

Evolution Committee Minutes, Circulars, Letters, and Programme of Work

Publication/Creation

1896-1897

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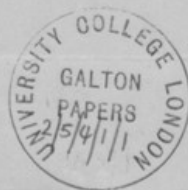
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p. 1

for conducting & statistical inquiries into
the measurable characteristics of plants & animal

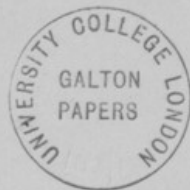
Appointed Jan 18/94 Minutes p 71

Also resolved at same time
that £50 be granted to the Don. Trust
for initial expenses & that the Cttee be
recommended to apply to Gov Grant fund
for any further sum they may think
necessary



f. 2
with power to add to their numbers
both ordinary and accessory members

enumerated under the title of



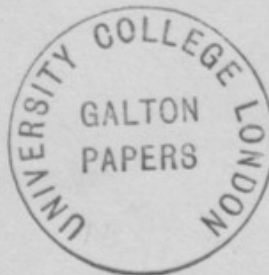
To move—That the Tsetse Fly Committee be re-appointed, to consist of Sir J. Kirk, Prof. Lankester, Prof. Sanderson, and Mr. Salvin, with Dr. Kanthack, Mr. Blandford, and Dr. Durham, as accessory members.

f. 3

To move—That the Measurement of Plants and Animals Committee be re-appointed, to consist of Mr. Burbury, Mr. F. Darwin, MR. F. GALTON, Prof. Macalister, Prof. Meldola, Prof. Poulton, and Prof. Weldon.

It was agreed that the President and Officers should be considered as *ex officio* members of all Committees, the Scientific Relief Committee excepted, and that in the cases in which a member of a Committee was appointed Chairman of that Committee, such appointment be subject to Statute, Chapter VII., Section 1.

X To move—That the International Catalogue Committee be re-appointed, to consist of Prof. ARMSTRONG, Mr. E. T. Brown, Mr. Christie, Prof. Forsyth, Prof. Lapworth, Mr. Lockyer, Mr. Love, Prof. McLeod, Dr. Mond, Mr. Salvin, Mr. D. Scott, Mr. Sharp, Mr. Teall, and Prof. Weldon, with power to add to their number.



of few ^{new} highly educated person on staff
under a ^{Chief Executive} ~~Chief Executive~~
A board of visitors divided in three
meetings as a whole 1 or 2 times a year
to meet more frequently

The Chairman's duties to be more exactly the
highgate - viz

f.4



21 summoned, including 7 committee

Idea of Darwinian Institute is old.

Wallace Romanes Cunningham

Difficulties want of actual superiors — Secretary

3 concurrent reasons now

Measurement of pedigree stock (S^o Walsingham)

Difficulty of obtaining data for ~~the~~

Down project (purely botanical)

To day's talk may lead to somewhat more consolidation

Final governance a future question

At present we are conveniently associated with a ~~club~~ of R Soc

M. Foster Meldola L^o Walsingham & Weldon



That H ^{the Chairman} and ~~B~~ members of the ^{of the N. Soc} Club
 the Messrs of P & A ^{Animals} be deputed in their to
 confer on their behalf with breeders of animals
 regarding exp^s which ^{you gentlemen} ~~the~~ might be disposed
 to undertake

Factors: Sterility varying in diff^r years, & why?

Race

Directly



Agenda for Feb 11

Minutes

Elect new Members

Dyer - C. Ewart. E J Lowe

Statement of proposed course of proceeding to-day by F.G.

Remarks by

Clarke, C Ewart, Henke

Letters read from

L. Morgan, Lowe

Appoint Sub-Committee for list of expenses (suitable for Proceedings)
(see another page for terms)

Steps if any in mean time -

applications to Zoo & Botanical Society to cooperate

to certain private persons

arrangements for maintenance of pure stocks small animals & plants

Question of a statement of our own

? defer it till after receipt of report from Sub-Committee

Application to Council R. Soc ~~to~~

to sanction new departure & to change our name

Secretarial & organising duties

how to carry on?

Grant of £100 has been provisionally applied for

? for contemplated initial expenses



Resolution

f. 8

That Baron T. Barron Poulton (Goulden) a Chairman

be a Sub Com to draw up a list of definite observations and experiments with animals and plants, suitable for determining unsettled questions relating to -

Variation

Crosses & hybrids

Inheritance of acquired modifications

Transmission of parental peculiarities

Stability of sports as compared to moderate variations

Teleology

and such other important topics as may suggest themselves.

In each case it should be stated whether the observⁿ or exper^t could be made -

a by breeders of stock

b at public establishments as Zoöl & Botanical Gardens, Agricult^l College

c by private persons disposed to assist

d at an experimental station belonging to the Com.

The report of the Sub Com to be in a form suitable for presentation by the Com ~~after their approval~~ to the R. Soc: for publication in the Proceedings. To be put into type and circulated beforehand among members of the Com for revision & approval.



That Bateson, Darwin, ~~Heape~~ Boulton & ~~the~~ chairman

be a sub cttee to draw up a definite list of ^{observations or} experiments with plants and animals, suitable for determining unsettled questions relating to
 1. Crosses & hybrids; 2. Inheritance of acquired modifications; 3. transmission of parental peculiarities; 4. stability of sports as compared with moderate variations and telegony and also any other important topics that may suggest themselves to the cttee.
 The report to be in a form suitable for the Committee to present
~~available~~ submit to the N. Soc for publication in the Proceedings. To be
 put into type & circulated among the members of the cttee for sanction after
 revision

In each case ^{it sh^d be stated} whether the ^{observations or} experiments ^{sh^d be carried on} made

- a by breeders of stock
- b at ~~Ind & Bot~~ public establishments such as Botan & Zool Gardens & Agricut Colleges
- c by private persons willing to assist.
- d at an Experimental station belonging to the cttee



work to be performed, while the establishment of a farm station remains in abeyance.

1. Mr. Heape's proposed conferences with breeders, as already approved by the Club.
2. Determination of a programme of suitable exper^{ts}.
(appoint a sub-club to draft one, and to submit to next meeting)
3. Application to Zool. & Botani. institutions and to some few private persons, asking their cooperation.
4. Application to R. Soc. for grant to partly defray cost of proposed exper^{ts}, supplementing it out of such funds as the Club may possess for that purpose.
5. Arrangements (see 3) for the maintenance of pure stocks of certain small mammals, birds, insects, and fish, for use when required.
6. Appointment of single members, or of small sub-clubs, who may each be willing to undertake the general supervision of one or more of the exper^{ts} (see 2), by corresponding with the experimenters and occasionally inspecting: to report results to the Club from time to time.
7. After the programme is sufficiently settled, application to be made to Council R. Soc. to approve of our new departure and to change name of Club.

? "Racial Club"

"for inquiry into the permanence and modifications of racial characteristics under various conditions".



F. Galton
Feb 7/97

work that ~~may be performed~~ ^{could be performed} at once ~~although~~ ^{while} the question of establishing a farm or other station ~~should~~ ^{remains in abeyance}.

D.1 Mr. Heape's proposed conferences with breeders, ^{their} already approved by the Ctee.

~~II Cooperation with the Ctee in the form of Inst: a Bolan: establishments and of private persons ^{as they have learned to believe} ~~as they have learned to believe~~~~

~~II~~ ^{Ctee to} 2) Determine ^{a programme} ~~on a list~~ of suitable experiments (Quere to be ^{to be published in the Process R. Soc.} ~~submitted to R. Soc for publication~~)

^{Ctee to} 3) Apply to Zoo & Bolan: establishments, and to some few private persons in the country, asking for their ~~and~~ cooperation

4) ~~Arrange with the above~~ ^{Ctee to} Apply to the R. Soc for a grant & defray in part the cost of proposed exp^{ts}, supplementing the same out of such funds as the Ctee may have of their own.

^{Ctee to} 5A) ~~Arrange with those in (2)~~ ^{see (3)} for the maintenance of pure stocks of ^{various} ~~specified~~ small mammals, birds, insects & fish, for future experimental ~~purposes~~

^{appointed by Ctee} 6) Single members or small Sub Ctee, ^{who may be further} ~~several~~ ^{several} undertake the supervision of one or more of the experiments, ^{by} ~~by~~ corresponding with the experimenters, ^{and} ~~and~~ occasionally inspecting: ~~and~~ to reporting the results (from time to time) to the Ctee

When the programme is practically settled, apply to Council of R. Soc to regularise our proceedings & to change our name

Quere ~~Modification of Race Ctee~~ ^{hermannsburg} ~~to~~ ^{to} ~~Inquire into the modifications of racial characteristics under various circumstances~~



Agenda

£ 12

Minutes

- 1 Statement by F9
- 2 Title, consider
- 3 Procedure
 - 1 desiderata (appoint Editor)
 - 2 Experimenters & Institutions
4. Reconsider title



PALL MALL S.W.

Plants and Animals Chce

F. 13

To further accurate observations on variation,
heredity, hybridism, and other phenomena
that elucidate the evolution of Plants and Animals



The Ctee have determined the guiding features of the proposed work, delegating us to work out the details for their subsequent approval.

