1.2	41.3
4	Female	15	0	4.2	2.7	0.1	0.6	22.2
5	"	13	1.0	7.0	2.5	0.4	1.6	64.0
1, 2 and 3	Males	42	1.0	6.0	2.5	0.1	1.1	44.0
4 and 5	Females	28	0	7.0	2.6	0.2	1.1	42.3
1 to 5	Males & Females	70	0	7.0	2.5	0.1	1.1	44.0
6	Female	14	1.2	3.0	2.1	0.1	0.6	28.5
7 to 11	Males	5	0	3.2	1.5	0.5	1.3	86.6
12 to 17	Females	6	0.7	4.0	2.1	0.4	1.0	47.6
7 to 17	Males & Females	11	0	4.0	1.8	0.3	1.0	55.5
18 to 22	Males & Females		0	1.0	0.1			

1)

For particulars of birds see pages 9 - 11.