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VARIABILITY IN SCALES IN CERTAIN SPECIES OF INDIAN REPTILES

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(With 4 Text-figures and 16 tables)

INTRODUCTION

Many workers have done useful work on the variations in scales of reptiles. Bergman (1952) studied the snakes of Java; Amaral (1954) has done a revisionary study on the snakes of Brazil; Bailey (1955) has studied frequency distribution of variations in different characters on the snakes of the genus *Chironius* in South-eastern America; Vanzolini (1955) has made a statistical study of body annuli, tail and body lengths of Brazilian lizards of family Amphisbaenidae; Barton (1956) has done a statistical study of garter snake *Thamnophis brachystoma* (Cope); Loveridge (1958) in his revisionary work on the African snake genera has studied scale counts and sexual dimorphism; Peters (1956) has done useful work on the analysis of sexual variations in scalation, proportions and colouration of South American snake *Dipsas catesbyi* Sentzen; DeSilva (1969) studied the range of individual scale variations and sexual dimorphism in the snakes of Ceylon and Werner (1969) has seen variations in scale counts of lizards *Ophistops elegans*, *Eremias glittulata* and *Eremias brevirostris* from Southwestern Asia.

In reptiles the variability and difference in means between the two sexes in scale characters has been widely recognised, a detailed study of variability and significance of difference between the means between two sexes in none of the characters of reptiles has been worked out in India. An attempt is made to study this for the following 16 species of reptiles.

OBSERVATIONS

In *Hemidactylus brooki* Gray, *H. reticulatus* Beddome and *H. leschenaulti* Dumeril and Bibron : (A) Number of upper labials (left). (B) Number of upper labials (right). (C) Number of lower labials

(right). (D) Number of lower labials (left). (E) Number of lamellae under first toe. (F) Number of lamellae under fourth toe. (G) Number of dorsal rows of tubercles. (H) Number of preano-femoral or femoral pores (left). (I) Number of preano-femoral or femoral pores (right).

In *Calotes versicolor* (Daudin) and *Calotes rouxi* Dumeril and Bibron : (A) Number of upper labials (left). (B) Number of upper labials (right). (C) Number of lower labials (left). (D) Number of lower labials (right). (E) Number of scales round middle of body.

In *Psammophilus blanfordanus* (Stoliczka) : (A) Number of upper labials (left). (B) Number of upper labials (right). (C) Number of lower labials (left). (D) Number of lower labials (right). (E) Number of scales round middle of body. (F) Number of enlarged chinshields.

In *Mabuya macularia* (Blyth) and *M. carinata* (Schneider) : (A) Number of upper labials (left). (B) Number of upper labials (right). (C) Number of lower labials (left). (D) Number of lower labials (right). (E) Number of lamellae under first toe. (F) Number of lamellae under fourth toe. (G) Number of keels on dorsal scales. (H) Number of scales round middle of body.

In *Riopa punctata* (Gmelin) : (A) Number of upper labials (left). (B) Number of upper labials (right). (C) Number of lower labials (left). (D) Number of lower labials (right). (E) Number of lamellae under first toe. (F) Number of lamellae under fourth toe. (G) Number of scales round middle of body. (H) Number of scales down the back.

In *Cabrita leschenaulti* (Milne-Edwards), *Cabrita jerdoni* Beddome and *Ophisops jerdoni* Blyth : (A) Number of scales round middle of body. (B) Number of longitudinal rows of plates on belly. (C) Number of transverse rows of plates on ventrum. (D) Number of femoral pores (left). (E) Number of femoral pores (right).

In *Elaphe helena* (Daudin) and *Ptyas mucosus* (Linnaeus) : (A) Number of upper labials (left). (B) Number of upper labials (right). (C) Number of lower labials (left). (D) Number of lower labials (right). (E) Number of temporal scales. (F) Number of ventral shields. (G) Number of sub-caudal shields. (H) Number of scales round middle of body.

In *Xenochrophis piscator* (Schneider) : (A) Number of upper labials (left). (B) Number of upper labials (right). (C) Number of lower labials (left). (D) Number of lower labials (right). (E) Number of temporal scales. (F) Number of ventral shields. (G) Number of sub-caudal shields.

In *Echis carinatus* (Schneider) : (A) Number of scales across the forehead. (B) Number of scales round the eye. (C) Number of upper labials (left). (D) Number of upper labials (right). (E) Number of lower labials (left). (F) Number of lower labials (right). (G) Number of ventral shields. (H) Number of sub-caudal shields. (I) Number of scales round middle of body. (J) Number of scales round anal region. (K) Number of scales round neck.

METHODS OF STATISTICAL ANALYSIS

Scale counts of lizards and snakes were taken by using conventional methods depending on the genus concerned (Smith, 1935, 1943; Minton, 1966). The ventral scale counts in snakes were taken, beginning with the first distinctly wider than long scale posterior to the gulars excluding the anal (Schmidt and Davis, 1941).

(A) Standard error of Mean : The standard error of macn has been calculated as follows :

$$\text{S. E. M.} = \frac{\text{S. D.}}{\sqrt{N}}$$

Where S. D. = Standard deviation, based on the formula

$$\text{S. D.} = \sqrt{\frac{X^2}{N-1}}$$

Where X = deviation of any individual figures from the mean for that character and N = No. of specimen.

(B) Coefficient of variability or of variation : The coefficient of variability is defined as the sample standard deviation expressed as a percentage of the sample mean as shown below :

$$\text{C. V.} = \frac{\text{S. D.}}{\text{Mean}} \times 100$$

(C) Comparison of Means of two sexes : For the null hypothesis of no difference, t is defined as follows :

$$t = \frac{x_1 - x_2}{Sx_1 - x_2} = \frac{d}{Sd}$$

$$t = \frac{\text{difference between the mean}}{\text{Standard error of difference}}$$

Where t cannot reasonably be attributed to chance and the null hypothesis, we assume that d, the mean difference is too large because of the population mean n_1 n_2. Calculation of Sd, standard error of mean depends on :

(1) When sample size being large $n_1 > 30$, $n_2 > 30$.

(2) When sample size being small

(A) variances assumed to be equal.

(B) variances not assumed to be equal.

(1) Comparison of means of two independent samples (sexes) when samples size being large $n_1 > 30$, $n_2 > 30$.

The test criterion used $t = \frac{d}{\text{Sd}}$

The appropriate Sd was computed as follows :

$$\text{Sd} = \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$$

Where s_1 is the standard deviation of females and s_2 is the standard deviation of males, and n_1 and n_2 are number of specimen in females and males respectively.

(2) Comparison of means of two samples (sexes) when samples size being small. The method depends on whether we can assume the unknown variances to be equal or not. The equalibility of variances was examined by the variance ratio test described below :

$$F = \frac{S_1^2}{S_2^2}$$

Where samples (sexes) are so labelled that S_1^2 is greater than S_2^2. We then compared this F with tabulated value. Since it is a comparison of two samples (sexes), hence, it required a two-tailed test, so we entered the table at half the chosen probability.

(A) Variance assumed to be equal the test criterion used

$t = \frac{d}{\text{Sd}}$ with $n_1 + n_2 - 2$ degree of freedom the Sd was calculated by the formula

$$\text{Sd} = \sqrt{S^2 \frac{1}{n_1} + \frac{1}{n_2}}$$

Where $S^2 = \frac{(n_1 - 1)\, S_1^2 + (n_2 - 1)\, S_2^2}{(n_1 - 1) + (n_2 - 1)}$

Where S_1^2, S_2^2, n_1 and n_2' are the samples variances and sizes.

(B) Variances not assemed to be equal.

We computed $t' = \frac{d}{\text{Sd}}$

This criterion is not distributed as student 't' the appropriate Sd was computed as below :

$$Sd = \sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}$$

For determining a significant value of t' for a given significant level, the sufficiently accurate approximation given by Cohran and Cox was used :

$$t' = \frac{W_1 t_1 + W_2 t_2}{W_1 + W_2}$$

Where $W_1 = \frac{S_1^2}{n_1}$ and $W_2 = \frac{S_2^2}{n_2}$ and t_1 and t_2 are the values of student's t for $n_1 - 1$ and $n_2 - 1$ degree of freedom, respectively at the chosen level of significance.

RESULTS AND DISCUSSIONS

The results of variability and comparison between the two sexes on the basis of tests of significance of the difference between means in different characters are discussed below separately for all the 16 species studied here.

(1) **Hemidactylus brooki** Gray

(Table 1 Text-fig. 1A)

1. (a) NUMBER OF UPPER LABIALS (left)

Male (N = 49) : The number varies from 8—12. The mean is 10.06 ± 0.12. 44.90% of males possess 10 left upper labials. The C. V is 8.22%.

Female (N = 77) : The number varies from 8—11. The mean is 10·04 ± 0·09. 48.05% females have 10 left upper labials. The C. V. is 7.54%.

The mean number of upper labials (left) does not differ significantly in the two sexes.

(b) NUMBER OF UPPER LABIALS (right)

Male (N = 49) : The number varies from 9—11. The mean is 9.78 ± 0.08. 65.31% males have 10 right upper labials. The C. V. is 5.62%.

Female (N = 77) : The number varies from 8—11 The mean is 9.87 ± 0.06. 77·93% females have 10 right upper labials. The C. V is 5·02%.

The mean number of upper labials does not differ significantly in the two sexes.

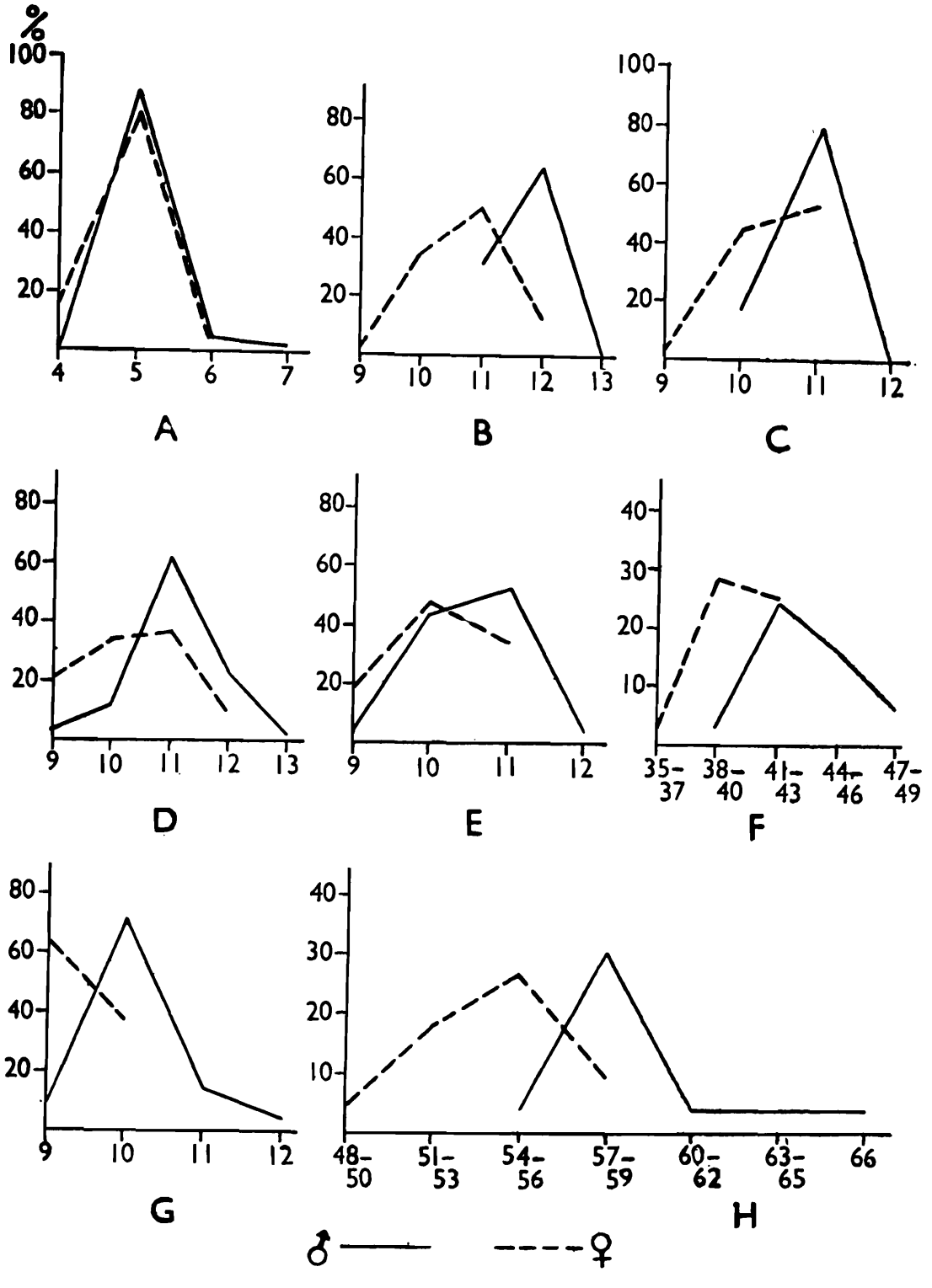
2. (a) NUMBER OF LOWER LABIALS (left)

Male (N = 49) : The number varies from 7—10.

TABLE 1.— *Hemidactylus brooki* Gray. Biometrical constants of certain body parts.