We are a thoroughly representative body as regards the views that were expressed and as regards ^{applicability} ~~the~~ plants & animals.

Of the guidances laid down, 2 are negative

1. we are not to confine our operations very narrowly. (Dyer)
2. The Ctee will not as a body, carry in experts

One is affirmative

The Ctee ^{is supposed to} ~~will~~ aid, criticise, and coordinate experimenters at their own places.

Title It will concentrate our work if we can begin by even a provisional title to define the work of the Ctee; to be reconsidered ^{at the close of the meeting} ~~later~~ when our Procedure is better settled

Suggested. To further accurate observations on Varⁿ, Heredity, Hybridity, and other phenomena relating to the evolution of Plants and Animals.

(Short Title) Plants & Animals Ctee, or Evolution Ctee.

Procedure. Two lines of action were proposed, which it seems to me, may be carried on simultaneously: for they do not clash.

1. Programme of desiderata
2. List of experimenters and of what they want (Prof Weldon will explain)

1 Desiderata. Many members of the Sub Ctee have seen these letters written in answer to enquiries. I have since sorted their contents under different heads, & it w^d not be difficult to draw up a ^{fairly} ~~fairly~~ effective programme from them. Such as c^d, after revision, be published as a Report of the Ctee, and sent to correspondents who were willing to help, and desired guidance as what to take up.

The programme sh^d be balanced, not laying undue stress on some particulars, or passing too lightly over others. It should therefore be under the Editorship of some

one or two persons. It could then be set up in proof and circulated privately for remarks. After this to be revised, and sent to the CLERK as our Report to them, for final approval & adoption, and submission to the P. and Council of the R. Society.

(Nominally Editor & Editors)



2. List of experiments and establishments read Cassar Swarth's letter. Weldon to explain.

Resolution

Remember title.

Race & Variation

F. 1

List of subjects provisionally suggested as suitable for experimental inquiry into the tendencies towards Fixity or Change in Racial Characteristics.
(F. Galton Dec 1/96)

- 1 Fertility - Small, in closely related animals, character of deterioration of progeny.
- 2 Small, in widely different kinds of animals. Hybridism & results.
- 3 maximum, connected with what amount of difference in breed?
- 4 inheritance of greater or less degrees of.
- 5 Regression from parent of either sex to children of either sex, wanted a closer determination of its value.
- 6 Dispersion of children of either sex about their common average.
- 7 Measure of closeness of relationship in each of the various degrees of kinship.
- 8 ~~Correlation of characters~~ - add 15
- 9 Sports and monstrosities, their tendencies to hereditary stability.
- 9 Prepotency of various characters and traits of characters, in hereditary transmission.
- 10 Atavism.
- 11 Inheritance of acquired and of disused faculties.
- 12 Instincts, distinction between those that are natural and acquired. (Spalding's experiments)
- 13 Teleonomy, facts concerning.
- 14 Appearance of inherited disease at progressively earlier ages.
- 15 Correlation of useless characters with useful ones. see 2
- 16 Measurement of the effects of selection in particular cases.
- 17 Graft hybridism.
- 18 Tests of Pangenesis and other theories.



f. 2

Heredity
Race and Variation

See 4th 1896

Rough notes Haller

f.3

The investigations which the Cltee wish to forward ^{are more fully} ~~may be illustrated rather than defined~~. Perhaps the best guide to them ~~are not so sharp, defined as to enable a guess~~ will be the contents of the earlier part of Vol II of Darwin's *Mutations and Natural Selection* ~~estimate to be formed of the extent to which they~~ ~~are now pursued~~.

There is a want of long continued observations such as seem practicable ^{through the aid of institutions and the owners of country estates} ~~under the conditions in the programme~~ ^{which are very desirable} ~~and which are needed~~ to show whether the accumulation effect during many generations, of a possibly very small hereditary ^{in body of human} acquired modifications, in each of them, would become distinctly manifest at last. Similarly as regards ^{they are also needed} ~~the production of mimetic peculiarities~~ ~~continued and accurate observations~~ ^{to measure} ~~on the ultimate~~ effects of intercrossing, ^{in respect to stability of type,} ~~in prepotency & fertility~~ ~~are also desirable~~.

~~Besides these are~~
The following titles of papers ^{are given as} ~~will serve to~~ ^{specimens of the kind of} ~~show the scope of~~ problems of the kind now bearing on evolution that have chiefly occupied scientific men of late years. They are taken from the publications of certain Scientific Societies from the year 1890 onwards. ~~Beside these~~ ^{relating to heredity, variation, fertility, sex, &c.} a great number ~~a variety~~ of records ^{than the foregoing} but in the whole of less exact character, are to be found in the periodicals relating to Agriculture ^{to the breeding of} Pedigree Stock; also in Medical Journals.

Some titles of ^{some of the} memoirs ~~public~~ relating to Evolution,
that have appeared from 1890 onwards in the publications
of the following Societies -
Royal, Linnean, Zoological, Horticultural & Entomological

Variation Poulton Weldon ^{Vernon, W. M. Bateson} ~~Vernon~~ ^{M. J. Sweet} ~~Bateson~~ Groom

Application of higher statistics Pearson Weldon Thompson ^{Vernon} Bateson

Effects of Environment Merrifield Poulton ^{Cunningham} ~~Oliver~~ Romanes

Selection Scott Elliot, Wolley Dod, Percy Groom, ~~Locks~~

Mimicry G. Hartert

Heredity of Acquired Modifications Windle

Fertilisation Willis

Cross to Distribution Guppy Dunn Beddard Cockerell



Innocent 6.6 Merrifield ^(also 7.2, 13) 6-7 Merrifield 68 Drexel 7.4 Matthew
 Tempest Vanessa de Temp est pupal stage Phylog: signif. Climatic x space
 7.6 Bullin 2.13 Romanes 3.1. Oliver
 color variation, larvae x surroundings super helio tropic - green Urban fog on plants

Stability

6.7. Gallin
 Anthesis - organic stabilityMimicry 5.3 G. Hartert
 Cuckoos 1858

Cross breeding

5.4. Romanes
 rats & rabbits

Omities

Breeding of pter. Mullai's & others scattered in various journals
 close interbreeding
 fertility
 sex
 teleology
 inheritance
 Medical evidence on Inher: hog Fac - influence on Mother

(See p. 3 for contents)

Lilliput Trans: 1893 p. 255

copied elsewhere
But protection in *Discopleura* Percey



- o R. Soc Proc 1896 p. 273
(Math) Contribution to Theory of Evolution. Karl Pearson
- x R. Soc Proc 1896 p. 195
Observed changes in dimensions of carapace of *Carcinus Menas* Herbert Thompson
- o R. Soc Proc 1896 p. 42
Larva & post-larval development of *Leucobalanus variabilis*, p. 51. M. Minchin
- R. Soc Proc 1895 p. 69, Trans 253
Contribution to Math: Theory of Evolution III
Regression, Heredity and Panmixia Karl Pearson
- x R. Soc Proc 1895 p. 240
Note on Regression & Inheritance in the case of two Parents Karl Pearson
- o R. Soc Proc 1894 p. 5, Trans:
The pupae of the Pieridae F. Gowland Hopkins
- o R. Soc Proc 1895 p. 330
Bridges of Carapace known as 'Fingeratae' George Massee
- x R. Soc Proc 1895 p. 360
Attempt to measure death rate due to Selection & destruction of *C. Menas* in respect to particular dimension Prof Weldon
- x R. Soc Proc 1895 p. 379
Remarks on Variation in Animals & Plants Prof Weldon
- R. Soc Proc 1895 p. 382 Trans 577.
Effect of environment on Echinoderm larvae: an experimental inquiry into causes of variation. H. M. Vernon

- Proc. R. Soc 1890 none
- Proc R. Soc 1893 p 41
- x ² Experimental Proof that the colour of certain Lepidopterous larvae are largely due to modified plant pigments, derived from food E. B. Poullin
- + Proc R. Soc 1893 p. 333
- ✓ ³ Experiments in Heliotropism G. J. Norman
- x Proc R. Soc 1893 p 335
- ✓ ⁴ Experiments in Germination G. J. Norman
- Proc R. Soc 1893 p. 384
- x ⁵ Coloration of the skins of fishes, especially of Pleuronectidae B. T. Cunningham and Charles A. Mac Munn
- o Proc R. Soc 1892-3 none
- o Proc R. Soc 1892 p. 2
- ✓ ⁷ Certain correlated variations in *Crangon vulgaris* Prof Weldon
- o Proc R. Soc 1890 none
- ⁸

x R. Horticult Soc Journ 1894

Effects of urban fog on cultivated plants

F.W. Oliver

o R. Horticult Soc Journ 1894

Autumnal Tints

Harry I Veitch

R. Horticult Soc Journ 1894

3 Variability in cultivation of hardy flowering plants

Neo^d. C. ^{Wolley} ~~Wolley~~ Dod

o R. Horticult Soc Journ 1892

4 Diseases of Conifers

Prof Marshall Ward

x R. Horticult Soc Journ 1892

5 Statistics of Conifers in ^{the countries of} Eng Scot & Ireland
a list of largest specimens

Malcolm Drum

No time to do the unbound Nos 1894, 5, 6 since done no use

Suggestive Titles

(Main these papers refer to English facts)

select those that the cities might have helped
many medical on their acquitance

Fish not included

is not purely laboratory experts
requiring cooperation

Linnean Soc Journ (Bot) 1896 p 481

X 1 The Problem of Utility: are Specific Characters always or generally useful

Alfred R. Wallace

Linnean Soc Journ (Zool) 1891 p. 69-70
2 On Hermaphrodite trout and a Mackerel

Prof Charles Stewart

Linnean Soc Journ (Zool) 1889 p 312
3 Intensive Segregation

1

Linnean Soc Journ (Zool) 1890 p 448
4 Teratological evidence as to the Heredity of Acquired Conditions Bertram C. White

Linnean Soc Journ: (Botany) 1892 p. 45
5 Abnormal Cypripedium flowers

Miss M.F. Ewart

Linnean Soc Journ: (Botany) 1893 p. 218
6 Origin of Plant Structures by Self-Adaptation to the Environment Rev. G. Henslow

Linnean Soc Journ: (Botany) 1890, 1894 p. 463
7 Stipules, their forms and functions { Part I 1890
Part II 1894
Part III 1894

R. H. (ii) Lubbock

Linnean Soc Journ (Botany) 1897 p. 51
8 Fertilization methods of various flowers J. C. Willis

Linnean Soc Journ (Botany) 1892 p. 333
9 The River Thames as an agent in plant Infestation H. B. Guppy

Linnean Soc Journ (Botany) 1891 p. 386
10 Variations in the Floral Symmetry of certain plants having irregular corolla W. A. & Miss A. Bateson

Linnean Soc Journ Botany 1890. 375
11 Effect of exposure on the relative length & breadth of leaves G. F. Scott-Elliott

Linnean Soc Journ Botany 1893 p 255
12 Bud protection in Dicotyledons Percy Groom

- X ¹ Zool. Soc. Proc 1893 p 733
 Geographical distribution of Earlt worms F. Beedard
- X ² Zool Soc Proc 1892 p 585
 On some cases of variation in Secondary Sexual
 Characters, statistically examined W. Bateson
- X ³ Zool Soc Proc 1892 p. 2
 Exhibition of a series of Handed Eggs associated with
 Eggs of Cuculus canorus, and remarks upon the
 mimicry of cuckoos' eggs Ernst Haeckel
- X ⁴ Zool Soc Proc 1892 p 476
 Remarks on some Metalli recently obtained from
 the cross breeding of Rats & Rabbits G. J. Romanes
 (very brief, not a memoir)
- X ⁵ Zool Soc Proc 1892 p 214
 Geographical distribution of Slugs T. D. A. Cockerell
- ⁶ Zool Soc Proc 1890 p 579
 Some cases of abnormal repetition of Parts
 in animals W. Bateson

Zool Soc Proc: 1895 p. 850

Colour variations of a Beetle of the family of
Chrysomelidae, statistically examined

(Bates)

Zool Soc Proc 1895 p. 423

Double malformations among Snakes

Bertram C.A. Wiedle

Zool Soc Proc 1894 p. 164, 246, 391

Variations of size number & size of scales in Pilechard

(Bates)

Zool Soc Proc 1894 p. 485

Continuous variation in antler of ^{the Fallow deer} ~~Cervus~~ deer
& effects of partial & total castration

G. Herbert Forster

Entomol. Soc. Trans 1894 p. 249

Phylogeny of the Pierinae

J. F.A. Dixey

Entomol Soc. Trans 1894 p. 425

Temperature Experiments on several species of Vanessa F. Mearns

Entomol Soc Trans 1893 p. 55

Temperature experiments in the pupal stage of the
colouring of Pieris napi and 3 other species

F. Mearns

Entomol Soc Trans 1893 p. 69

Phylogenetic significance of the above

J. F.A. Dixey

Entomol Soc Trans 1895 p. 155

Questions bearing on Organic Stability

Francis Galton

Entomol Soc Trans 1896 p. 233

Counting of certain European Acridiidae

Prof. Boulton

Trans. Entomol. S. 1890 p. 89

- 1 Phylogenetic significance of the wing markings in certain genera of the Nymphalidae

F. A. Dixey

Trans. Entomol. S. 1890 p. 131

- 2 Systematic temperature experiments on some Lepidoptera in all their stages

F. Merrifield

Trans. Entomol. S. 1891 p. 155

- 3 Conspicuous effects on the markings and colouring of Lepidoptera caused by the exposure of the pupae to different temperature conditions

F. Merrifield

Trans. Entomol. S. 1891 p. 503

- 4 Effect of change of climate upon the emergence of certain species of Lepidoptera

Gervaise F. Matthews

Trans. Entomol. S. 1892

- 5 Variation in the colour of cocoons, pupae and larvae (further experiments there is one in this vol)

W. Bateson

Trans. Entomol. S. 1892

- 6 Experiments on the colour relation between certain Lepidoptera larvae & their surroundings

E. B. Poulton

Trans. Entomol. S. 1892

- 7 Secretion of Plastrin hydroxide by *Exerana binula* (imago) and the emergence of the imago from the cocoon

Oswald H. Latter

Contents

Preparatory

- 1 Procedure (continuity)
- 2 Cooperators
- 3 Breeds for experiment
- 4 Places for stations

Heredity as affected by -

- 5 Close interbreeding or panmixia (prepotency)
- 6 Hybridism
- 7 Telegony
- 8 Acquired modifications by parent
- 9 Mental influences on mother
- 11 Tendency to vary, or sport.

10 Instincts

- 11 Fraternal variation
- 12 Physiological selection

13 Parthenogenesis

14 Fertility

15 Sex

16 Period of gestation



2

Cooperation

Agricult. Colleges (Collier's)

Coast College & list of persons (C. Ewart)
 who have started exper. farms
 Glasgow Tech Coll has selected coop of some 30 farms
 He himself has 40 acres & 30 horses important factor
 (Hooker) may it not be that the whistling of
 down on an exper. farm are too costly, and could not
 the object be attained by utilizing existing inst^{ns}.
 (Hors Morgan) Organisation of work at existing
 centres should precede establishment of a farm. At
 Clifton Zoo, there are 142 men who might cooperate
 He is? serve many spec. etc. though too far to attend often
 (Karl Pearson) There is so much material already
 collected, lying unused

Corsar Report Feb 15. Suggested South Sub Ctee also Local
 Little to be relied on; their efforts are sporadic
 Bourne and they are not accurate

also at Dublin Zoo (Cunningham)



3

Breeds for Experiments

Insects have great merits - those with
 hard parts and butterflies require greenhouse
 Finches Poultry better than pigeons
 Start with a wide range from the beginning
 (McNeill) I breed about 100 dogs per annum and
 5 or 600 fowls and keep records of all my breeding
 transactions - reads his Studbook.

Sedgewick 13 can see no advantage in large animals,
 except practical men.

F. Galton 11 wanted pure stocks of small animals for
 Corsar Report Feb 15 - this large stock of animals. (Shocking 12)

4

Places for Stationing

Down & other localities

- 1) Cost price to R. Soc presumably £200
 Lady Derby might give a little - might arrange
 to let the house in summer & reserve certain rooms
 & save £100 to £150 a year (G.H. Darwin) -
- 2) Rates 1/6 1/2. Insurance say £4. Repairs £60 at least. Total 124
 Recourse coming in £20 or 25 (W. Darwin)

(Hors Morgan) Prof. Whitman's farm is hanging fire
 for want of funds

cf. Keeping records of all experiments & public utility
 (10). Improve Stud books - Vertical measures at Shrews

Existing Establishments

Private Cooperators

5

Inbreeding (see also Fertility)

Very little is known of the effects Bateson Dec 24
 persistent transmission of parental faculties
 (Sedgewick) 1899 tabulated course - a recurring renewal
 exact of inbreeding in the citrate infusoria (vide man. 1.1)
 (Bateson II 14.) Statist: ratio between closeness of parental inbreeding
 and propensity of transmission (see my suggestion) non "Fecundity"
 was inbred 9c. (Katharine) - II-7 Suggested tabular form of inbreeding
 about cattle re propensity & how to discuss them. II-8 try also
 frools say black rooster game and white high horn, keeping pure
 strain of each closely interbred as material, another as distinct
 as may be. Then cross A x B, A x B', A' x B, A' x B', might
 measure high horns. 10 other suggestions game fowl a game bantams
 II-10 Friches. Canaries of known breed & caught gold finches
 II-11. Insects (say the Poplar moth) black ones with speckled white
 offspring rarely black but are distinct - also others II-12 with
 Spilosoma. a English ordinary & Holland; & bag both ordinary & English
 Heape 14 tabulated records of results of interbreeding

Fertility

Propensity



Panmixia ()

Sedgewick
 Metaphor 12. In an apparently well established race,
 allow all individuals born, to breed; particularly black

Not self-minimised

Propensity ()

Moldova (1) of aberrant forms
 Bateson Sib-bred, over panmixia throughout

stability

6

Hybridism () see 14

(Sedgewick 1899) extensive & absurd hybridising plants named,
 to obtain new types - where failure, at what stage does it
 come in, whether after entrance of spermatozoon or before? Teleonomy.
 Change through continued action of changed conditions on heredity
 Transmission of above changes in desc: & in sex. reprod.
 There to be tried in