S. No.	Character	No. of samples		Range		Mean ± S.E.		C.V.		't' value for sex difference
		M	F	M	F	M	F	M	F	
1(a)	Number of upper labials (left)	49	77	8—12	8—11	10.06±0.12	10.04±0.09	8.22	7.54	0.14 N.S.
1(b)	Number of upper labials (right)	49	77	9—11	8—11	9.78±0.08	9.87±0.06	5.62	5.02	0.93 N.S.
2(a)	Number of lower labials (left)	49	77	7—10	7—10	8.24±0.10	8.36±0.08	8.41	8.43	0.94 N.S.
2(b)	Number of lower labials (right)	49	77	7—10	7—10	8.24±0.08	8.27±0.06	6.80	6.40	0.30 N.S.
3.	No. of lamellae under first toe	49	77	4—7	4—6	5.02±0.06	4.86±0.05	8.61	8.64	2.05 +
4.	No. of lamellae under fourth toe	49	77	7—10	6—9	7.75±0.14	7.71±0.09	12.50	10.05	0.24 N. S.
5.	Number of dorsal rows of tubercles	48	73	16—23	17—23	18.92±0.16	19.31±0.14	5.81	6.03	1.87 N. S.
6(a)	Number of preano-femoral pores (left)	49	—	6—16	—	10.67±0.12	—	7.61	—	—
6(b)	Number of preano-femoral pores (right) (right)	49	—	6—16	—	10.59±0.11	—	7.31	—	—

C. V. =Coefficient of variation; F. = Female; M. = Male; N. S. = Not significant; S. E. = Standard error; + = Significant at 5 per cent level of probability.



Text-Fig. 1.— Graphs to show variations in number of scales in some reptiles from Peninsular India. Vertical axis (Y — axis) represents the percentage of specimen in a particular category; horizontal axis, the number of scales.

(A). *Hemidactylus brooki* Gray (n = 0.49, 0.77) : Number of lamellae under first toe. (B). *Calotes versicolor* (Daudin) (n = 0.62, 0.47) : Number of upper labials (left). (C). *Calotes versicolor* (Daudin) (n = 0.62, 0.47) : Number of upper labials (right). (D). *Calotes versicolor* (Daudin) (n = 0.62, 0.47) : Number of lower labials (left). (E). *Calotes versicolor* (Daudin) (n = 0.62, 0.47) : Number of lower labials (right). (F). *Calotes versicolor* (Daudin) (n = 0.62, 0.47) : Number of scales round middle of body. (G). *Calotes rouxi* Dumeril and Bibron (n = 0.22, 0.11) : Number of upper labials (left). (H). *Calotes rouxi* Dumeril and Bibron (n = 0.22, 0.11) : Number of scales round middle of body.

The mean is 8.24 ± 0·10. 65.31% males have 8 left lower labials. The C. V. is 8·41%.

Female (N = 77) : The nnmber varies from 7—10. The mean is 8·36 ± 0.08. 49·35% females have 8 left lower labials. The C. V. is 8·43%.

The mean number of left lower labials does not differ significantly in two sexes.

2. (b) NUMBER OF LOWER LABIALS (right)

Male (N = 49) : The number varies from 7—10. The mean is 8.24 ± 0.08. 75.51% males have 8 right lower labials. The C. V is 6.80%.

Female (N = 77): The number varies from 7—10. The mean is 8.27±0.06. 72.73% females have 8 right lower labials. The C. V. is 6.40%.

The mean number of right lower labials does not differ significantly in two sexes.

3. NUMBER OF LAMELLAE UNDER FIRST TOE.

Male (N = 49) : The number varies from 4—7. The mean is 5·02 ± 0·06. 87·76% males possess 5 lamellae under first toe. The C. V is 8.61%.

Female (N = 77) : The number varies from 4—6. The mean is 4·86 ± 0·05. 80·52% females posses 5 lamellae under first toe. The C. V. is 8··64%.

The value of *t* (2·05) for sex difference exceeds the value for *t* 0·05 (1·96%) at the 5% level of probability, hence it is concluded that the mean number of lamellae under first toe differ significantly in two sexes. (Male—5·02 ± 0·06; Female—4·86 ± 0·05) The data for both sexes have been represented graphically in Text-fig. 1A.

4. NUMBER OF LAMELLAE UNDER FOURTH TOE.

Males (N = 49) : The number varies from 7—10. The mean is 7 75 ± 0·14. 53·07% males have 7 lamellae under fourth toe. The C. V is 12·50%.

Female (N = 77) : The number varies from 6—9. The mean is 7·71 ± 0·09. 40.26% females possess 7, while the another 40.26% have 8 lamellae under the fourth toe. The C. V. is 10.05%.

The mean number of lamellae under fourth toe does not differ significantly in the two sexes.

5. NUMBER OF DORSAL ROWS OF TUBERCLES.

Male (N = 48) : The number varies from 16—23. The mean 18·92 ± 0·16. 41·68% males have 18 dorsal rows of tubercles. The C. V is 5·81%.

Female (N = 73) : The number varies from 17—23. The mean is 19.31 ± 0·14. 60·27% females have 20 dorsal rows of tubercles. The C. V is 6·03%.

The mean number of dorsal rows of tubercles does not differ significantly in two sexes.

6. (a) NUMBER OF PREANO-FEMORAL PORES (left)

Male (N = 49) : This structure is found only in males. The number varies from 6—16. The mean is 10·67 ± 0·12. 30·61% males have 12 preano-femoral pores in left side. The C. V is 7·61%.

6. (b) NUMBER OF PREANO-FEMORAL PORES (right)

Male (N = 49) : This structure is found only in males. The number varies from 6—16. The mean is 10·59 ± 0·11. 28.57% males have 11 preano-femoral pores in right side. The C. V is 7·31%.

(2) **Hemidactylus reticulatus** Beddome

(Table 2)

1. (a) NUMBER OF UPPER LABIALS (left).

Male (N = 12) : The number varies from 8—10. The mean is 9·17 ± 0 17. 66·67% of males have 9 left upper labials. The C. V is 6.29%.

Female (N = 32) : The number varies from 8—10. The mean is 8·91 ± 0.10. 65.62% of females have 9 left upper labials. The C. V. is 6·60%.

The mean number of left upper labials does not differ significantly in the two sexes.

1. (b) NUMBER OF UPPER LABIALS (right).

Male (N = 12) : The number varies from 8—10. The mean is 9.08 ± 0·15. 75·00% males possess 9 right upper labials. The C. V is 5·67%.

Female (N = 32) : The number varies from 1— 10. The mean is 9.03 ± 0.08. 78 13% of females have 9 right upper labials. The C. V is 5·25%.

The mean number of right upper labials does not differ significantly in two sexes.

TABLE 2.— *Hemidactylus reticulatus* Beddome. Biometrical constants of certain body parts.

S.No.	Character	No. of samples		Range		Mean ± S.E.		C.V.		't' value for sex difference
		M	F	M	F	M	F	M	F	
1.(a)	Number of upper labials (left)	12	32	8—10	8—10	9.17±0.17	8.91±0.10	6.29	6.60	1.31 N.S.
1(b)	Number of upper labials (right)	12	32	8—10	8—10	9.08±0.15	9.03±0.08	5.67	5.25	0.30 N.S.
2(a)	Number of lower labilals (left)	12	32	7—9	6—9	7.42±0.19	7.28±0.13	9.02	10.01	0.58 N.S.
2(b)	Number of lower labials (right)	12	32	7—8	6—8	7.42±0.15	7.28±0.10	6.94	7.98	0.73 N.S.
3.	No. of lamellae under first toe	12	32	5—7	5—8	6.33±0.22	6.19±0.14	12.31	12.60	0.53 N.S.
4.	No. of lamellae under fourth toe.	12	32	9—11	8—12	9.92±0.23	9.87±0.16	7.99	9.19	0.16 N.S.
5(a)	Number of femoral pores (left)	12	—	5—10	—	8.25±0.37	—	15.61	—	—
5(b)	Number of femoral pores (right)	12	—	3—10	—	8.00±0.51	—	21.97	—	—

C. V. = Coefficient of variation; F. = Female; M. = Male; N. S. = Not significant; S. E. = Standard error.

2. (a) NUMBER OF LOWER LABIALS (left).

Male (N = 12) : The number varies from 7—9. The mean is 7.42 ± 0·19. 66.67% males have 7 left lower labials. The C. V is 9·02%.

Female (N = 32) : The number varies from 6—9. The mean is 7·28 ± 0·13. 50·00% of females have 7 left lower labials. The C. V is 10.01%.

The number of left lower labials does not differ significantly in two sexes.

2. (b) NUMBER OF LOWER LABIALS (right).

Male (N = 12) : The number varies from 7—8. The mean is 7.42 ± 0·15. 58.33% of males have 7 right lower labials. The C. V is 6·94%.

Female (N = 32) : The number varies from 6—8. The mean is 7.28 ± 0.10. 59·37% females have 7 right lower labials. The C. V. is 7.98%.

The mean number of right lower labials does not differ significantly in two sexes.

3. NUMBER OF LAMELLAE UNDER FIRST TOE.

Male (N = 12) : The number varies from 5—7. The mean is 6.33 ± 0·22. 50·00% of males have 7 lamellae under the first toe. The C. V is 12·31%.

Female (N = 32) : The number varies from 5—8. The mean is 6.19 ± 0·14. 46·88% of females have 6 lamellae under the first toe. The C. V is 12·60%.

The mean number of lamellae under first toe does not differ significantly in two sexes.

4. NUMBER OF LAMELLAE UNDER FOURTH TOE.

Male (N = 12) : The number varies from 9—11. The mean is 9.92 ± 0.23. 41·67% of males have 10 lamellae under the fourth toe. The C. V. is 7·99%.

Female (N = 32) : The number varies from 8—12. The mean is 9·87 ± 0·16. 46.88% of females have 10 lamellae under the fourth toe. The C. V is 9.19%.

The mean number of lamellae under the fourth toe does not differ significantly in two sexes.

5. (a) NUMBER OF FEMORAL PORES (left).

Male (N = 12) : This structure is found only in males. The number varies from 5—10. The mean is

8·25 ± 0.37. 58.33% of specimens have 8 femoral pores on left side. The C. V. is 15.61%.

5. (b) NUMBER OF FEMORAL PORES (right).

Male (N = 12) : This structure is found only in males. The number varies from 3—10. The mean is 8·00 ± 0·51. 66·67% of male specimens have 8 femoral pores on right side. The C. V. is 21.97%.

(3) **Hemidactylus leschenaulti** Duméril & Bibron

(Table 3)

1. (a) NUMBER OF UPPER LABIALS (left).

Male (N = 17) : The number varies from 11—14. The mean is 12·23 ± 0·26. 35.29% of males possess 11, while another 35.20% have 13 left upper labials. The C. V. is 8·92%.

Female (N = 15) : The number varies from 11—15. The mean is 11·80 ± 0·26. 53·33% of females have 12 left upper labials. The C. V. is 8·59%.

The mean number of left upper labials does not differ significantly in two sexes.

1. (b) NUMBER OF UPPER LABIALS (right)

Male (N = 17) : The number varies from 7—14. The mean is 11·94 ± 0.35. 64.71% of males have 12 right upper labials. The C. V. is 12·02%.

Female (N = 15) : The number varies from 11—15. The mean is 11.87 ± 0.32. 53.33% females have 11 right upper labials. The C. V. is 10·50%.

The mean number of right upper labials does not differ significantly in two sexes.

2. (a) NUMBER OF LOWER LABIALS (left).

Male (N = 17) : The number varies from 7—11. The mean is 9·18 ± 0·25. 52·94% of males have 9 left lower labials. The C. V. is 11.04%.

Female (N = 15) : The number varies from 8—13. The mean is 9.07 ± 0.33. 46·67% of females have 9 left lower labials. The C. V. is 14·11%.

The mean number of left lower labials does not differ significantly in two sexes.

2. (b) NUMBER OF LOWER LABIALS (right).

Male (N = 17) : The nuber varies from 7—10. The mean is 8·82 ± 0·20. 52·94% of males have 9 right lower labials. The C. V. is 9·17%.

TABLE 3.— *Hemidactylus leschenaulti* Duméril and Bibron. Biometrical constants of certain body parts.

S. No.	Character	No. of samples		Range		Mean ± S.E.		C.V.		't' value for sex difference
		M	F	M	F	M	F	M	F	
1(a)	No. of upper labials (left)	17	15	11—14	11—15	12.23±0.26	11.80±0.26	8.92	8.59	1.14 N.S.
1(b)	No. of upper labials (right)	17	15	7—14	11—15	11.94±0.35	11.87±0.32	12.02	10.50	0.14 N.S.
2(a)	No. of lower labials (left)	17	15	7—11	8—13	9.18±0.25	9.07±0.33	11.04	14.11	0.27 N. S.
2(b)	No. of lower labials (right)	17	15	7—10	8—13	8.82±0.20	9.07±0.33	9.17	14.11	0.66 N.S.
3.	No. of lamellae under first toe	17	15	6—10	6—8	6.94±0.25	6.40±0.16	14.83	9.87	1.75 N.S.
4.	No. of lamellae under fourth toe	17	15	10—13	9—14	11.00±0.23	10.47±0.29	8.50	10.74	1.45 N.S.
5(a)	No. of femoral pores (left)	16	—	4—15	—	11.69±0.68	—	23.10	—	—
5(b)	No. of femoral pores (right)	16	—	4—14	—	11 12±0.87	—	31.30	—	—

C.V. = Coefficient of variation; F. = Female; M. = Male; N.S. = Not Significant; S.E. = Standard error.

Female (N = 15) : The number varies from 8—13. The mean is 9·07 ± 0·33. 46·67% of females have 9 right lower labials. The C. V is 14.11%.

The mean number of right lower labials does not differ significantly in two sexes.

3. NUMBER OF LAMELLAE UNDER FIRST TOE.

Male (N = 17) : The number varies from 6—10. The mean is 6·94 ± 0.25. 47.06% of males possess 7 lamellae under first toe. The C. V is 14.83%.

Female (N = 15) : The number varies from 6—8. The mean is 6.40 ± 0.16. 66.67% of females have 6 lamellae under first toe. The C. V. is 9.87%.

The mean number of lamellae under first toe does not differ significantly in two sexes.

4. NUMBER OF LAMELLAE UNDER FOURTH TOE.

Male (N = 17) : The number varies from 10—13. The mean is 11.00 ± 0.23. 52.94% of males have 11 lamellae under the fourth toe. The C. V. is 8.50%.