Fertility

Blonds or not-blonds

subsequent race history

Bateson I. 2 Breed of cattle Angus Galloway Shorthorn High
 4. Border (Friesian) 5. Sheep. 6. Canaries & Goldfinches

7

Teleonomy ()

F. G. (14) Soil and bread from pure. repeat in daughter &c.
 Heape (5) Expt in small animals
 Sedgewick 31 thorough expt in birds & mammals & plants

attempts in successive generations

8

Inheritance of acquired faculties

Meldola 2) Continuation of Balthus work
Sedgewick (3a) try in asexual organisms
also (4) (5) (6) (7)

Wallace (p1) 1 wind; 2 drought or wet; 3 soil; 4 light
(2). accumulation effect - continued under changed conditions
avoid selection of some mechanical process (Sedgewick's samples)
use vigorous plants & harvest under the various conditions
If any decided effect, it will be easy to decide as to transmissibility
p5 with animals. Pigeons, a few, but in avian, in several years
the latter will probably show differences. 2) Dye with new water.
3. Various animals a whole lot & thoroughly fed for many generations.
p7. 4. 2nd half of Balthus' p8. 6. Half with Robert a running water, to look
at the 2nd pigeon.

physical
mental

9

Mental influences on offspring (18)

Galton 7. 'Jacobine' variety, numerous sets of
correspondants.

Jacobine

10

Instinct

Wallace p9. Nest-building of birds - loose enclosure
for young birds so hatched as never to have seen nests
of their own species. Set 2 days nests by 1 of the typical nests, to show
2. The directive instinct of dogs, cats, the Bandford take
far off a watch from a distance by somebody unknown to them
& show their mode of action - what really used? 3 Repeat
& extend Spalding's experiments, use knowledge & experience in the field
or merely those conditions which render some act plausible?

various



11

Variations

The facts that come under my notice in ordinary horticulture
are mostly astounding - but generally, can't all be then reproduced
for want of accurate record of history. Dyer
(Sedgewick). change through continued action of changed
conditions in 1st & 2nd 'reproduced' - various, local, a
(Wallace 1891) Plants in country or still air & good for many years
then only as a sample of what might be done
(Sedgewick) arrange for the horticulturalists to preserve abnormal
(3) Try to breed back variations to original form (Statisticians on)
(5) Root & Colport 0 - parent (1) Paumotu (2) thoroughbred paumotu (3) Silos
(6) Parents - filial as in (5).
Meldola Per saltum variations - their kinds: prepotency

Filial
Fraternat
Co-fraternat

12

Natural vs Selection (Physiological)

Meldola 3. Batches of eggs of a variable species
bring up under different conditions, find percents
of death & of final progeny of 2nd sort.

Inhumanities

13

Parthenogenesis (20)

Sedgewick 11. Thorough investigation in recent 30
See Index: Acq: Tacalt:)

Var - a transmutation

14

Fertility

(11)

Sedgwick Thorough examⁿ of partuogoguesis
Went (1) Effect of food & (2) phenomenon of heat
 (3) Artificial insemination - especially for hybrids
 Melchior 4. Sterility of hybrids might well
 be tried on mother

see 6

Wallace p. 13 of hybrids - list of mutually mammalian
 Acute & quinea pig, Horse & Rabbit, Gazelle, Goats
 and ibex, Wolf & tame sheep - Deer (many species in each)
 Birds Ducks, geese; Partridge pheasant quail ~~game~~ ^{game} ~~game~~ ^{game}
 insects Bombycidae (etc include silk worm moth)
 Plants - cross-species from widely different places
 Twin bearing seasons of sheep. condition of F. Galton

twin bearing years

15

Sex (15)

(Sedgwick) 109. Culmination of Walrus egg in
 producing male & female Rotifers at will.

Infanticide

16

Gestation

(17)

F. Galton (8). Like L. Spencer's tables. Spruces crossed once

L. Spencer's offspring



- 3, 6 Procedure, continuity
- 9, 10 Cooperators
- 8 Breeds to exper^t
- 5 Localities for Stations

Heredity as affected by

- 4, 12, 14 Close interbreeding or panmixia (proficiency)

- 15 hybridism
- 19 teleonomy
- 1 acquired modification by parent
- 18 mental influences on mother
- 7 leading to vary & short
- 11 of instincts

- 7' Fraternal variation
- 2 Physiological selection
- 20 Parthenogenesis

- 13 Fertility
- 16 Sex
- 17 Period of gestation



Allman G. J.

Anderson J.

Argyll

J. G. Baker

A. J. Balfour

J. T. Boney

T. W. Bridge

W. T. B. Canford

Lincoln Beale

~~Baker~~

Carruthers W.

J. Cleland J.

Cunningham J. T.

Dawkins W. Boyd

Dallinger W. H.

Dyer W. T. T.

Etheridge R.



Frankland E.
Fry Justice

Galton F.
Zeikie Sir A.

Hincks, Rev. T. Hoves G. B.
Herdman W. A.
Hickson S. J.
Halliburton
Hooker Sir J. D.
Horsley J. V.

Judd, J. W.

~~Lubbock Sir J.~~

Klein E. E.
Kelvin Lord



Lubbock Sir J.
Lockyer J. N.
~~Lydekker~~ Lydekker

Mc Lachlan

Rogan Lloyd

Kivart

Mac Cormac, S. W.

Keldola

Nares Admiral Sir J.

Miall

Mc Intosh

Nestor E. T.

Oliver D.

— — — F. W.

Paget Sir J.

Parker W. N.

Pettigrew J. B.

Pitt Rivers Gen.

Playfair Lord

Poulton E. B.

Raglan Lord

Roscoe Sir H.



Salisbury, Lord

Salvin, O.

Sanderson J. B.

Schäfer A. E.

Scott D. H.

Schlater P. L.

Stebbing Rev. T. R. R.

Stirling W. Herbert Spencer

Sherrington C. S.

Thompson Sir E. Maunde
Tomes C. S.

Tristram Canon

Turner Sir W.

Williamson A. W.
Wallace A. R. Woodward H.
Walsingham Wilks S.
Vines Wharton Adm.



London: Fowler,
Bell,
Stewart,
Pollard,
Beddard,
Flower,
Günther,
Boulenger,
Bather,
Gregory,
Bury,
Penrose,
Gladden.

Bangor: White.

Birmingham: Bridge.

Booth: Chadwick.

Cambridge: Harmer,
Foster,
Newton,
Mr. Bride,
Shipley,
Caldwell,
Kaddon,
Heape,
Bles.

Cirencester: Groom.

Dublin: Mackintosh,
Pollas,
Wright,
Scharff,
Green.

Dundee: Geddes,
Thompson.

Edinburgh: Ewart,
Beard,
Traquair,
Murray,
Fulton,
Archer,
Calderswood.

Houghton-le Spring: Norman.

Galway: Anderson.

Glasgow: Laurie,
Young.

Halifax: Cash,
Davis.

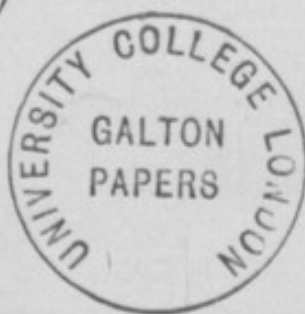
Jersey: Hornell.

Liverpool: Herdman,
Paterson,
Melly.

Manchester: Hoyle,
Hickson,
Hurst (Sutton).

Newcastle: Brady.

Oxford: Lankester,
Goodrich,
Bourne,
Garstang,
Minchin.



verifed

Plymouth: Allen,
Cunningham,
Bassett-Smith.

S. Andrews: Mr Intosh,
Williamson, Jr.

Sunderland: Brady.

Treng: Rothschild,
Harkent.

Wakefield: Tarke.

Yelverton: Rices

York: Walker.

A. R. Wallace

R. Meldola

E. B. Poulton,

E. Clarke

Roy. Agric. Soc.

13 Hanover Square

Sedgwick.

F. H. Collins Churchfield

Ewart

Edgbaston

Birmingham

Dyer

E. J. Lowe

Shirenewton Hall

Chepstow Mon.

Lloyd Morgan

Have had circulars

Sent to them

1026



proposed Circular letter
to be sent to persons who have made
experiments.

It consist of

1. The letter itself p. 1
2. The programme p. 2
3. Note to the programme
(printed in smaller type) p. 3, 4, 5



89 (1)

Circular ^{proposed} to be sent ^{to a considerable number of} persons who ^{already} have made exper^{ts}.

Dear Sir,

The Evolution Club send you their draft programme, printed below. It is still open to revision, and, in the

mean time, they w^d be much obliged if you would kindly reply to the following questions -

(1) w^d the ^{aid} assistance of a club, as described in the programme, have been advantageous to you in any of your past investigations?

(2) If so, in what particulars? (please state these fully)

(3) Similarly in respect to any other investigations you may ^{be contemplating,} now ~~have in view~~, either by yourself or by any other competent observer with whom you are acquainted?

It must be distinctly understood that the ~~proposed~~ action of the Club ^(as here proposed) is confined to preliminary assistance. The subsequent conduct of the experiment ~~would~~ be wholly in the hands of the applicant, and the credit and the responsibility ~~would~~ be his also.

[Here follows the draft programme]



Evolution Committee of the Royal Society

The observations and experiments which the Committee ~~propose to further~~^{would encourage}, are such as relate to the means by which races of plants and animals are formed and modified.

On the practical side, these investigations ^{may be expected to} ~~should~~ improve the art of breeding ~~a high class of~~ stock, by discovering the truth ^{there is a difference of} ~~when opinions differ~~ as to the value of ~~any~~ particular rules, by ~~removing~~ ~~hurtful prejudices~~, and ~~probably~~ by initiating ~~helpful~~ ideas.

The primary purpose of the Committee is to assist zealous and competent investigators — (1) by procuring information for any such person who is designing a new experiment, (2) by exerting what influence they ~~may~~ possess, to induce institutions and private persons to afford ^{him} facilities ~~for carrying~~ ~~it on~~, and, sometimes, (3) by supporting his appeal for a pecuniary grant in aid.

(Signed by whom?)

Burlington House, Piccadilly, W.
Feb 1897



[Here follow Notes (in smaller type)]

(Note) [To follow programme, in smaller type] ^{1.11} (3)

Note. The ^{significance} ~~importance~~ of the observations & experiments to which the programme refers, is ~~shown~~ ^{explained} by the use that Darwin was able to make of them, ~~in his writings~~, especially in ^{chapters XII to XXVI} the earlier chapters of the second volume of his "Animals and Plants under Domestication."

An immense amount of ~~scattered~~ ^{later} ~~subsequent~~ information ^{exists} existence, but very little attempt has been made ~~towards~~ ^{to} ~~investigate~~ ^{to} systematically ~~investigation~~ ^{investigate} of ~~numerous~~ ^{a multitude of} ~~doubtful~~ ^{important} ~~points~~ and points that still remain doubtful. There is almost a total want of long continued observations such, as might ~~possibly~~ ^{be} carried on at ~~existing~~ ^{many} public institutions and on the ~~country~~ ^{family} estates of ~~many~~ ^{many} landed proprietors. ~~Both~~ ^{who were} ~~who~~ ^{disposed to help.} ~~Such~~ ^{as would show} for instance, whether the accumulative effect during many generations, of a possibly minute heritage in each of them, of acquired modifications, would ^{at length} become manifest, similarly as regards the ^{rate of} ~~gradual~~ development of mimetic peculiarities through ^{long continued} selection. Also ^{such as would} to test the ultimate effects of intercrossings in ^{to forebodings a blending} ~~respect to~~ ^{to cause of frequency, to the formation of new varieties, to} ~~and frequency~~ ^{types, fertility, &c.} The detailed plan of each ^{separate} experiment would of course require a great deal of ^{and ingenuity} ~~thought~~ ^{on the part of the investigator}, not only to ensure its being carried ^{on continuously without breaking down} ~~to~~ ^{but also} that its results should ~~be~~ ^{be} ~~conclusive~~ ^{conclusive} and ~~valuable~~ ^{valuable}. ^{admit of no doubtful interpretation.}



The following list of titles of ^{recent} memoirs taken from the publications of some of the leading scientific societies, ~~from 1890 onwards~~ ^{will} indicate the direction ^{which the observations and} taken of the experiments ^{relating to the means by which races of plants and} ~~with which we are chiefly~~ animals are formed or modified, have taken during ~~within the last~~ ^{concerned} that have been made ~~from the year~~ ^{recent few years in this country} ~~1890 onwards~~. Many others ^{are} relating to heredity, variation, fertility, sex, &c, ^{but} ~~in the whole~~ of a less exact character than the above, are to be found in Journals & periodicals relating to Agriculture & to the breeding of stock. ^{For more of a similar kind} Much also ^{is contained} in ~~the~~ ^{the Journals & periodicals that connected with} relating to Medical Science.



● Titles of some ^{of the} memoirs relating to Evolution, that have appeared, ~~in the~~ during the years 1890 and onwards, in the publications of the following societies -
Royal, Linnean, Zoological, R. Horticultural, and Entomological.

Variation

Weldon - Var: in plants and animals (2 other papers)
Vernon - Exper: inquiry into cause of var:
W and Huf Bateson - Var: in flower symmetry (2 other papers)
Huf Everett - abnormal cyrip: flowers
~~Cunningham and Mac Munn - Coloration of fish.~~
~~Groom - Bud perfection in dioryctelids.~~

Environment

Merrifield - Temp^{expt} on Vanessa bc (2 other papers)
Boallou - Color relation, larvae & surroundings (and other papers)
Cunningham and Mac Munn - Coloration of fish
Rouanes - Expts in Fertilisation (and other papers)
Oliver - Urban fog in plants.

Higher Statistics

Pearson - Regression, Heredity & Panmixia (and other papers)
Weldon - Measurement of selective death rate (and other papers)
Thompson - Changes in Carapace length in C. Maenas
Bateson - var: in secondary sexual characters, statistically examined

Selection

Sosa Elliot - Effects of exposure on length & breadth of leaves
Wobley Dod - Var: in cultivation of hardy flowering plants
Wallace - Problem of utility
~~Groom~~ - Bud perfection in dioryctelids.

Mimicry

Hartert - Cuckoos eggs

Hered: acquires Mod:

Windle - Teratological evidence.

Fertilisation

Willis - Fertilisation methods of various flowers

Distribution

Guppy - River Thames as agent in plant distribution
Cunn - Statistics of conifers in the counties of the United Kingdom
Beddard - Geograph: distribution of earth worms
Cockerell - Geograph: distribution of slugs.



(It is assumed that the little Evolution Club will be approved by
 Council at their meeting on Thursday week)

Proposed circular letter, to be sent to persons
 who have conducted experiments successfully.

It contains -

1. The letter itself (Weldon & Bateson have copies)
2. The ^{proposed} programme (will be circulated in print)
 Bateson has also a MS. copy
3. Notes to the proposed programme (sent herewith to Bateson
 to pass on to Weldon to
 bring with him to the Club.)

I have no clean copy of [3]. Please, after reading, send it on to Weldon
 to bring with him to the Club.

This requires much revision, but will serve for the moment.

The circular letter determined on by the Sub Club, and
 about to be circulated in print, is for a different purpose to
 the above.

The first point at the Club meeting, seems to be to discuss,
 revise, and provisionally pass the programme (2)

The next to determine whether a circular letter like the
 above should be sent, as our first public movement.

If this is agreed to, to put it into the hands of a Botanist
 and a Zoologist to revise, and subject to the approval of 2 or 3 others,
 to print and issue, after our new title is approved.

There is a small but important detail, ^{as to} who is to sign the circular
 letter? It w^d have been better if my name had not appeared
 soon in the proof about to be circulated. This sh^d be considered.
 We must avoid secretarial work ourselves. Might it not be signed
 by the Ass. Sec. R. Soc? We must talk about this; it does not press immediately.





Note — to follow programme (in smaller type)

The significance of the observⁿ & experⁿ to wh: the programme refers, is explained ~~that~~ by the use that Darwin was able to make of them, especially in his Animals and Plants under Domestication Chap. ~~VI~~ LXXVI.

An immense amount of later information exists, but very little has yet been done in systematically investigating doubtful points. Long continued observations are wanting, such as might presumably be carried on at many public institutions, and on the family estates of landed proprietors who were disposed to assist. Such, for example, as w^d show whether the accumulative effect during many generations, of a possibly minute heritage in each of them of acquired modifications, would at length become manifest. Similarly as regards the rate of gain, or of loss, of mimetic peculiarities, under the presence or absence of selective agencies. Or again, as to the ultimate effects of intercrossing in respect to the blending of types into a new variety, and the degree of its fertility.

The detailed plan of each of the numerous imaginable experiments, would of course be a separate and a serious study, requiring ^{very} careful consideration in all its bearings. It must be such as w^d be likely to go on for a long time without breaking down, and its results must be such as shall not be liable to ambiguous interpretations.

The following ^{abstracted} titles of memoirs, are ^{extracted} from the publications of some of the leading societies. They show the direction taken in recent years, in this country, of investigations into the means by which races of plants and animals are formed or modified. Many other memoirs on heredity, variation, intercrossing, fertility, sex, &c are to be found in the Journals and Periodicals relating to agriculture, and to the breeding of stock, but these are on the whole, of a less exact character than the above. Much also of a similar kind, exists in those that refer to medical science.

Titles of some of the memoirs relating to Evolution that have appeared since 1889, in the publications of the following Societies — Royal, Linnean, Zoological, R. Horticultural, and Entomological.