Female (N = 15) : The number varies from 9—14. The mean is 10.47 ± 0.29. 60.00% of females have 10 lamellae under the fourth toe. The C. V is 10.74%.

The mean number of lamellae under fourth toe does not differ significantly in two sexes.

5. (a) NUMBER OF FEMORAL PORES (left).

Male (N = 16) : This structure is found only in males. The number varies from 4—15. The mean is 11.69 ± 0·68. 37.50% of male specimens have 12 femoral pores on left side. The C. V. is 23.10%.

5. (b) NUMBER OF FEMORAL PORES (right).

Male (N = 16) : This structure is found only in males. The number varies from 4—14. The mean is 11 12 ± 0.87. 31.25% of male specimens have 12 femoral pores on right side. The C. V is 31.30%.

(4) **Calotes versicolor** (Daudin)

(Table 4, Text-figs. 1B, C, D, E and F)

1. (a) NUMBER OF UPPER LABIALS (left).

Male (N = 62) : The number varies from 11—13. The mean is 11.74 ± 0.07. 64·51% of males have 12 left upper labials. The C. V is 4·61%.

Female (N = 47) : The number varies from 9—12

TABLE 4.— *Calotes versicolor* (Daudin). Biometrical constants of certain body parts.

S. No.	Character	No. of samples		Range		Mean ± S.E.		C.V.		't' value for sex difference
		M	F	M	F	M	F	M	F	
1(a)	No. of upper labials (left)	62	47	11—13	9—12	11.74±0.07	10.74±0.10	4.61	6.57	8.13 +++
1(b)	No. of upper labials (right)	62	47	10—12	9—11	10.84±0.05	10.51±0.08	3.81	5.19	(3.47) ++
2(a)	No. of lower labials (left)	62	47	9—13	9—12	11.08±0.09	10.32±0.13	6.60	8.83	4.69 +++
2(b)	No. of lower labials (right)	62	47	9—12	9—11	10.55±0.08	10.15±0.11	5.85	7.11	3.05 ++
3.	No. of scales round the middle of body	62	47	38—48	35—42	43.14±0.27	39.47±0.25	4.84	4.35	10.05 +++

The figure in parenthesis is not student t — see text; ++ Significant at 1 per cent level of probability; +++ Significant at 0.1 per cent level of probability.

C.V. = Coefficient of variation; F. = Female; M. = Male; S.E. = Standard error.

The mean is 10.74 ± 0·10. 51·06% females have 11 left upper labials. The C. V. is 6.57%.

The value of *t* (8 13) for sex difference exceeds the value for $t_{0\cdot001}$ (3·384) at 0·1% level of probability, hence it is concluded that the mean number of left upper labials differ significantly in two sexes (Male 11·74 ± 0·07; Female 10.74 ± 0.10). The data for both sexes have been represented graphically in Text-fig. 1B.

1. (b) NUMBER OF UPPER LABIALS (right).

Male (N = 62) : The number varies from 10—12. The mean is 10·84 ± 0.05. 80·65% males have 11 right upper labials. The C. V is 3·81%.

Female (N = 47) : The number varies from 9—11. The mean is 10.51 ± 0.08. 53 19% females have 11 right upper labials. The C. V is 5 19%.

Here the variance ratio differs significantly, hence '*t*', was computed. Since the value of '*t*', (3.47) for sex difference exceeds the value for '*t*', $_{0\cdot01}$ (2.701) hence it is concluded that the mean number of right upper labials differ significantly in two sexes (Male 10.84 ± 0·05; Female 10·51 ± 0.08). The data for both sexes have been represented graphically in Text-fig. 1C.

2. (a) NUMBER OF LOWER LABIALS (left).

Male (N = 62) : The number varies from 9—13. The mean is 11·08 ± 0.09. 61·29% of males have 11 left lower labials. The C. V. is 6.60%.

Female (N = 47) : The number varies from 9—12. The mean is 10.32 ± 0.13. 36.17% of females have 11 left lower labials. The C. V. is 8·83%.

The value of *t* (4.69) for sex difference exceeds the value for $t_{0.001}$ (3.384) at 0·1% level of probability, hence it is concluded that the mean number of left lower labials differ significantly in two sexes (Males 11.08±0·09; Females 10.32 ± 0.13). The data for both sexes have been represented graphically in Text-fig 1D.

2 (b) NUMBER OF LOWER LABIALS (right).

Male (N = 62) The number varies from 9—12. The mean is 10·55 ± 0·08. 51·61% of males have 11 right lower labials. The C. V. is 5·85%.

Female (N = 47) : The number varies from 9—11. The mean is 10 15 ± 0 11. 46.81 % females have 10 right lower labials. The C. V. is 7 11 %.

The value of *t* (3.05) for sex difference exceeds the value of *t* 0 01 (2·622) at 1 % level of probability, hence it is concluded that the mean number of right lower labials differ significantly in two sexes (Males 10·55 ± 0·08; Females 10·15 ± 0·11). The data for both sexes have been represented graphically in Text-fig. 1 E.

3. NUMBER OF SCALES ROUND MIDDLE OF BODY

Male (N = 62) : The number varies from 38—48. The mean is 43·14 ± 0·27. 24.19 % of males have 42 scales round the middle of body. The C. V. is 4.84 %.

Female (N = 47) : The number varies from 35—42. The mean is 39.47 ± 0.25. 27.66 % females have 40 scales round the middle of body. The C. V is 4.35 %.

The value of *t* (10·05) for sex difference exceeds the value of *t* 0·001 (3.384) at 0·1 % level of probability, hence it is concluded that the mean number of scales round the middle of body differ significantly in two sexes (Males 43·14 ± 0.27; Females 39.47 ± 0·25). The data for both sexes have been represented graphically in Text-fig. 1 F.

(5) **Calotes rouxi** Dumeril & Bibron

(Table 5, Text-fig. 1 G, H)

1. (a) NUMBER OF UPPER LABIALS (left).

Male (N = 22) : The number varies from 9—12. The mean is 10.14 ± 0·14. 72·73 % of males have 10 left upper labials. The C. V is 6.31 %.

Female (N = 11) : The number varies from 9—10. The mean is 9.36 ± 0.15. 63·64 % of females have 9 left upper labials. The C. V. is 5.39 %.

The value of *t* (3.53) for sex difference exceeds the value of *t* 0.01 (2.745) at 1 % level of probability, hence it is concluded that the mean number of left upper labials differ significantly in two sexes (Male 10.14 ± 0·14; Female 9.36 ± 0.15). The data for both sexes have been represented graphically in Text—fig. 1 G.

1. (b) NUMBER OF UPPER LABIALS (right).

Male (N = 22) : The number varies from 10—12. The mean is 10·09 ± 0.06. 90.91 % of males have 10 right upper labials. The C. V. is 2·92 %.

Female (N = 11) : The number varies from 9—10. The mean is 9.54 ± 0.16. 54.55 % females have 10 right upper labials. The C. V. is 5·47 %.

Here the variance ratio differs significantly, hence

TABLE 5.— *Calotes rouxi* Dumeril and Bibron. Biometrical constants of certain body parts.

S. No.	Character	No. of samples		Range		Mean ± S.E.		C.V.		't' value for sex difference
		M	F	M	F	M	F	M	F	
1(a)	No. of upper labials (left)	22	11	9—12	9—10	10.14±0.14	9.36±0.15	6.31	5.39	3.53 ++
1(b)	No. of upper labials (right)	22	11	10—12	9—10	10.09±0.06	9.54±0.16	2.92	5.47	(3.25) ++
2(a)	No. of lower labials (left)	22	11	8—10	8—9	9.00±0.15	8.64±0.15	7.67	5.84	1.53 N.S.
2(b)	No. of lower labials (right)	22	11	8—10	8—9	8.95±0.15	8.91±0.09	8.07	3.38	(0.18) N.S.
3.	No. of scales round the middle of body	22	11	54—66	48—58	57.77±0.59	53.36±0.77	4.78	4.76	4.44 +++

The figure in parenthesis is not student t — see text; N.S. = Not significant; ++ = Significant at 1% level of probability; +++ = Significant at 0.1 % level of probability.

C.V. = Coefficient of variation; F. = Female; M. = Male; S.E. = Standard error.

'*t*'' was computed. Since the value of *t'* (3·25) for sex difference exceeds the value for *t'* 0·01 (3.12), hence it is concluded that the mean number of right upper labials differ significantly in two sexes (Male 10.09 ± 0.06; Female 9.54 ± 0·16).

2. (a) NUMBER OF LOWER LABIALS (left).

Males (N = 22) : The number varies from 8-10. The mean is 9·00 ± 0.15. 54.54 % of males have 9 left lower labials. The C. V. is 7.67 %.

Females (N = 11) : The number varies from 8—9. The mean is 8.64 ± 0·15. 63.64 % females have 9 left lower labials. The C. V. is 5·84 %.

The mean number of upper labials does not differ significantly in the two sexes.

2. (b) NUMBER OF LOWER LABIALS (right).

Male (N = 22) : The number varies from 8—10. The mean is 8·95 ± 0·15. 50·00 % males have 9 right lower labials. The C. V. is 8.07 %.

Female (N = 11) : The number varies from 8—9. The mean is 8·91 ± 0.09. 90.91 % females have 9 right lower labials. The C. V is 3·38 %

Here the variance ratio differs significantly, hence '*t*'' was computed. Since the value of '*t*'' (0.18) for sex difference does not exceed the value for *t'* 0.05 (2·12), hence the difference is non-significant.

3. NUMBER OF SCALES ROUND THE MIDDLE OF BODY.

Males (N = 22) : The numer varies from 54—66. The mean is 57·77 ± 0·59. 31·82 % males have 58 scales round the middle of body. The C. V. is 4.78 %.

Females (N = 11) : The number varies from 48–58. The mean is 53.36 ± 0·77. 27.27 % females have 54 scales round the middle of body. The C. V is 4·76 %.

The value of t (4.44) for sex difference exceeds the value for *t* 0.001 (3.635) at 0·1% level of probability, hence it is concluded that the mean number of scales round the middle of body differ significantly in two sexes (Males 57·77±0·59; Females 53·36±0·77). The data for both sexes have been represented graphically in Text-fig. 1H.

(6) **Psammophilus blanfordanus** (Stoliczka)
(Table 6, Text-figs. 2A & B)

1. (a) NUMBER OF UPPER LABIALS (left).

Male (N=9): The number varies from 12—14. The

TABLE 6.— *Psammophilus blanfordanus* (Stoliczka). Biometrical constants of certain body parts.

S.No.	Character	No. of samples		Range		Mean ± S.E.		C.V.		't' value for sex difference
		M	F	M	F	M	F	M	F	
1(a)	No. of upper labials (left)	9	17	12—14	11—13	12.78±0.22	11.76±0.14	5.22	4.78	4.13 +++
1(b)	No. of upper labials (right)	9	17	12—13	11—12	12.11±0.11	11.47±0.12	2.75	4.49	3.37 ++
2(a)	No. of lower labials (left)	9	17	11—14	11—14	12.22±0.32	11 76±0.22	7.95	7.68	1.20 N.S.
2(b)	No. of lower labials (right)	9	17	11—13	11—13	11.89±0.26	11.47±0.15	6.58	5.44	1.49 N.S.
3.	No. of scales round the middle of body	9	17	84—105	79—91	93.56±1.99	84.82±0.09	6.37	4.65	4.50 +++
4.	No. of enlarged chin-shields	9	17	4—6	4—5	4.22±0.22	4.53±0.12	15.80	11.37	1.32 N.S.

N.S. = Not Signianfict; ++ = Significant at 1% level of probability; +++ = Significant at 0.1 % level of probability; C.V. = Coefficient of variation; F. = Female; M. = Male; S.E. = Standard error.

mean is 12.78±0.22. 55·56% of males have 13 left upper labials. The C. V. is 5·22%.

Females (N=17): The number varies from 11—13. The mean is 11 76±0·14. 64·71% of males have 12 left upper labials. The C. V. is 4·78%.

The value of *t* (4·13) for sex difference exceeds the value of *t* 0.001 (3.745) at 0·1% level of probability, hence it is concluded that the mean number of left upper labials differ significantly in two sexes (Male 12·78±0·22; Female 11·76±0·14). The data for both sexes have been represented graghically in Text-fig. 2A.

1. (b) NUMBER OF UPPER LABIALS (right).

Male (N=9): The number varies from 12—13. The mean is 12·11±0·11. 88·89% of males have 12 right upper labials. The C. V. is 2·75%.

Female (N=17): The number varies from 11-12. The mean is 11·47±0.12 52.94% of females have 11 right upper labials. The C. V is 4·49%.

The value of *t* (3·37) for sex difference exceeds the value of *t* 0·01 (2·797) at 1% level of probability, hence it is concluded that the mean number of right upper labials differ significantly in two sexes (Males 12·11± 0·11; Females 11·47±0·12).

2. (a) NUMBER OF LOWER LABIALS (left).

Male (N=9): The number varies from 11—14. The mean is 12·22±0·32. 44·44% of males have 12 left lower labials. The C. V. is 7·95%.

Female (N=17): The number varies from 11—14. The mean is 11·76±0·22. 47·06% of females have 11 left lower labials. The C. V. is 7·68%.