Variation. Weldon — var: in plants and animals (also other papers)
Vernon — exper: inquiry into causes of var:
W and Miss Bateson — Var: in flower symmetry (also other papers by W. Bateson)
Miss Ewart — Abnormal Cyrip: flowers

Continued

Environment

Merrifield - Temperature experⁿ on Vanessa, &c (also other papers)
Poulton - colour relation between larvae and surroundings (also other papers)
Cunningham and MacMunn - coloration of fish
Oliver - Urban fog on plants

Higher Statistics

Pearson - Regression, heredity, and panmixia (also other papers)
Weldon - measure of selective death rate C. Maenas (also other papers)
Thompson - changes in carapace length in C. Maenas
Bateson - var. in secondary sexual characters

Selection

Scott Milt - effects of exposure in length & breadth of leaves
Wolley Dod - var. in cultivation of hardy flowering plants
Wallace - Problem of utility
Groom - Bud protection in dicotyledons

Mimicry

Hartert - Cuckoo's eggs

Hered: of Acquired mod's

Windle - Teratological evidence

Fertilisation

Willis - Fertilisation methods of various flowers
Dunn - Statistics of conifers in the counties of the U. Kingdom
Beddard - Geograph. distribution of earth worms
Cockerell - Geograph. distribution of slugs.

For consideration

Evolution Club of the Royal Society

F. 17

F. Galton

42 Rutland Gate
S.W.

Please amend freely in pencil

To _____

The Club are pleased to hear of your intention.

It must be clearly understood that the approval of the Club is in all cases limited to the object of the experiment, and does not ~~extend~~ ^{apply} to the way by which it is proposed to ~~effect~~ attain it.

The usual method ^{of the Club} is to place each intending experimenter in correspondence with one of their ^{own} body, who is especially interested in his line of inquiry.

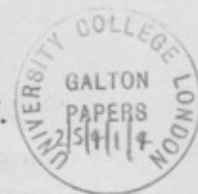
You are therefore requested in future to communicate with the Club through



who has further signified his willingness to assist, if you should ask him to do so.

He might possibly ^{be of some} help ^{to you} in ~~planning~~ ^{planning} the details of your proposed experiment, and in discussing the validity of objections to its value. Of course, the ^{the responsibility,} conduct, and the credit of the experiment will be wholly yours.

EVOLUTION COMMITTEE OF THE ROYAL SOCIETY.



To _____

This Committee has been appointed by the Council of the Royal Society to promote accurate investigations of Variation, Heredity, Selection, and other phenomena relating to the Evolution of Plants and Animals.

Those who are engaged either in breeding the various races of domesticated animals, or in scientific horticulture, have exceptionally good opportunities of making observations on the above subjects. In the course of their business attention is necessarily directed to the effects of various systems of breeding, to crosses between different species or varieties, to the transmission of parental characters, to the origin of new varieties, and to other facts of a similar nature. Breeders and horticulturists are, in fact, continually engaged in experiments on a large scale, which, if they were recorded in detail, would have a high scientific value.

The importance of such records as these is now generally admitted, and has been especially exemplified by the use that Darwin made of them in his writings, particularly in his *Animals and Plants under Domestication*.

Though publications connected with the farm and garden frequently contain notices of striking phenomena witnessed in the propagation of animals and plants, such accounts are, unfortunately, for the most part, imperfect. If the observations were more systematically made, and the facts more precisely described, and if greater precautions were taken to exclude the possibilities of error, the records obtained would constitute a most valuable body of trustworthy evidence.

Those who are professionally engaged in breeding and horticulture have, as a rule, little leisure for observing or recording their results with more detail than is necessary for their own purposes ; but it is suggested that this Committee might facilitate additional work of a more strictly scientific character, in various ways appropriate to particular cases, either by making arrangements for the maintenance of full and continuous records, or for the preservation, measurement, drawing and photographing of specimens in such a way that their essential features shall be permanently recorded.

The Committee are assured that in suitable cases this could be done without interference with the directly practical side of the operations, and they are convinced that, by co-operation between breeders and horticulturists on the one side, and naturalists on the other, numerous and valuable opportunities for observation could be utilised which are now lost.

To bring about such co-operation is one of the primary objects of the Committee. The manner in which it could be best effected must necessarily be the subject of special arrangement in each case.

The recipient of this Circular is requested to address such reply as he is disposed to send—

either to the Evolution Committee of the Royal Society,
Burlington House, Piccadilly, London, W.,
or preferably to some particular member of the Committee with whom he happens to be in correspondence.



[For consideration.]

EVOLUTION COMMITTEE OF THE ROYAL SOCIETY.

This Committee has been appointed by the Council of the Royal Society to promote accurate investigations into Variation, Heredity, Selection and other phenomena relating to the Evolution of Plants and Animals.

The primary purpose of the Committee is to assist investigators by (1) procuring information for any zealous and competent person who is designing an experiment, (2) by exerting what influence they possess to induce institutions or private persons to afford him facilities, and in some cases (3) by supporting his appeal for a pecuniary Grant in aid.

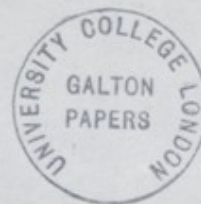
Those who are willing to conduct experiments or observations upon any of the above subjects are invited to communicate with the Committee, and to submit a full and precise account of the investigations they have in view, stating exactly the methods they propose to adopt and the manner in which they desire the Committee to assist them.

The recipient of this Circular is requested to address such reply as he is disposed to send—

Either to The Evolution Committee of the Royal Society,
Burlington House, Piccadilly, London, W.,
or preferably to some particular member of the Committee with whom he happens to be in correspondence.



[For consideration.]



EVOLUTION COMMITTEE OF THE ROYAL SOCIETY.

This Committee has been appointed by the Council of the Royal Society to promote accurate investigations of Variation, Heredity, Selection, and other phenomena relating to the Evolution of Plants and Animals.

Those who are engaged either in breeding the various races of domesticated animals, or in scientific horticulture, have exceptionally good opportunities of making observations on the above subjects. In the course of their business attention is necessarily directed to the effects of various systems of breeding, to crosses between different species or varieties, to the transmission of parental characters, to the origin of new varieties, and to other facts of a similar nature. Breeders and horticulturists are, in fact, continually engaged in experiments on a large scale, which, if they were recorded in detail, would have a high scientific value.

The importance of such records as these is now generally admitted, and has been especially exemplified by the use that Darwin was able to make of them in his writings, particularly in his *Animals and Plants under Domestication*.

Though publications connected with the farm and garden frequently contain notices of striking phenomena witnessed in the propagation of animals and plants, such accounts are, for the most part, imperfect. If they were systematically made and more precisely described, and if greater precautions were taken to exclude the possibilities of error, the records thus obtained would constitute a valuable body of trustworthy evidence.



e/ 2/1
Those who are professionally engaged in breeding and horticulture have, as a rule, little leisure for observing or recording their results with more detail than is necessary for their own purposes; but it is suggested that this Committee might facilitate ~~that~~ additional work that they desire to see performed in various ways appropriate to particular cases, either by making arrangements for the maintenance of full and continuous records, or for the preservation, measurement, drawing and photographing of specimens in such a way that their essential features shall be permanently recorded.

The Committee are assured that in suitable cases this could be done without interference with the directly practical side of the operations, and they are convinced that, by co-operation between breeders and horticulturists on the one side, and naturalists on the other, numerous and valuable opportunities for observation could be utilised which are now lost.

To bring about such co-operation is one of the primary objects of the Committee. The manner in which it could be best effected must necessarily be the subject of special arrangement in each case.

The recipient of this Circular is requested to address such reply as he is disposed to send—

Either to the Evolution Committee of the Royal Society,
Burlington House, Piccadilly, London, W.,
or *preferably* to some particular member of the Committee with whom he happens to be in correspondence.

Private 70 - - - at the rooms of the R. Soc, by Mr. Galton as
at an
Dear Sir The informal meeting convened on Dec 4 by the
Chairman of the ~~Chair~~ of the Royal Society for the Measurement
of Plants and Animals, ^{it was agreed to} request that ~~you~~ ^{you} to institute
~~an~~ ^{more}

inquiries

(1) as to the extent to which existing establishments
whether private or public might be induced to cooperate
in collecting data ^{upon} ~~on~~ ^{reference to} Heredity, Variation, ^{Also Hybridizing} and other ^{biological phenomena} influences
on the Races of plants & animals. ^{requiring continuous observation}

(2) As to the feasibility of establishing one or more
Experimental Stations for ~~the above~~ ^{the above and similar} purposes.

(where data of the above & similar character ^{might} be collected & discussed)

~~Letter on Secular N~~



The ~~Persons~~ ^{at the meeting} present, ¹³ ~~Chair~~ ^{Chair} Burby Weldon Salvin
7 Darwin Heape Melville
Letter of ~~apology~~ ² ~~of~~ ⁴ ~~the~~ ⁵ ~~meeting~~ ^{mostly of warm approval and} ~~valuable~~
suggestions ~~received~~ ^{from} the Chairman from

W. Balern E. Baine D. Cassar Stewart Prof. M. Fowler
S. H. Hodge Lloyd Morgan Karl Pearson A. R. Wallace &
Lord Walsingham, who were unable to attend the meeting

~~of the utilization~~

Francis Galton
42 H. F.

Any suggestion bearing on the above, other
than those you may have already sent, will be
gratefully received & laid before the ~~other~~

Private.



f. 23

To _____

At an Informal Meeting, convened by Mr. Francis Galton, as Chairman of the Committee of the Royal Society for the Measurement of Plants and Animals, at the Rooms of the Royal Society, on December 4, it was unanimously resolved to request that Committee to institute inquiries—

- (1) As to the extent to which existing establishments, whether private or public, might be induced to co-operate in collecting data, having reference to Heredity, Variation, Hybridism, and other biological phenomena requiring continuous observations.
- (2) As to the feasibility of establishing one or more experimental stations where data of the above and similar character might be collected and discussed.

The persons present were—*S. H. Burbury, F.R.S., *Francis Darwin, F.R.S., *F. Galton, F.R.S. (*in the chair*), W. Heape, *Prof. Meldola, F.R.S., O. Salvin, F.R.S., and *Prof. Weldon, F.R.S.

Letters, or verbal communications, relating to the objects of the meeting, and for the most part containing valuable suggestions, had been received by the Chairman from—W. Bateson, F.R.S., G. Bourne, Prof. Cossar Ewart, F.R.S., Prof. Ray Lankester, F.R.S., Prof. Michael Foster, Sec. R.S., Sir J. Hooker, F.R.S., Prof. Lloyd Morgan, Dr. J. Murray, F.R.S., Prof. Karl Pearson, F.R.S., *Prof. Poulton, F.R.S., Alfred R. Wallace, F.R.S., and Lord Walsingham, F.R.S., who were unable to attend.

Any suggestions bearing on the above subjects, other than those you may have already been so good as to send, will be gratefully received and laid before the Committee.

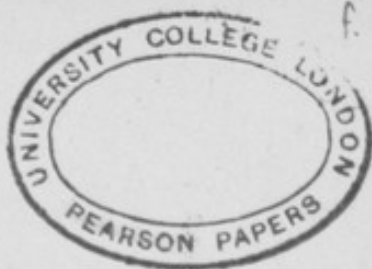
FRANCIS GALTON.

42, RUTLAND GATE, S.W.

December 5th, 1896.

* Asterisks signify members of the Committee.

Private.



To _____

At an Informal Meeting, convened by Mr. Francis Galton, as Chairman of the Committee of the Royal Society for the Measurement of Plants and Animals, at the Rooms of the Royal Society, on December 4, it was unanimously resolved to request that Committee to institute inquiries—

- (1) As to the extent to which existing establishments, whether private or public, might be induced to co-operate in collecting data, having reference to Heredity, Variation, Hybridism, and other biological phenomena requiring continuous observations.
- (2) As to the feasibility of establishing one or more experimental stations where data of the above and similar character might be collected and discussed.

The persons present were—*S. H. Burbury, F.R.S., *Francis Darwin, F.R.S., *F. Galton, F.R.S. (*in the chair*), W. Heape, *Prof. Meldola, F.R.S., O. Salvin, F.R.S., and *Prof. Weldon, F.R.S.

Letters, or verbal communications, relating to the objects of the meeting, and for the most part containing valuable suggestions, had been received by the Chairman from—W. Bateson, F.R.S., G. Bourne, Prof. Cossar Ewart, F.R.S., Prof. Ray Lankester, F.R.S., Prof. Michael Foster, Sec. R.S., Sir J. Hooker, F.R.S., Prof. Lloyd Morgan, Dr. J. Murray, F.R.S., Prof. Karl Pearson, F.R.S., *Prof. Poulton, F.R.S., Alfred R. Wallace, F.R.S., and Lord Walsingham, F.R.S., who were unable to attend.

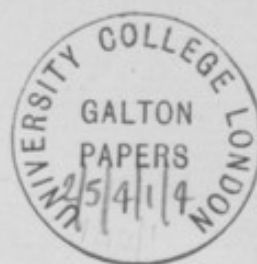
Any suggestions bearing on the above subjects, other than those you may have already been so good as to send, will be gratefully received and laid before the Committee.

FRANCIS GALTON.

42, RUTLAND GATE, S.W.

December 5th, 1896.

* Asterisks signify members of the Committee.

Private.

To _____

The following remarks will explain to the Members of the Committee of the Royal Society for the Measurement of Plants and Animals what the points are that now press for their decision. They will be asked to give their opinions in answer to the subjoined questions, at the forthcoming Meeting of the Committee (February 11, 2.30 p.m., at the Rooms of the Royal Society).

FRANCIS GALTON.

I. RESOLUTIONS PASSED.

At the last Meeting of the Committee, January 14, it was resolved to institute inquiries :—

- (1) As to the extent to which existing establishments, whether private or public, might be induced to co-operate in collecting data, having reference to Heredity, Variation, Hybridism, and other biological phenomena requiring continuous observations.
- (2) As to the feasibility of establishing one or more experimental stations where data of the above and similar character might be collected and discussed.

It was further resolved that the Chairman and Mr. Heape should be a Sub-Committee for the purpose of conferring with breeders, (i) as to problems which they are desirous of having solved ; (ii) as to a scheme or schemes of recording data bearing upon those problems which they will be willing to supply.

Additions were made to the Members of the Committee, which now consists of W. Bateson, S. H. Burbury, F. Darwin, F. Galton (Vice-Chairman), F. D. Godman, W. Heape, M. Masters, Prof. Meldola, Prof. Karl Pearson, Prof. Poulton, Mr. Salvin, Prof. Weldon.

II. SUBJECTS FOR INQUIRY.

In reply to inquiries of individual Members of the Committee, the following is a brief account of what has been suggested by them as suitable subjects for experiment, chiefly with small mammals. There is not space here for details.

Inbreeding—a sustained series of experiments.

Prepotency.

Variation—its amount and transmission.

Hybridism—extensive and extreme experiments.

Fertility and sterility under different conditions.

Co-efficients of heredity, including fraternal variation.

Panmixia (effects of natural selection being minimised).

Telegony.

Transmission of acquired modifications.

Mental influence on mother affecting the offspring (as still believed by many breeders).

III. FINANCE.

There is assurance that a sum of £2,000 would be available to start the undertaking, if a thoroughly satisfactory programme could be agreed to. Further expectations would largely depend upon whether the programme were such as to attract the interest of members of the wealthy class of persons who are engaged in breeding pedigree stock.

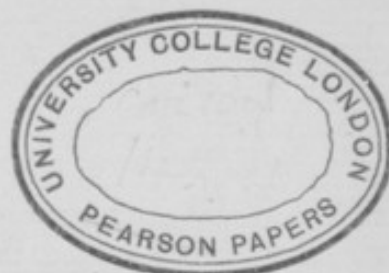
IV. QUESTIONS.

1. Is it justifiable to assume that the staff of an establishment would be likely to carry out the experiments entrusted to them by a Committee in a trustworthy manner—
 - (a) Supposing the staff to consist merely of caretakers and helps?
 - (b) Supposing also a scientific superintendent?
 - (c) Under any other available form of supervision?

- (2) According to the prevalent views of the Committee on the above points—
 - (d) What establishment and buildings would suffice for the smallest useful station?
 - (e) Where should it be located—in or near London, or near a University, or elsewhere?
- (3) How, and by whom, is the somewhat laborious organisation to be carried on previous to starting any such project, including applications for funds?
- (4) Supposing a plan to be formulated that thoroughly commends itself to the great majority of the Committee, would it be better to start it at once, out of capital, or to wait until the whole of our probable means are better known?

Private.

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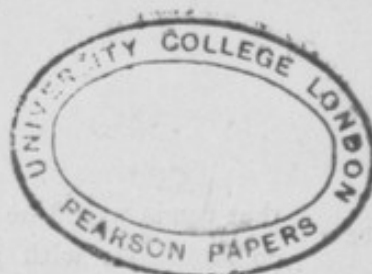
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Private.

To _____

The Committee appointed by the Royal Society, for the Measurement of Plants and Animals, propose to hold an informal meeting at the Royal Society, on Friday, December 4th, at 4 p.m., which they hope you will favour with your presence.

The purpose of the meeting is to discuss the propriety of asking aid from the Council of the Royal Society in establishing and maintaining a Biological Farm, to supply materials (mostly zoological) appropriate to the investigations on which the Committee is occupied, and for undertaking experiments in breeding during many successive generations for the use of those who study the causes and conditions of Evolution.

The general idea that such a Farm would fulfil, somewhat resembles that which was present to the founders of the physical Institute known as the "Kew Observatory," which has been for many years under a Committee of Management appointed by the Council of the Royal Society. It was to procure a place where investigators could have experiments carried on at their own cost, subject, of course, to the permission of the Committee of Management, the cost being, in most cases, defrayed out of grants in aid to the investigators, made by the Royal Society or by the British Association.

It is likely that a farm-house with 20 acres of suitably varied land, and some running water, would amply suffice, so long as the experiments were chiefly confined to small animals. The farm would be in the charge of a resident caretaker under the direct authority of a scientific superior, who might hold the office of Secretary to the Committee of Management. It would be his duty to see that their instructions were duly carried out.