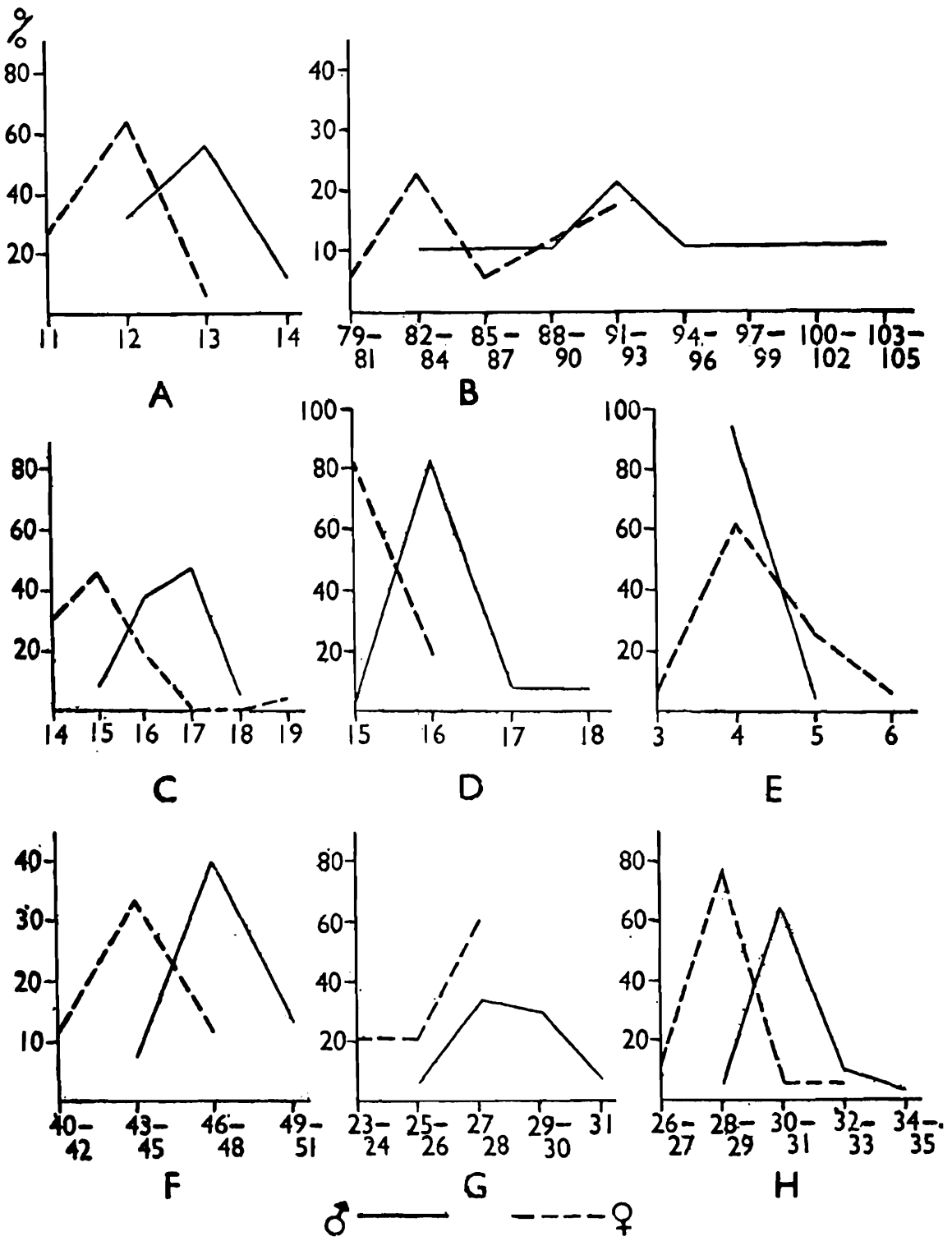
The mean number of left lower labials does not differ significantly in two sexes.

2. (b) NUMBER OF LOWER LABIALS (right).

Males (N=9): The number varies from 11-13. The mean is 11·89±0·26. 44·44% of males have 12 right lower labials. The C. V. is 6·58%.

Female (N=17): The number varies from 11—13. The mean is 11·47±0·15. 58·82% of females haved 11 right lower labials. The C. V. is 5·44%.

The mean number of right lower labials does not differ significantly in two sexes.



Text-Fig. 2.— Graphs to show variation in number of scales in some reptiles from Peninsular India. Vertical axis (Y — axis) represents the percentage of specimens in a particular category; horizontal axis, the number of scales.

(A). *Psammophilus blanfordanus* (Stoliczka) (n = 0·9, 0·17) : Number of upper labials (left). (B). *Psammophilus blanfordanus* (Stoliczka) (n = 0·9, 0·17): Number of scales round the middle of body. (C). *Mabuya macularia* (Blyth) (n = 0·23, 0·26) : Number of lamellae under fourth toe. (D). *Mabuya carinata* (Schneider) (n = 0·30, 0·23) : Number of lamellae under fourth toe. (E). *Riopa punctata* (Gmelin) (n = 0·19, 0·33) : Number of lamellae under first toe. (F). *Cabrita leschenaulti* (Milne — Edwards) (n = 0·15, 0·9) : Number of scales round the middle of body. (G). *Cabrita jerdoni* Beddome (n = 0·18, 0·5): Number of scales round the middle of body. (H). *Ophisops jerdoni* Blyth (n = 0·30, 0·21) : Number of scales round the middle of body.

3. NUMBER OF SCALES ROUND MIDDLE OF BODY.

Males (N=9): The number varies from 84—105. The mean is 93·56±1·99. 22·22% of males have 91 scales round the middle of body. The C. V. is 6·37%.

Females (N=17): The number varies from 79—91. The mean is 84·82±0·09. 23·53% of females have 82 scales round the middle of body. The C. V. is 4·65%.

The value of *t* (4·50) for sex differences exceeds the value for *t* 0·001 (3·745) at 0·1% level of probability, hence it is concluded that the mean number of scales round middle of body differ significantly in two sexes (Male 93·56±1·99; Female 84·82±0·09). The data for both sexes have been represented graphically in Text-fig. 2B.

4. NUMBER OF ENLARGED CHIN-SHIELDS.

Males (N=9): The number varies from 4—6. The mean is 4·22±0·22. 88·89% of males have 4 enlarged chin shields. The C. V. is 15·80%.

Females (N=17): The number varies from 4—5. The mean is 4·53±0·12. 52·94% of females have 5 enlarged chin-shields. The C. V is 11·37%.

The mean number of enlarged chin shields does not differ significantly in two sexes.

(7) **Mabuya macularia** (Blyth)

(Table 7, Text-fig. 2C)

1. (a) NUMBER OF UPPER LABIALS (left).

Males (N=23): The number of upper labials is 7 in all the males.

Females (N=26): The number of upper labials is 7 in all the females.

The mean number of left upper labials does not differ significantly in two sexes.

1. (b) NUMBER OF UPPER LABIALS (right).

Males (N = 23): The number of upper labials is 7 in all the males.

Females (N = 26): The number of upper labialt is 7 in all the females.

The mean number of right upper labials does nos differ significantly in two sexes.

2. (a) NUMBER OF LOWER LABIALS (left).

Males (N = 23): The number varies from 7—8.

TABLE 7.— *Mabuya macularia* (Blyth). Biometrical constants of certain body-parts.

S. No.	Character	No. of samples		Range		Mean ± S.E.		C.V.		't' value for sex difference
		M	F	M	F	M	F	M	F	
1(a)	No. of upper labials (left)	23	26	7—7	7—7	7.00±0.00	7.00±0.00	—	—	0 (N.S.)
1(b)	No. of upper labials (right)	23	26	7—7	7—7	7.00±0.00	7.00±0.00	—	—	0 (N.S.)
2(a)	No. of lower labials (left)	23	26	7—8	7—8	7.04±0.04	7.14±0.08	2.97	5.59	(1.67) (N.S.)
2(b)	No. of lower labials (right)	23	26	7—8	7—8	7.04±0.04	7.04±0.04	2.97	2.78	0 (N.S.)
3.	No. of lamellae under first toe.	23	26	6—9	5—8	6.61±0.19	6.54±0.15	13.48	11.62	0.30 (N.S.)
4.	No. of lamellae under fourth toe.	23	26	15—18	14—19	16.48±0.15	15.04±0.21	4.43	7.15	5.41 +++
5.	No. of keels on dorsal scales.	23	26	5—7	5—7	5.17±0.12	5.31±0.14	11.14	13.86	0.73 N.S.
6.	No. of scales round middle of body	23	26	28—30	27—30	29.30±0.19	28.81±0.19	3.16	3.40	1.79 N.S.

The figure in parenthesis is not student t — see text; N.S. = Not lSignificant; +++ = Significant at 0.1% level of probability.
C.V. = Coefficient of variation; F. = Female; M. = Mae; S.E. = Standard error.

The mean is 7·04 ± 0.04. 95.65% of males have 7 left lower labials. The C. V. is 2·97%.

Females (N = 26) : The number varies from 7—8. The mean is 7·14 ± 0.08. 80.77% of females have 7 left lower labials. The C. V. is 5.59%.

Here the variance ratio differs significantly, hence t' was computed. Since the value of t' (1·67) for sex difference does not exceed the value for $t'_{0.05}$ (2.062), hence the difference is non-significant.

2. (b) NUMBER OF LOWER LABIALS (right)

Males (N = 23) : The number varies from 7—8. The mean is 7.04 ± 0.04. 95.65% males have 7 right labials. The C. V. is 2·97%.

Females (N = 26) : The number varies from 7—8. The mean is 7.04 ± 0.04. 96·15% of females have 7 right lower labials. The C. V. is 2.78%.

The mean number of right lower labials does not differ significantly in two sexes.

3. NUMBER OF LAMELLAE UNDER FIRST TOE.

Males (N = 23) : The number varies from 6—9. The mean is 6.61 ± 0·19. 60.87% of males have 6 lamellae under the first toe. The C. V. is 13.48%.

Females (N = 26) : The number varies from 5—8. The mean is 6.54 ± 0·15. 50·00% of females have 6 lamellae under the first toe. The C. V. is 11·62%.

The mean number of lamellae under first toe does not differ significantly in two sexes.

4. NUMBER OF LAMELLAE UNDER FOURTH TOE.

Males (N = 23) : The number varies from 15—18. The mean is 16.48 ± 0·15. 47·83% of males have 17 lamellae under the fourth toe. The C. V. is 4.43%.

Females (N = 26) : The number varies from 14—19. The mean is 15.04 ± 0.21. 46.15% of females have 15 lamellae under the fourth toe. The C. V. is 7.15%.

The value of t (5.41) for sex difference exceeds the value for $t_{0.001}$ (3·51) at 0·1% level of probability, hence it is concluded that the mean number of left upper labials differ significantly in two sexes (Male 16.48 ± 0·15; females 15·04 ± 0·21). The data for both sexes have been represented graphically in Text-fig. 2C.

5. NUMBER OF KEELS ON DORSAL SCALES.

Males (N = 23) : The number varies from 5—7.

The mean is 5.17 ± 0.12. 91·30% of males have 5 keels on dorsal scales. The C. V. is 11.14%.

Females (N = 26) : The number varies from 5—7. The mean is 5.31 ± 0·14. 84·62% of females have 5 keels on dorsal scales. The C. V. is 13·86%.

The mean number of keels on dorsal scales does not differ significantly in two sexes.

6. NUMBER OF SCALES ROUND MIDDLE OF BODY.

Males (N = 23) : The number varies from 28—30. The mean is 29·30 ± 0·19. 60·67 % of males have 30 scales round middle of body. The C. V. is 3 16%.

Females (N = 26) : The number varies from 27—30. The mean is 28.81 ± 0 19. 46.15 % of females have 28 scales round middle of body. The C. V. 3·40%.

The mean number of scales round middle of body does not differ significantly in two sexes.

(8) **Mabuya carinata** (Schneider)

(Table 8, Text-fig. 2D)

1. (a) NUMBER OF UPPER LABIALS (left).

Males (N = 30) : The number varies from 7—7. The mean is 7. All the males have 7 left upper labials.

Females (N = 23) : All the females have 7 left upper labials.

The mean number of left upper labials does not differ significantly in two sexes.

1. (b) NUMBER OF UPPER LABIALS (right).

Males (N = 30) : All the males have 7 right upper labials.

Females (N = 23) : All the females have 7 right upper labials.

The mean number of right upper labials does not differ significantly in two sexes.

2. (a) NUMBER OF LOWER LABIALS (left).

Males (N = 30) : The number varies from 5—8. The mean is 7 10 ± 0.12. 66.67% of males have 7 left lower labials. The C. V 9·31%.

Females (N = 23) : The number varies from 6—8. The mean is 7 30 ± 0 10. 69·57% of females have 7 left lower labials. The C. V. is 6.44%.

The mean number of left lower labials does not differ significantly in two sexes.

TABLE 8.— *Mabuya carinata* (Schneider). Biometrical constants of certain body parts.

S. No.	Character	No. of samples		Range		Mean ± S.E.		C.V.		't' value for sex difference
		M	F	M	F	M	F	M	F	
1(a)	No. of upper labials (left)	30	23	7—7	7—7	7.00±0.00	7.00±0.00	—	—	0.00 N.S.
1(b)	No. of upper labials (right)	30	23	7—7	7—7	7.00±0.00	7.00±0.00	—	—	0.00 N.S.
2(a)	No. of lower labials (left)	30	23	5—8	7—8	7.10±0.12	7.30±0.10	9.31	6.44	1.23 N.S.
2(b)	No. of lower labials (right)	30	23	7—8	7—7	7.07±0.5	7.00±0.00	3.59	—	(1.52) N.S.
3.	No. of lamellae under first toe.	30	23	6—8	6—10	6.97±0.12	6.78±0.20	9.60	14.03	0.87 N.S.
4.	No. of lamellae under fourth toe.	30	23	15—18	15—16	16.17±0.11	15.17±0.08	3.66	2.55	(7.41) +++
5.	No. of keels on dorsal scales.	30	23	3—7	3—5	4.60±0.18	4.22±0.21	21.04	23.65	1.40 N.S.
6.	No. of scales round middle of body	30	23	30—34	30—34	32.53±0.27	32.22±0.28	4.55	3.43	0.79 N.S.

The figure in parenthesis is not student t — see text. N.S. = Not Significant. +++ = Significant at 0.1% level of probability.
C.V. = Coefficient of variation; F. = Female; M. = Male; S.E. = Standard error.

2. (b) NUMBER OF LOWER LABIALS (right).

Males (N = 30) : The number varies from 7—8: The mean is 7.07 ± 0.05. 93.33% of males have 7 right lower labials. The C. V is 3.59%.

Females (N = 23) : The number varies from 7—7 All the females have 7 right lower labials.

Here the variance ratio differs significantly, hence t' was computed. Since the value of t' (1.52) for sex difference does not exceed the value for t' (2·045), hence the difference is non-significant.

3. NUMBER OF LAMELLAE UNDER FIRST TOE.

Males (N = 30) : The number varies from 6—8. The mean is 6·97 ± 0.12. 56·67% of males have 7 lamellae under the first toe. The C. V is 9·60%.

Females (N = 23) : The number varies from 6—10. The mean is 6·78 ± 0.20. 43.48% of females have 6 while the other 43.48% have 7 lamellae under the first toe. The C. V is 14.03%.

The mean number of lamellae under the first toe does not differ significantly in two sexes.

4. NUMBER OF LAMELLAE UNDER FOURTH TOE.

Males (N = 30) : The number varies from 15—18. The mean is 16.17 ± 0.11. 83.33 % of males have 16 lamellae under the fourth toe. The C. V is 3.66%.

Females (N = 23) : The number varies from 15—16. The mean is 15.17 ± 0.08. 82.61 % of females have 15 lamellae under the fourth toe. The C. V is 2.55 %.

Here the variance ratio differs significantly hence t' was computed. Since the value of t' (7.41) for sex difference exceeds the value for $t'_{0.001}$ (3.71), hence it is concluded that the mean number of lamellae under the fourth toe differ significantly in two sexes (Male 16.17 ± 0.11; Female 15 17 ± 0.08). The data for both sexes have been represented graphically in Text-fig. 2D.

5. NUMBER OF KEELS ON DORSAL SCALES.

Males (N = 30) : The number varies from 3—7. The mean is 4.60 ± 0.18. 73.33 % of males have 5 keels on dorsal scales. The C. V is 21.04 %.

Females (N = 23) : The number varies from 3—5. The mean is 4.22 ± 0.21. 60.87 % of females have 5 keels on dorsal scales. The C. V is 23.65 %.

The mean number of keels on dorsal scales does not differ significantly in two sexes.

6. NUMBER OF SCALES ROUND MIDDLE OF BODY.

Males (N = 30) : The number varies from 30—40. The mean is 32.53 ± 0.27. 43.33 % of males have 34 scales round middle of body. The C. V. is 4.55 %.

Females (N = 23) : The number varies from 30—34. The mean is 32.22 ± 0.28. 52.17 % of females have 32 scales round middle of body. The C. V. is 3.43%.

The mean number of scales round middle of body does not differ significantly in two sexes.

(9) **Riopa punctata** (Gmelin)

(Table 9, Text-fig. 2E)

1. (a) NUMBER OF UPPER LABIALS (left).

Males (N = 20) : The number varies from 7—8. The mean is 7.05 ± 0.05. 95.00 % of males have 7 left upper labials. The C. V. is 3.16 %.

Females (N = 33) : The number varies from 7—8. The mean is 7.03 ± 0.03. 96.97 % of females have 7 left upper labials. The C. V. is 2.46 %.

The mean number of left upper labials does not differ significantly in two sexes.

1. (b) NUMBER OF UPPER LABIALS (right).

Males (N = 20) : The number of right upper labials in all the males is 7.

Females (N = 33) : The number of right upper labials in all the females is 7.

The mean number of right upper labials does not differ significantly in two sexes.

2. (a) NUMBER OF LOWER LABIALS (left).

Male (N = 20) : The number varies from 7—8. The mean is 7.05 ± 0.05. 95.00 % of males have 7 left lower labials. The C. V is 3 16 %.

Females (N = 33) : The number varies from 6—8. The mean is 6.97 ± 0.06. 87.88 % of females have 7 left lower labials. The C. V is 5.01 %.

Here the variance ratio differs significantly hence t was computed. Since the value of t' (1.41) for sex difference does not exceed the value for $t'_{0.05}$ (2.06), hence the difference is non-significant.

2. (b) NUMBER OF LOWER LABIALS (right).

Males (N = 20) : The number varies from 7—7.

TABLE 9.— *Riopa punctata* (Gmelin). Biometrical constants of certain body parts.

S. No.	*Character*	*No. of samples*		*Range*		*Mean ± S.E.*		*C.V.*		*'t' value fore sex difference*
		M	F	M	F	M	F	M	F	
1(a)	No. of upper labials (left)	20	33	7—8	7—8	7.05±0.05	7.03±0.03	3.16	2.46	0.36 N.S.
1(b)	No. of upper labials (right)	20	33	7—7	7—7	7.00±0.00	7.00±0.00	—	—	0.00 N.S.
2(a)	No. of lower labials (right)	20	33	7—8	6—8	7.05±0.05	6.97±0.06	3.16	5.01	(1.41) N.S.
2(b)	No. of lower labials (right)	20	33	7—7	7—7	7.00±0.00	7.00±0.00	—	—	0.00 N.S.
3.	No. of lamellae under first toe.	19	33	4—5	3—6	4.05±0.05	4.33±0.12	5.68	15.98	(2.14)*
4.	No. of lamellae under fourth toe	19	33	12—15	12—15	13.89±0.16	14.09±0.15	6.30	5.98	0.81 N.S.
5.	No. of scales round middle of body	20	33	26—28	24—26	26.50±0.20	24.70±0.17	3.35	3.85	6.85***
6.	No. of scales down the back	11	18	63—92	66—71	69.45±2.52	68.33±0.41	12.02	2.56	(0.44) N.S.

The figure in parenthesis is not student *t* — see text. N.S. = Not Significant. * = Significant at 5% level of probability. *** = Significant at 0.1% level of probability.

C.V. = Coefficient of variation; M. = Male; F. = Female; S.E. = Standard error.

All males have 7 right lower labials.

Females (N = 33) : The number in the females is 7.

The mean number of right lower labials does not differ significantly in two sexes.

3. NUMBER OF LAMELLAE UNDER FIRST TOE.

Males (N = 19) : The number varies from 4–5. The mean is 4.05 ± 0.05. 94.74 % of males have 4 lamellae under the first toe. The C. V is 5.68 %.

Females (N = 33) : The number varies from 3—6 The mean is 4.33 ± 0.12. 60.61 % of females have 4 lamellae under the first toe. The C. V. is 15.98 %.

Here the variance ratio differs significantly hence t' was computed. Since the value of t' (2.14) for sex difference exceeds the value for $t'_{0.05}$ (2.05), hence it is concluded that the mean number of the lamellae under first toe differ significantly in two sexes (Male 4.05 ± 0.05; Female 4·33 ± 0.12). The data for both sexes have been represented graphically in Text-fig. 2E.

4. NUMBER OF LAMELLAE UNDER FOURTH TOE.

Males (N = 19) : The number varies from 12—15. The mean is 13.89 ± 0.16. 57.89 % of males have 14 lamellae under the fourth toe. The C. V is 6.30 %.

Females (N = 33) : The number varies from 12—15. The mean is 14.09 ± 0.15. 48.48 % of females have 14 lamellae under the fourth toe. The C. V. is 5.98 %.

The mean number of lamellae under the fourth toe does not differ significantly in two sexes.

5. NUMBER OF SCALES ROUND MIDDLE OF BODY

Males (N = 20) : The number varies from 26—28. The mean is 26.50 ± 0.20. 75.00 % of males have 26 scales round the middle of body. The C. V. is 3.35 %.

Females (N = 33) : The number varies from 24—26. The mean is 24.70 ± 0.17. 63.64 % of females have 24 scales round the middle of body. The C. V. is 3.85 %.

The value of t (6.85) for sex difference exceeds the value of $t_{0.001}$ (3.492) at 0.1 % level of probability, hence it is concluded that the mean number of scales round middle of body differ significantly in two sexes (Male 26.50 ± 0·20; Female 24.70 ± 0.17).

6. NUMBER OF SCALES DOWN THE BACK.

Males (N = 11) : The number varies from 63—92. The mean is 69.45 ± 2.52. 18.18 % of males have 63.

while another 18.18 % have 66 scales down the back. The C. V. is 12.02 %.

Females (N = 18) : The number varies from 66—71. The mean is 68.33 ± 0.41. 33.33 % of females have 68 scales down the back. The C. V is 2.56 %.

Here the variance ratio differs significantly, hence t' was computed. Since the value of t' (0.44) for sex difference does not exceed the value for $t'_{0.05}$ (2.226), hence the difference is non-significant.

(10) **Cabrita leschenaulti** (Milne-Edwards)

(Table 10, Text-fig. 2F)

1. NUMBER OF SCALES ROUND MIDDLE OF BODY.

Males (N = 15) : The number varies from 44—50. The mean is 47.02 ± 0.47. 40.00 % of males have 48 scales round middle of body. The C. V. is 4.02 %.

Females (N = 9) : The number varies from 40—48. The mean is 44.22 ± 0.76. 33.33 % of females have 44 scales round middle of body. The C. V is 5.15 %.

The value of t (3.46) for sex difference exceeds the value of $t_{0.01}$ (2.819) at 1 % level of probability, hence it is concluded that the mean number of scales round middle of body differ significantly in two sexes (Male 47.02 ± 0.47; Female 44.22 ± 0.76). The data for both sexes have been represented graphically in Text-fig. 2F.

2. NUMBER OF LONGITUDINAL ROWS OF PLATES ON BELLY

Males (N = 15) : The number of longitudinal rows of plates on belly in all males is 6.

Females (N = 9) : The number of longitudinal rows of plates on belly in all females is 6.

The mean number of longitudinal rows of plates does not differ significantly in two sexes.

3. NUMBER OF TRANSVERSE ROWS OF PLATES ON VENTRUM.

Males (N = 15) : The number varies from 23—26. The mean is 24.27 ± 0.26. 46.67 % of males have 25 transverse rows of plates on ventrum. The C. V. is 4.26 %.

Females (N = 9) : The number varies from 23—25. The mean is 23.56 ± 0·24. 55.55 % of females have 23 transverse rows of plates on ventrum. The C. V. is 3.08 %.

The mean number of transverse rows of plates on ventrum does not differ significantly in two sexes.

TABLE 10.— *Cabrita leschenaulti* (Milne—Edwards). Biometrical cohstants of certain body parts.

S. No.	*Character*	*No. of samples*		*Range*		*Mean ± S.E.*		*C.V.*		*'t' value for sex difference*
		M	F	M	F	M	F	M	F	
1.	No. of scales round middle of body	15	9	44—50	40—48	47.02±0.47	44.22±0.76	4.02	5.15	3.46**
2.	No. of longitudinal rows of plates on belly.	15	9	6—6	6—6	6.00±0.00	6.00±0.00	—	—	0.00 N.S.
3.	No. of transverse rows of plates on ventrum.	15	9	23—26	23—25	24.27±0.26	23.56±0.24	4.26	3.08	1.81 N.S.
4(a)	No. of femoral pores (left)	15	9	12—15	12—16	14.13±0.25	14.00±0.44	7.01	9.45	0.28 N.S.
4(b)	No. of femoral pores (right)	15	9	12—15	12—15	13.80±0.27	13.67±0.37	7.84	8.18	0.28 N.S.

N.S. = Not Significant ** = Significant at 1% level of probability.
C.V. = Coefficient of variation; F. = Female; M. = Male; S.E. = Standard error.

4. (a) NUMBER OF FEMORAL PORES (left).

Males (N = 15) : The number varies from 12—15. The mean is 14.13 ± 0.25. 46.67 % of males have 15 left femoral pores. The C. V. is 7.01 %.

Females (N = 9) : The number varies from 12—16. The mean is 14.00 ± 0.44. 33.33 % of females have 13 left femoral pores. The C. V. is 9.45 %.

The mean number of left femoral pores does not differ significantly in two sexes.

4. (b) NUMBER OF FEMORAL PORES (right).

Males (N = 15) : The number varies from 12—15. The mean is 13·80 ± 0.27. 33.33 % of males have 15 right femoral pores. The C. V. is 7.84 %.

Females (N = 9) : The number varies from 12—15. The mean is 13.67 ± 0.36. 33.33 % of females have 15 right femoral pores. The C. V is 8.18 %.

The mean number of right femoral pores does not differ significantly in two sexes.

(11) **Cabrita jerdoni** Beddome

(Table 11, Text-fig. 2G)

1. NUMBER OF SCALES ROUND MIDDLE OF BODY.

Males (N = 18) : The number varies from 25—31. The mean is 28.67 ± 0.35. 33.33 % of males have 28 scales round middle of body. The C. V is 5.21 %.

Females (N = 5) : The number varies from 23—28. The mean is 26.60 ± 0.98. 60.00 % of females have 28 scales round middle of body. The C. V. is 8.24 %.

The value of t (2.48) for sex difference exceeds the value for $t_{0.05}$ (2.08) at the 5 % level of probability, hence it is concluded that the mean number of scales round middle of body differ significantly in two sexes (Male 28.67 ± 0.35; Female 26.60 ± 0.98). The data for both sexes have been represented graphically in Text-fig. 2G.

2. NUMBER OF LONGITUDINAL ROWS OF PLATES ON BELLY.

Males (N = 18) : The number varies from 6-8. The mean is 6·11 ± 0.11. 94.44% of males have 6 longitudinal rows of plates on belly. The C. V. is 7·71 %.

Females (N = 5) : The number of longitudinal rows of plates on belly in all the females is 6.

TABLE 11.— *Cabrita jerdoni* Beddome. Biometrical constants of certain body parts.

S. No.	Character	No. of samples		Range		Mean ± S.E.		C.V.		't' value for sex difference
		M	F	M	F	M	F	M	F	
1.	No. of scales round middle of body	18	5	25—31	23—28	28.67±0.35	26.60±0.98	5.21	8.24	2.48*
2.	No. of longitudnal rows of plates on belly	18	5	6—8	6—6	6.11±0.11	6.00±0.00	7.71	—	(0.99) N.S.
3.	No. of transverse rows of plates on ventrum	18	5	19—23	19—23	21.56±0.35	21.40±0.81	6.79	8.49	0.21 N.S.
4(a)	No. of femoral pores (left)	18	5	10—17	12—14	12.11±0.46	12.80±0.37	16.24	6.53	0.75 N.S.
4(b)	No. of femoral pores (right)	18	5	10—17	12—14	12.22±0.42	12.60±0.40	14.73	7.09	0.45 N.S.

The figure in parenthesis is not student t — see text. N.S. = Not Significant. * = Significant at 5% level of probability.
C.V. = Coefficient of variation; F. = Female; M. = Male; S.E. = Standard error.

Here the variance ratio differs significantly, hence t' was computed. Since the value of t' (0·99) for sex difference does not exceed the value for t' 0·05 (2·11), hence the difference is non-significant.

3. NUMBER OE TRANSVERSE ROWS OF PLATES ON VENTRUM.

Males (N = 18) : The number varies from 19-23. The mean is 21.56 ± 0·35. 33.33 % of males have 23 transverse rows of plates on ventrum. The C. V is 6.79 %.

Females (N = 5) : The number varies from 19–23. The mean is 21.40 ± 0.81. 40.00 % of females have 23 transverse rows of plates on ventrum. The C. V. is 8.49 %.

The mean number of transverse rows of plates on ventrum does not differ significantly in two sexes.

4. (a) NUMBER OF FEMORAL PORES (left).

Males (N = 18) : The number varies from 10—17. The mean is 12.11 ± 0.46. 22.22 % of males have 10, 11 and 12 left femoral pores. The C. V. is 16.24%.

Females (N = 5) : The number varies from 12–14. The mean is 12.80 ± 0.37. 40.00 % of females have 12, while another 40.00% of females have 13 left femoral pores. The C. V. is 6.53 %.

The mean number of left femoral pores does not differ significantly in two sexes.

4. (b) NUMBER OF FEMORAL PORES (right).

Males (N = 18) : The number varies from 10—17. The mean is 12.22 ± 0.42. 38.89% of males have 11 right femoral pores. The C. V. is 14.73%.

Females (N = 5) : The number varies from 12—14. The mean is 12.60 ± 0.40. 60.00 % of females have 12 right femoral pores. The C. V. is 7.09 %.

The mean number of right femoral pores does not differ significantly in two sexes.

(12) **Ophisops jerdoni** Blyth

(Table 12, Text-fig. 2H)

1. NUMBER OF SCALES ROUND MIDDLE OF BODY.

Males (N = 30) : The number varies from 29–35. The mean is 30.77 ± 0.26. 63.33 % of males have 30 scales round middle of body. The C. V. is 4.57 %.

Females (N = 21) : The number varies from 26–33. The mean is 28 19 ± 0.30. 76.19 % of females have 28 scales round middle of body. The C. V. is 4.84 %.

TABLE 12.— *Ophisops jerdoni* Blyth. Biometrical constants of certain body parts.

S. No.	Character	No. fo samples		Range		Mean ± S.E.		C.V.		't' value for sex difference
		M	F	M	F	M	F	M	F	
1.	No. of scales round middle of body	30	21	29—35	26—33	30.77±0.26	28.19±0.30	4.57	4.84	6.53 ***
2.	No. of longitudinal rows of plates on belly.	30	21	6—6	6—6	6.00±0.00	6.00±0.00	—	—	0.00 N.S.
3.	No. of transverse rows of plates on ventrum	30	21	23—28	23—30	25.33±0.35	24.76±0.49	7.57	9.11	0.97 N.S.
4(a)	No. of femoral pores (left)	30	21	7—11	6—12	8.47±0.21	8.90±0.31	13.78	16.25	1.17 N.S.
4(b)	No. of femoral pores (right)	30	21	7—11	6—12	8.40±0.22	8.81±0.30	14.52	15.49	1.13 N.S.

N.S. = Not Singificant. *** = Significant at 0.1% level of probability.

C.V. = Coefficient of variation; F. = Female; M. = Male; S.E. = Standard error.

The value of t (6.53) for sex difference exceeds the value for t 0.001 (3.501) at 0.1% level of probability, hence it is concluded that the mean number of scales round middle of body differ significantly in two sexes (Male 30.77 ± 0.26; Female 28.19 ± 0.30). The data for both sexes have been represented graphically in Text-fig. 2H.

2. NUMBER OF LONGITUDINAL ROWS OF PLATES ON BELLY.

Males (N = 30): The number varies from 6-6. All the males have 6 longitudinal rows of plates on belly.

Females (N = 21): All the females have 6 longitudinal rows of plates on belly.

The mean number of longitudinal rows of plates does not differ significantly in two sexes.

3. NUMBER OF TRANSVERSE ROWS OF PLATES ON VENTRUM.

Males (N = 30): The number varies from 23-28. The mean is 25.33 ± 0.35. 36.67 % of males have 26 transverse rows of plates on ventrum. The C. V. is 7.57 %.

Females (N = 21): The number varies from 23-30. The mean is 24.76 ± 0.49. 52.38 % of females have 23 transverse rows of plates on ventrum. The C. V. is 9.11 %.

The mean number of transverse rows of plates on ventrum does not differ significantly in two sexes.

4. (a) NUMBER OF FEMORAL PORES (left).

Males (N = 30): The number varies from 7-11. The mean is 8.47 ± 0.21. 40.00 % males have 8 left femoral pores. The C. V is 13.78 %.

Females (N = 21): The number varies from 6-12. The mean is 8.90 ± 0.31. 33.33% of females have 10 left femoral pores. The C. V. is 16.25 %.

The mean number of left femoral pores does not differ significantly in two sexes.

4. (b) NUMBER OF FEMORAL PORES (right)

Males (N = 30): The number varies from 7—11. The mean is 8.40 ± 0.22. 30.00% of males have 8, while another 30.00% possess 9 right femoral pores. The C. V is 14.52%.

Females (N = 21): The number varies from 6—12. The mean is 8.81 ± 0.30. 38.10% of females have 9 right femoral pores. The C. V is 15.49%.

The mean number of right femoral pores does not differ significantly in two sexes.

(13) **Elaphe helena** (Daudin)

(Table 13, Text-figs. 3A & B)

1. (a) NUMBER OF UPPER LABIALS (left)

Males (N = 11) : The number varies from 9—11. The mean is 9.36 ± 0.20. 72·73% of males have 9 left upper labials. The C. V is 7.20%.

Females (N = 10) : The number varies from 9—11. The mean is 9.50 ± 0.22. 60.00% of females have 9 left upper labials. The C. V. is 7.44%.

The mean number of left upper labials does not differ significantly in two sexes.

1. (b) NUMBER OF UPPER LABIALS (right)

Males (N = 11) : The number varies from 9—10. The mean is 9.82 ± 0·12. 81.82% of males have 10 right upper labials. The C. V is 4.12%.

Females (N = 10) : The number varies from 9—10. The mean is 9.50 ± 0.17. 50.00% of females have 9, while another 50.00% possesses 10 right upper labials. The C. V. is 5.55%.

The mean number of left upper labials does not differ significantly in two sexes.

2. (a) NUMBER OF LOWER LABIALS (left)

Male (N = 11) : The number varies from 9—11. The mean is 9.91 ± 0.16. 72.73% of males have 10 left lower labials. The C. V. is 5.44%.

Females (N = 10) : The number varies from 8—12. The mean is 9.80 ± 0.33. 60.00% of females have 10 left lower labials. The C. V. is 10.53%.

The mean number of left lower labials does not differ significantly in two sexes.

2. (b) NUMBER OF LOWER LABIALS (right)

Males (N = 11) : All the males have 10 right lower labials.

Females (N = 10) : The number varies from 9—10. The mean is 9.70 ± 0.15. 70.00% of females have 10 right lower labials. The C. V. is 4.98%.

Here the variance ratio differs significantly hence t' was computed. Since the value of t' (1.97) for sex difference does not exceed the value for $t'_{0\cdot05}$ (2.262), hence the difference is non-significant.

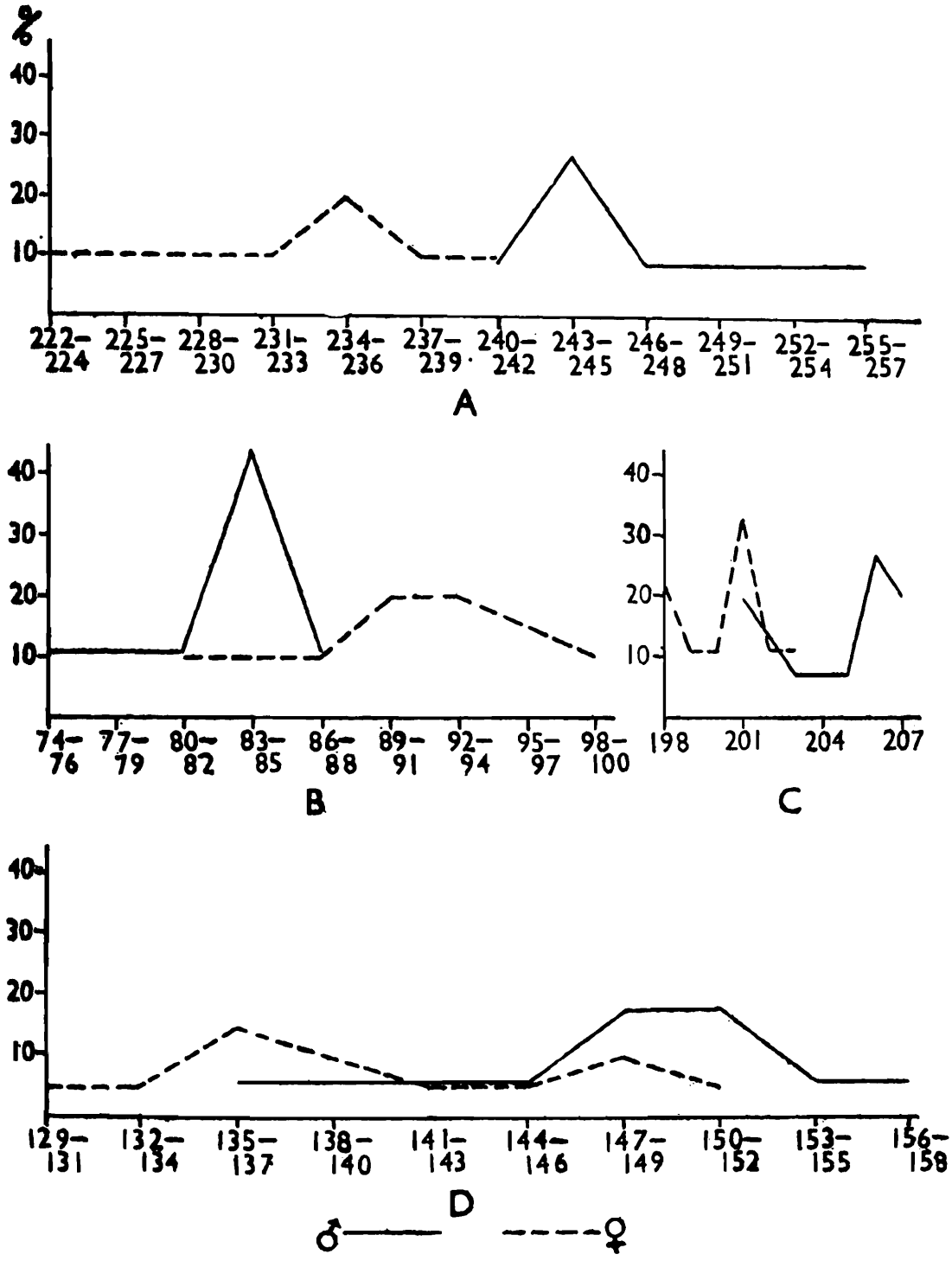
TABLE 13.— *Elaphe helena* (Daudin). Biometrical constants of certain body parts.

S. No.	Character	No. of samples		Range		Mean ± S.E.		C.V.		't' value for sex difference
		M	F	M	F	M	F	M	F	
1(a)	No. of upper labials (left)	11	10	9—11	9—11	9.36±0.20	9.50±0.22	7.20	7.44	0.46 N.S.
1(b)	No. of upper labials (right)	11	10	9—10	9—10	9.82±0.12	9.50±0.17	4.12	5.55	1.57 N.S.
2(a)	No. of lower labials (left)	11	10	9—11	8—12	9.91±0.16	9.80±0.33	5.44	10.53	0.31 N.S.
2(b)	No. of lower labials (right)	11	10	10—10	9—10	10.00±0.00	9.70±0.15	—	4.98	(1.97) N.S.
3.	No. of temporal scales	11	10	2+2—2+3	2+2—2+3	2+3.10±0.15	2+2.20±0.13	9.90	10.05	4.41 ***
4.	No. of ventral shields	11	10	242—257	222—241	246.64±1.50	233.30±1.80	2.02	2.43	5.73 ***
5.	No. of sub-caudal shields	9	10	74—86	82—100	81.67±1.25	90.30±1.56	4.58	5.45	4.25 ***
6.	No. of scales round middle of body	11	10	25—27	25—27	25.73±0.30	26.40±0.30	3.92	3.66	1.52 N.S.

The figure in parenthesis is not student t—see text. N.S. = Not significant. *** = Significant at 0.1% level of probability.
C.V. = Coefficient of variation; F. = Female; M. = Male, S.E. = Standard error.

3. NUMBER OF TEMPORAL SCALES.

Males (N = 11) : The number varies from 2 + 2 − 2 + 3. The mean is 2 + 3.10 ± 0.15. 63.64% of males have 2 + 3 temporal scales. The C. V is 9.90%



Text-Fig. 3.— Graphs to show variation in number of scales in some eptiles from Peninsular India. Vertical axis (Y — axis) represents the percentage of specimen in a particular category; horizontal axis, the number of scales.

(A). *Elaphe helena* (Daudin) (n = 0.11, 0.10) : Number of ventral hields. (B). *Elaphe helena* (Daudin) (n = 0.11, 0.10) : Number of sub-audal shields. (C). *Ptyas mucosus* (Linnaeus) (n = 0.15, 0.9) : Number of ventral shields. (D). *Xenochrophis piscator* (Schneider) (n = 0.17, 0.20) : Number of ventral shields.

Females (N = 10) : The number varies from 2 + 2 — 2 + 3. The mean is 2 + 2.20 ± 0.13. 80.00% of females have 2 + 2 temporal scales. The C. V. is 10.05%.

The value of *t* (4.41) for sex difference exceeds the value for $t_{0 \cdot 001}$(3.883) at 0·1% level of probability, hence it is concluded that the mean number of temporal scales differ significantly in two sexes (Males 2 + 3.10 ± 0.15; Females 2 + 2.20 ± 0.13).

4. NUMBER OF VENTRAL SHIELDS.

Males (N = 11) : The number varies from 242—257. The mean is 246.64 ± 1.50. 27.27% of males have 244 ventral shields. The C. V. is 2.02%.

Females (N = 10) : The number varies from 222—241. The mean is 233.30 ± 1.80. 20.00% of females have 235 ventral shields. The C. V. is 2.43%.

The value of *t* (5.73) for sex difference exceeds the value for $t_{0 \cdot 001}$(3.883) at 0.1% level of probability, hence it is concluded that the mean number of ventral shields differ significantly in two sexes (Males 246.64 ± 1.50; Females 233.30 ± 1.80). The data for both sexes have been represented graphically in Text-fig. 3A.

5. NUMBER OF SUB-CAUDAL SHIELDS.

Males (N = 9) : The number varies from 74—86. The mean is 81.67 ± 1.25. 44·44 % of males have 83 sub-caudal shields. The C. V. is 4.58 %.

Females (N = 10) : The number varies from 82—100. The mean is 90.30 ± 1.56. 20·00 % of females have 89 while another 20.00 % have 94 sub-caudal shields. The C. V is 5.45 %.

The value of *t* (4·25) for sex difference exceeds the value for $t_{0.001}$ (3·965) at 0.1 % level of probability, hence it is concluded that the mean number of sub-caudal shields differ significantly in two sexes (Males 81.67 ± 1.25; Females 90.30 ± 1.56). The data for both sexes have been represented graphically in Text-fig. 3B.

6. NUMBER OF SCALES ROUND THE MIDDLE OF BODY.

Males (N = 11) : The number varies from 25—27. The mean is 25.73 ± 0·30. 63.64 % of males have 25 scales round the middle of body. The C. V is 3.92%.

Females (N = 10) : The number varies from 25—27. The mean is 26.40 ± 0.30. 70.00 % of females have 27 scales round the middle of body. The C. V. is 3.66 %.

The mean number of scales round the middle of body does not differ significantly in tow sexes.

(14) **Ptyas mucosus** (Linnaeus)

(Table 14, Text-fig. 3C)

1. (a) NUMBER OF UPPER LABIALS (left).

Males (N = 15): The number varies from 8—9. The mean is 8.33 ± 0.13. 66.67 % of males have 8 left upper labials. The C. V is 5·86 %.

Females (N = 9): The number of upper labials (left) is 8 in all the females.

Here the variance ratio differs significantly hence t' was computed. Since the value of t' (2.62) for sex difference exceeds the value for $t'_{0.05}$ (2.145), hence it is concluded that the mean number of left upper labials differ significantly in two sexes (Male 8.33 ± 0·13; Female 8.00).

1 (b) NUMBER OF UPPER LABIALS (right).

Males (N = 15): The number varies from 8—9. The mean is 8.20 ± 0.11. 80.00 % of males have 8 right upper labials. The C. V is 5.05 %.

Females (N = 9): The number varies from 8—9. The mean is 8.11 ± 0.11. 88.89 % of females have 8 right upper labials. The C. V. is 4.13%.

The mean number of right upper labials does not differ significantly in two sexes.

2. (a) NUMBER OF LOWER LABIALS (left).

Males (N = 15): The number varies form 8—10. The mean is 8.93 ± 0.21. 40.00 % of males have 9 left lower labials. The C. V is 8.95 %.

Females (N = 9): The number varies from 8—9. The mean is 8.67 ± 0.17. 66.67% of females have 9 left lower labials. The C. V is 5.77%.

The mean number of left lower labials does not differ significantly in two sexes.

2. (b) NUMBER OF LOWER LABIALS (right).

Males (N = 15): The number varies from 8—9. The mean is 8·60 ± 0.13. 60.00 % of males have 9 right lower labials. The C. V is 5.89 %.

Females (N = 9): The number varies from 8—9. The mean is 8·67 ± 0.17. 67.67 % of females have 9 right lower labials. The C. V is 5.77 %.

TABLE 14.— *Ptyas mucosus* (Linnaeus). Biometrical constants of certain body parts

S. No.	Character	No. of samples		Range		Mean ± S.E.		C.V.		't' value for sex difference (2.62)*
		M	F	M	F	M	F	M	F	
1(a)	No. of uppr labials (left)	15	9	8—9	8—8	8.33±0.13	8.00±0.00	5.86	—	
1(b)	No. of upper labials (right)	15	9	8—9	8—9	8.20±0.11	8.11±0.11	5.05	4.13	0.55 N.S.
2(a)	No. of lower labials (left)	15	9	8—10	8—9	8.93±0.21	8.67±0.17	8.95	5.77	0.91 N.S.
2(b)	No. of lower labials (right)	15	9	8—9	8—9	8.60±0.13	8.67±0.17	5.89	5.77	0.33 N.S.
3.	No. of temporal scales.	15	9	2+2—2+2	2+2—2+2	2+2.00±0.00	2+2.00±0.00	—	—	0.00 N.S.
4.	No. of ventral shields.	15	9	201—207	198—203	204.27±0.61	200.33±0.58	1.16	0.86	4.32 ***
5.	No. of subcaudal shields	15	8	115—135	116—135	125.47±1.57	127.37±2.42	4.86	5.37	0.68 N.S.
6.	No. of scales round middle of body.	15	9	14—17	14—17	16.73±0.21	16.56±0.34	4.78	6.12	0.43 N.S.

The figure in parenthesis is not student t — see text. N.S. = Not significant. * = Significant at 5% level of probability. *** = Significant at 0.1% level of probability.
C.V. = Coefficient of variation; F. = Female; M. = Male; S.E. = Standard error

The mean number of right lower labials does not differ significantly in two sexes.

3. NUMBER OF TEMPORAL SCALES.

Males (N = 15) : The number varies from 2 + 2 — 2 + 2. The mean is 2 + 2.00 ± 0.00. All males have 2 + 2 temporal scales.

Females (N = 9) : The number varies from 2 + 2 — 2 + 2. The mean is 2 + 2.00 ± 0.00. All the females have 2 + 2 temporal scales.

The mean number of temporal scales does not differ significantly in two sexes.

4. NUMBER OF VENTRAL SHIELDS.

Males (N = 15) : The number varies from 201—207 The mean is 204.27 ± 0.61. 26.67 % of males have 206 ventral shields. The C. V. is 1 16 %.

Females (N = 9) : The number varies from 198—203. The mean is 200.33 ± 0.58. 33.33 % of females have 201 ventral shields. The C. V. is 0.86%.

The value of t (4.32) for sex difference exceeds the value for $t_{0.001}$ (3.792) at 0.1 % level of probability, hence it is concluded that the mean number of ventral shields differ significantly in two sexes (Male 204.27 ± 0.61; Female 200.33 ± 0.58). The data for both sexes have been represented graphically in Text-fig. 3C.

5. NUMBER OF SUB-CAUDAL SHIELDS

Males (N = 15) : The number varies from 115—135. The mean is 125.47 ± 1.57. 13.33% of males have 132 sub-caudal shields. The C. V. is 4.86%.

Females (N = 8) : The number varies from 116—135 The mean is 127.37 ± 2.42. 25.00% of females have 124 sub-caudal shields. The C. V is 5.37%.

The mean number of sub-caudal shields does not differ significantly in two sexes.

6. NUMBER OF SCALES ROUND THE MIDDLE OF BODY.

Males (N = 15) : The number varies from 14—17· The mean is 16.73 ± 0.21. 86.67% of males have 17 scales round the middle of boby. The C. V. is 4.78%.

Females (N = 9) : The number varies from 14—17 The mean is 16.56 ± 0.34. 77 78% of females have 17 scales round the the middle of body. The C. V. is 6.12%.

The mean number of scales round the middle of body does not differ significantly in two sexes.

(15) **Xenochrophis piscator** (Schneider)

(Table 15, Text-figs. 3D & 4A)

1 (a) NUMBER OF UPPER LABIALS (left).

Males (N = 17) : The number varies from 9—10. The mean is 9.12 ± 0.08. 88.24% of males have 9 left upper labials. The C. V is 3.64%.

Females (N = 20) : The number varies from 9—10. The mean is 9.15 ± 0.08. 85.00% of females have 9 left upper labials. The C. V is 4.00%.

The mean number of left upper labials does not differ significantly in two sexes.

1. (b) NUMBER OF UPPER LABIALS (right).

Males (N = 17) : The number varies from 9—10. The mean is 9.06 ± 0.06. 94.12% of males have 9 right upper labials. The C. V is 2.67%.

Females (N = 20) : The number varies from 9—9. All the females have 9 right upper labials.

Here the variance ratio differs significantly, hence t' was computed. Since the value of t' (1.01) for sex difference does not exceed the value for $t'_{0.05}$(2.120), hence the difference is non-significant.

2. (a) NUMBER OF LOWER LABIALS (left).

Males (N = 17) : The number varies from 9—10. The mean is 9.18 ± 0.10. 82.35% of males have 9 left labials. The C. V is 4.28%.

Females (N = 20) : The number varies from 9—10. The mean is 9.05 ± 0.05. 95.00% of females have 9 left lower labials. The C. V is 2.48%.

Here the variance ratio differs significantly, hence t' was computed. Since the value of t' (1.20) for sex difference does not exceed the value for $t'_{0.05}$ (2.114), hence the difference is non-significant.

2. (b) NUMBER OF LOWER LABIALS (right).

Males (N =17) : All males have 9 right lower labials.

Females (N = 20) : All females have 9 right lower labials.

The mean number of right lower labials does not differ significantly in the two sexes.

3. NUMBER OF TEMPORAL SCALES.

Males (N = 17) : The number varies from 2 + 2 — 2 + 3. The mean is 2 + 2.06. ± 0.06. 94·12% of males have 2 + 2 temporal scales. The C· V. is 5.96%.

TABLE 15.— *Xenochrophis piscator* (Schneider). Biometrical constants of certain body parts.

S. No.	Character	No. of samples		Range		Mean ± S.E.		C.V.		't' value for sex difference
		M	F	M	F	M	F	M	F	
1(a)	No. of upper labials (left)	17	20	9—10	9—10	9.12±0.08	9.15±0.08	3.64	4.00	0.26 N.S.
(1)b	No. of upper labials (right)	17	20	9—10	9—9	9.06±0.06	9.00±0.00	2.67	—	(1.01) N.S.
2(a)	No. of lower labials (left)	17	20	9—10	9—10	9.18±0.10	9.05±0.05	4.28	2.48	(1.20) N.S.
2(b)	No. of lower labials (right)	17	20	9—9	9—9	9.00±0.00	9.00±0.00	—	—	0.00 N.S.
3.	No. of temporal scales.	17	20	2+2—2+3	2+2—2+3	2+2.06±0.06	2+2.30±0.11	5.96	10.93	(2.00) N S.
4.	No. of ventral shields.	17	20	135—158	129—152	147.59±1.54	140.75±1.21	4.30	3.85	3.54 **
5.	No. of subcaudal shields.	14	17	68—87	74—95	76.14±1.27	84.65±1.35	6.26	6.55	4.52 ***

The figure in parenthesis is not student t — see text. N.S. = Not significant. ** = Significant at 1% level of probability. *** = Significant at 0.1% level or probability.
C.V. = Coefficient of variation; F. = Female; M. = Male; S.E. = Standard error.

Females (N = 20) : The number varies from 2 + 2 — 2 + 3. The mean is 2 + 2·30 ± 0.11. 70.00% of females have 2 + 2 temporal scales. The C. V. is 10.93%.

Here the variance ratio differs significantly, hence t' was computed. Since the value of t' (2.00) for sex difference does not exceed the value for $t'_{0.05}$ (2.099), hence the difference is iron-significant.

4. NUMBER OF VENTRAL SHIELDS.

Males (N = 17) : The number varies from 135—158. The mean is 147.59 ± 1.54. 17.65 % of males have 148 while another 17.65 % have 150 ventral shields. The C. V. is 4.30 %.

Females (N = 20) : The number varies from 129—152 The mean is 140.75 ± 1.21. 15.00 % of females have 137 ventral shields. The C. V is 3.85 %.

The value of t (3.54) for sex difference exceeds the value of $t_{0.01}$ (2.724) at 1 % level of probability, hence it is concluded that the mean number of ventral shields differ significantly in two sexes (Male 147.59 ± 1.54; Female 140.75 ± 1.21). The data for both sexes have been represented graphically in Text-fig. 3D.

5. NUMBER OF SUB-CAUDAL SHIELDS

Males (N = 14) : The number varies from 68—87. The mean is 76.14 ± 1.27. 21.43 % of males have 77 sub-caudal shields. The C. V is 6.26 %.

Females (N = 17) : The number varies from 74—95. The mean is 84.65 ± 1.35. 17.65 % of females have 82 sub-caudal shields. The C. V is 6.55 %.

The value of t (4.52) for sex difference exceeds the value for $t_{0.001}$ (3.659) at 0.1 % level of probability, hence it is concluded that the mean number of sub-caudal shields differ significantly in two sexes (Males 76.14 ± 1.27; Females 84.65 ± 1.35). The data for both sexes have been represented graphically in Text-fig. 4A.

(16) **Echis carinatus** (Schneider)

(Table 16, Text-figs. 4B, C & D)

1. NUMBER OF SCALES ACROSS THE FOREHEAD.

Males (N = 20) : The number varies from 8—11. The mean is 8.95 ± 0.20. 40.00 % of males have 9 scales across the forehead. The C. V is 9.91 %.

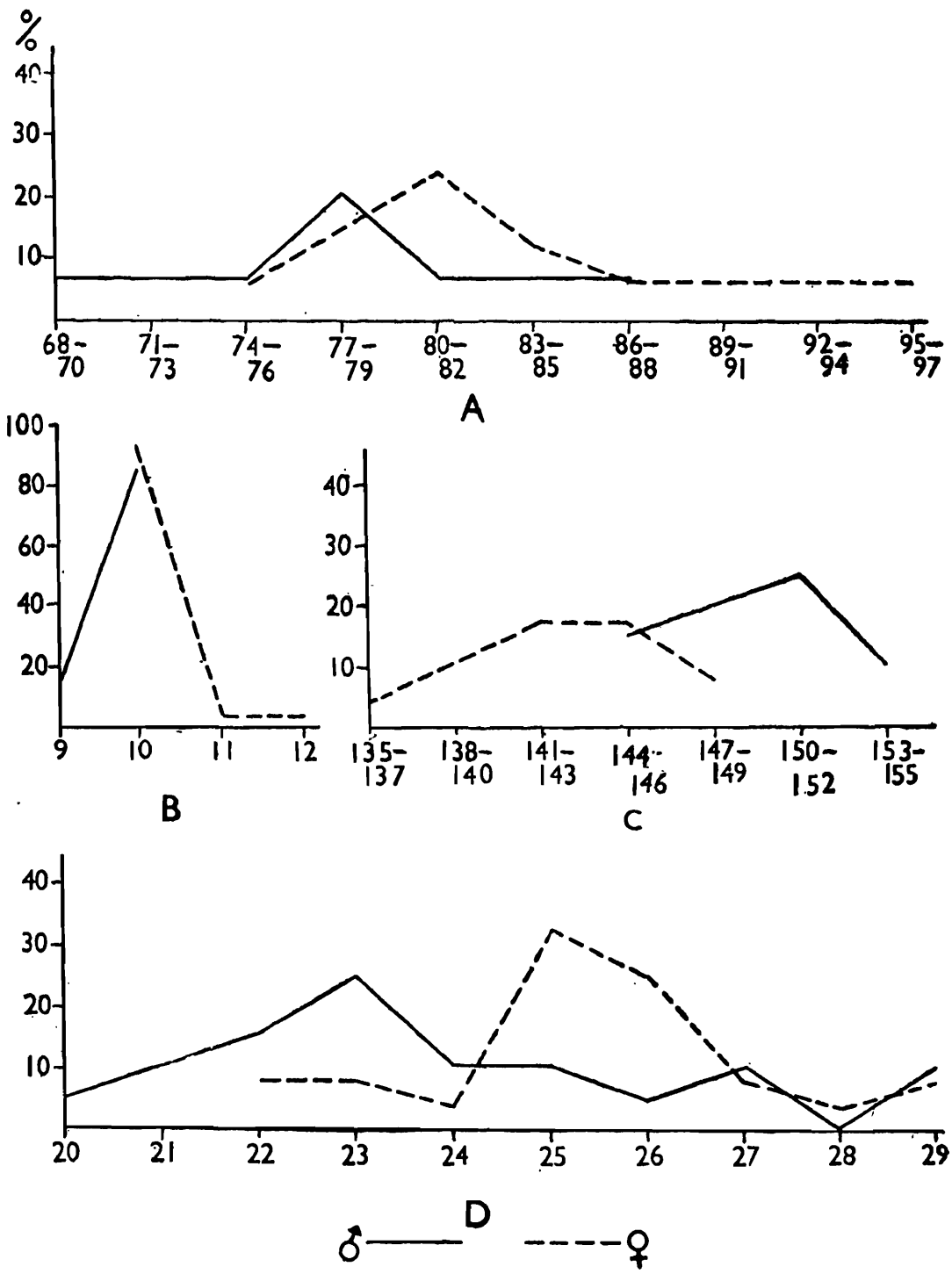
TABLE 16.— *Echis carinatus* (Schneider). Biometrical constants of certain body parts.

S. No.	Character	No. of samples		Range		Mean ± S.E.		C.V.		't' value for sex difference
		M	F	M	F	M	F	M	F	
1.	No. of scales across the fore head	20	24	8—11	8—11	8.95±0.20	8.83±0.16	9.91	8.62	0.48 N.S.
2.	No. of scales round the eye	20	24	12—15	12—16	13.40±0.23	13.58±0.22	7.80	8.10	0.55 N.S.
3(a)	No. of upper labials (left)	20	24	9—10	9—11	9.90±0.07	10.00±0.06	3.11	2.95	1.09 N.S.
3(b)	No. of upper labials (right)	20	24	9—10	10—10	9.95±0.05	10.00±0.00	2.24	—	(1.00) N.S.
4(a)	No. of lower labials (left)	20	24	9—10	10—12	9.85±0.08	10.12±0.09	3.72	4.43	2.16*
4(b)	No. of lower labials (right)	20	24	9—10	9—10	9.90±0.07	9.96±0.04	3.11	2.05	0.77 N.S.
5.	No. of ventral shields	20	24	145—154	135—148	149.10±0.65	142.33±0.64	1.94	2.21	7.36 ***
6.	No. of subcaudal shields	20	24	20—29	22—29	23.95±0.95	25.42±0.38	10.70	7.23	2.21*
7.	No. of scales round middle of body	20	24	24—30	25—30	28.00±0.40	28.75±0.23	6.35	3.87	(1.64) N.S.
8.	No. of scales round anal region	20	24	16—21	16—22	19.30±0.28	19.58±0.25	6.53	6.19	0.75 N.S.
9.	No. of scales round neck	20	24	21—26	21—26	24.10±0.28	24.25±0.32	5.19	6.46	0.34 N.S.

The figure in parenthesis is not a student t—see text. N.S. = Not significant. * = Significant at 5% level of probability. *** = Significant at 0.1% level of probability. C.V. = Coefficient of variation; M. = Male; F. = Female; S.E. = Standard error.

Females (N = 24) : The number varies from 8—11. The mean is 8.83 ± 0.16. 54.17 % of females have 9 scales across the forehead. The C. V. is 8.62 %.

The mean number of scales across the forehead does not differ significantly in two sexes.



Text-Fig. 4.— Graphs to show variations in number of scales in some reptiles from Peninsular India. Vertical axis (Y — axis) represents the percentage of specimen in a particular category; horizontal axis, the number of scales.

(A). *Xenochrophis piscator* (Schneider) (n = 0.17, 0.20) : Number of subcaudal shields. (B). *Echis carinatus* (Schneider) (n = 0.20, 0.24): Number of lower labials (left). (C). *Echis carinatus* (Schneider) (n = 0.20, 0.24): Number of ventral shields. (D). *Echis carinatus* (Schneider) (n = 0.20, 0.24) Number of sub-caudal shields.

2. NUMBER OF SCALES ROUND THE EYE.

Males (N = 20) : The number varies from 12-15. The mean is 13.40 ± 0.23. 40.00 % of males have 13 scales round the eye. The C. V. is 7.80 %.

Females (N = 24) : The number varies from 12-16. The mean is 13.58 ± 0.22. 41.67% of females have 14 scales round the eye. The C. V. is 8.10 %.

The mean number of scales round the eye does not differ significantly in two sexes.

3. (a) NUMBER OF UPPER LABIALS (left).

Males (N = 20) : The number varies from 9—10. The mean is 9.90 ± 0.07. 90.00 % of males have 10 left upper labials. The C. V. is 3.11 %.

Females (N = 24) : The number varies from 9—11. The mean is 10.00 ± 0.06. 91.66 % of females have 10 left upper labials. The C. V. is 2.95 %.

The mean number of left upper labials does not differ significantly in two sexes.

3. (b) NUMBER OF UPPER LABIALS (right).

Males (N = 20) : The number varies from 9—10. The mean is 9.95 ± 0.05. 95.00 % of males have 10 right upper labials. The C. V. is 2.24 %.

Females (N = 24) : The number of upper labials (right) is 10 in all the females.

Here the variance ratio differs significantly, hence t' was computed. Since the value of t' (1.00) for sex difference does not exceed the value for $t'_{0.05}$ (2.09), hence the difference is non-significant.

4. (a) NUMBER OF LOWER LABIALS (left).

Males (N = 20) : The number varies from 9—10. The mean is 9.85 ± 0.08. 85.00 % of males have 10 left lower labials. The C. V. is 3.72 %.

Females (N = 24) : The number varies from 10—12. The mean is 10.12 ± 0.09. 91.67 % of females have 10 left lower labials. The C. V. is 4.43 %.

The value of t (2.16) for sex difference exceeds the value for $t_{0.05}$ (2.019) at the 5 % level of probability, hence it is concluded that the mean number of left lower labials differ significantly in two sexes (Male 9.85 ± 0.08; Female 10.12 ± 0.09). The data for both sexes have been reprpresented graphically in Text-fig. 4B.

4. (b) NUMBER OF LOWER LABIALS (right).

Males (N = 20) : The number varies from 9—10. The mean is 9·90 ± 0.07. 90.00 % of males have 10 right lower labials. The C. V. is 3·11%.

Females (N = 24) : The number varies from 9—10. The mean is 9·96 ± 0.04. 95.83% of females have 10 right lower labials. The C. V. is 2.05%.

The mean number of right lower labials does not differ significantly in two sexes.

5. NUMBER OF VENTRAL SHIELDS.

Males (N = 20) : The number varies from 145-154. The mean is 149.10 ± 0.65. 25.00% of males have 150 ventral shields. The C. V is 1·94%.

Females (N=24) : The number varies from 135—148. The mean is 142·33 ± 0·64. 16.67 % of females have 143, while another 16.67% possess 145 ventral shields. The C. V. is 2.21%.

The value of t (7.36) for sex difference exceeds the value for $t_{0.001}$ (3.539) at 0.1 % level of probability, hence it is concluded that the mean number of ventral shields differ significantly in two sexes (Male 149.10 ± 0.65; Female 142.33 ± 0.64). The data for both sexes have been represented graphically in Text-fig. 4C.

6. NUMBER OF SUB-CAUDAL SHIELDS.

Males (N = 20) : The number varies from 20—29. The mean is 23.95 ± 0.57. 25.00 % of males have 23 sub-caudal shields. The C. V. is 10.70 %.

Females (N = 24) : The number varies from 22—29. The mean is 25.42 ± 0.38. 33.33 % of females have 25 sub-caudal shields. The C. V. is 7.23%

The value of t (2.21) for sex difference exceeds the value for $t_{0.05}$ (2.019) at the 5 % level of probability, hence it is concluded that the mean number of sub-caudal shields differ significantly in two sexes (Male 23.95 ± 0.51; Female 25.42 ± 0.38). The data for both sexes have been represented graphically in Text-fig. 4D.

7. NUMBER OF SCALES ROUND THE MIDDLE OF BODY.

Males (N = 20) : The number varies from 24—30. The mean is 28.00 ± 0.40. 25.00 % of males have 29, while another 25.00 % possess 28 scales round the middle of body. The C. V. is 6.35 %.

Females (N = 24) : The number varies from 25—30.

The mean is 28.75 ± 0.23. 62.50 % of females have 29 scales round the middle of body. The C. V. is 3.87 %.

Here the variance ratio differs significantly, hence t' was computed. Since the value of t' (1.64) for sex difference does not exceed the value of $t'_{0.05}$ (2.08), hence the difference is non-significaut.

8. NUMBER OF SCALES ROUND THE ANAL REGION.

Males (N = 20) : The number varies from 16–21. The mean is 19.30 ± 0.28. 40.00 % of males have 19 scales round the anal region. The C. V. is 6.53 %.

Females (N = 24) : The number varies from 16–22. The mean is 19.58 ± 0.25. 50.00 % of females have 19 scales round the anal region. The C. V. is 6.19 %.

The mean number of scales round the anal region does not differ significantly in the two sexes.

9. NUMBER OF SCALES ROUND THE NECK.

Males (N = 20) : The number varies from 21–26. The mean is 24.10 ± 0.28. 35.00 % of males have 24 scales round the neck. The C. V. is 5.19 %.

Females (N= 24) : The number varies from 21–28. The mean is 24·25 ± 0.32. 33.33 % of females have 23 scales round the neck. The C. V. is 6.46 %.

The mean number of scales round the neck does not differ significantly in the two sexes.

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SUMMARY

Certain conventional characters of the following 16 species of reptiles from different Indian localities have have been analysed statistically for showing the variability and difference between means in the two sexes (Tables 1–16), on the basis of tests of significance. The differences in all cases were deemed to be real where they were found to be significant at 5 per cent and lower levels of probability. The means have been expressed with its standard error.

Order Squamata (Suborder Sauria : *Hemidactylus brooki* Gray, *Hemidactylus reticulatus* Beddome, *Hemidactylus leschenaulti* Dumeril and Bibron, *Calotes rouxi* Dumeril and Bibron, *Psammophilus blanfordanus* (Stoliczka), *Mabuya macularia* (Blyth), *Mabuya carinata* (Schneider), *Riopa punctata* (Gmelin), *Cabrita leschenaulti* (Milne-Edwards), *Cabrita jerdoni* Beddome, *Ophisops jerdoni* Blyth. (Suborder Serpentes) : *Elaphe helena* (Daudin), *Ptyas mucosus* (Linnaeus), *Xenochrophis piscator* (Schneider), *Echis carinatus* (Schneider).

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