Independently of the farm, and perhaps preliminary to the attempt to raise money for its maintenance, the suggested Committee could accomplish a very important service in a similar direction, for the performance of which it is believed

that funds would be immediately available. That is, they might communicate with persons, many of high social position, who are breeders on a large scale in their own grounds, thereby initiating a widely spread system of co-operation in carrying out experiments desired by the Committee. It is not to be expected that the several results would be equally trustworthy with those made under specially trained management as in the proposed farm. On the other hand, whenever it was found that similar experiments made simultaneously at many different places led to the same results, those results would eminently deserve confidence. The incidental advantage of interesting influential persons in the work of the Committee would be great.

The cost of the complete scheme does not seem likely to be very formidable. It would be chiefly made up of the rental of the farm, the erection of enclosures, hutches, etc., the small initial cost of the animals, their feed, and the wages of the caretaker and assistants. The salary of the Secretary need not at first be large, since the duties of the office would not then be so onerous as to prevent his holding other appointments.

The meeting will be asked to consider this scheme, amending and altering it as desirable, to discuss its cost, and the ways of meeting that cost. If, after this, the prevalent feeling should be in favour of further proceedings, the meeting might appoint an Executive Committee, not consisting exclusively of Fellows of the Royal Society, to examine the subject closely in its various details, to consider the precise experiments that might be first undertaken, and to report to an adjourned meeting.

FRANCIS GALTON,

*(Chairman of the Committee of the Royal Society for the
Measurement of Plants and Animals).*

42, RUTLAND GATE, S.W.

November 30th, 1896.

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42, RUTLAND GATE, S.W.

November 30th, 1896.

F
THE ROYAL SOCIETY,
BURLINGTON HOUSE, LONDON, W.

March 13, 1897.

EVOLUTION COMMITTEE.

Members of the Committee are
requested to read the enclosed and
to send any suggested amendments
at once to:-

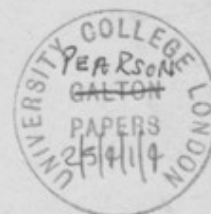
Professor Weldon,

30a Wimpole St. W.

If no objection is raised
within three days, the circular will
be considered as adopted.



EVOLUTION (ANIMALS AND PLANTS) COMMITTEE OF
THE ROYAL SOCIETY.



SIR,

I am directed to send you a copy of the following resolution,
recently passed by the organising Sub-Committee.

I am, Sir,

Your obedient Servant,

W. F. R. WELDON,

Secretary to the Committee.

30A, WIMPOLE STREET, LONDON, W.

RESOLVED:—"That a circular be issued to persons who have made
" suggestions of work to the Committee, inviting them to give a
" precise account of experiments or observations which they are
" willing to conduct, stating exactly the species or varieties of
" animals or plants they would employ, where the work should
" be done, and the manner in which they think the Committee
" could assist them ; should they be unprepared to conduct the
" experiments themselves, to communicate the names of competent
" persons who are willing to perform that work."

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" persons who are willing to perform that work."

f. 40

Evolution ^{(Animals} ~~Committee~~ ^{and Plants)} Committee

of the R.S.

Sir

I am directed to send you a copy
of the following resolution of the organ's
subcommittee:

E.

~~WPA~~

Resolved that etc.

~~WPA~~





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 have ~~suggested~~ made suggestions of work to the
 Committee, inviting them to give a precise
 account of experiments or observations which
 they are ^{willing} ~~proposed~~ to conduct, stating exactly
 the ~~species or~~ ^{species or} varieties
 the ~~animals or plants~~ ^{animals or plants} ~~which they would~~
~~propose to employ~~, where the work should
 be done, and the ^{manner in} ~~means~~ ^{by} ~~which~~ ^{where} they
^{could} ~~be~~ ^{be to} ~~think~~ ^{the} ~~less~~ ^{Committee} ~~to~~ ^{could} ~~assist~~ ^{assist} them.
 Or should they be unprepared to ^{conduct} ~~undertake~~
 the experiments themselves, ~~inviting them~~
 to communicate the names of competent
 persons who ~~would do so~~ are willing
 to ~~take part~~ undertake that work.

to direct and assist observations
and experiments relating to the
Evolution of plants and animals

That a letter be written to the Council of
the Royal Horticultural Society, asking for their
cooperation.



Chairman - Bateson - Huxley - Huxley - Huxley

1 - Minutes constituting subcommittee read.

2 -

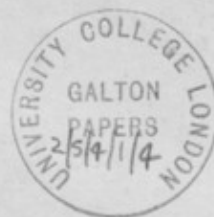
Tuesday Feb 15

F.43

accurate observation & experiments on phenomena
~~connected~~ relating to the evolution of plants & animals.



[*Private.—For consideration.*]



EVOLUTION COMMITTEE OF THE ROYAL SOCIETY.

The observations and experiments which the Committee desire to encourage are such as relate to the means whereby new races of plants and animals come into existence, and old ones are modified.

From a practical point of view these investigations may be expected to improve the art of high breeding, by discovering the truth when there are differences of opinion as to the value of any particular rule, and by initiating helpful ideas.

The primary purpose of the Committee is to assist zealous and competent investigators by (1) procuring information for any such person who is designing an experiment, (2) by exerting what influence they possess to induce institutions or private persons to afford him facilities, and in some cases (3) by supporting his appeal for a pecuniary Grant in aid.

FRANCIS GALTON,

Vice-Chairman.

φῦλον = "a set of men or any living beings
as naturally distinct from others"

Liddell & Scott

it is used in Iliad. 19. 30 for a swarm of gnats
~~for~~ elsewhere for the race of birds - of beasts
of fishes, of prophets, ^{in the sense of} ~~all~~ of
all the tribe of them"

Also as a race of people - a nation

Also as a ^{clan or} tribe of men according to blood or descent.

F. 1



Heredit^y Variation and Hybridism

A thoroughly scientific study of the above subject is of immense practical importance. The word scientific is often ~~vulgarised~~ but abused but here its sense is distinct. It applies only to studies by competent persons of numerous observations collected without bias and accurately recorded, and again of the results of experiments so wisely devised that their interpretation is ~~not ambiguous~~ free from uncertainty.

In this sense of the word, the immense sums annually spent in breeding horses cattle and other animals cannot be described as not bestowed in as scientific manner as is desirable and should be possible. Observations are not recorded accurately and without bias, on a large scale, and means do not yet exist for conducting courses of careful devised experiments in order to develop the art of successful breeding.

The skill of those who are engaged in the costly pursuit of breeding pedigree stock, may be compared to that of medical men a century and more ago. Many of them were highly astute and observant but owing to the lack of thoroughly scientific study, their rules of practice were sadly erroneous: they bled, and physicked and used drugs of vaunted efficacy, because they trusted partly to ~~their own families~~ ^{their own families} partly to observations that ~~fell in with their prejudices~~ ^{overlooked those that contradicted them} ~~and neglecting to provide themselves with carefully collected facts~~ ^{neglecting those that contradicted them}. So in respect to the rules that guide the practice of breeders, it is reasonable to believe that at some future time the retrospect of what prevails at the present day will be as unfavorable to them, as ~~our~~ ^{our} present day views of the value of medical ~~and medical~~ ^{and medical} ~~practice in old times~~ ^{practice in old times}. We may expect ~~not only~~ ^{that many} ~~errors will be discovered~~ ^{errors will be discovered} ~~in the one hand and~~ ^{in the one hand and} ~~that new rules of value will be discovered~~ ^{that new rules of value will be discovered}.



Handwritten text, possibly a title or header, written in a cursive script.

Handwritten text in a cursive script, appearing to be a list or a series of notes. The text is written on a piece of paper that is slightly tilted and has some small white marks or tears.

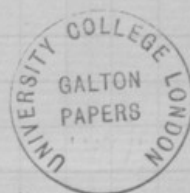
Mice

Crosses & hybrids very numerous of animals & plants

- (a) fertility of their offspring
- (b) blending or otherwise of their characters during successive generations

Sports

their stability



Inheritance of acquired modifications & faculties, very many experiments

Transmission of parental peculiarities & similarity in offspring of

- a panmixed parents
- b thoroughbreds but not closely related
- c sib parents

Telegony - numerous experiments in successive generations, always sorting mother

5. "diverse environments often shade into each other
intensibly & form a continuous series whereas the
specific forms of life which are subjected to them as
the whole form a discontinuous series"
6. Temperature, altitude, depth of water, salinity are
continuous in their gradation while as a rule the
forms of the creatures affected by them are discontinuous
Either our estimate of likeness of form or that of environment
is untrustworthy or the relation between environment
and structure is not fully adjusted
- 8.9. Embryology facts as a guide - allowance must constantly
be made for the omission of stages their intercalation, for the
presence of organs connected with embryonic life & moreover ^{closely} allied forms often develop in totally different
plans
12. Adaptation facts as a guide there are whole groups of
common phenomena concerning structure & instinct as little
white - of which no one has made even a plausible surmise
The results are meagre and the conclusions unsond. Again
while it is obvious that any instinct or organ may be of use
the real question which is unanswered is quantitative,
of how much use is it. It is hopeless to answer it
considering the complexity of the relations between an organism
& its surroundings
13. Darwin's first collection of the facts of Variation has
scarcely been increased. It is time to go on
If the whole series of the genealogical descent of any form
were before us would the series be continuous or discontinuous?
20. Repetition of parts generally, in a symmetrical pattern
is here called 'Merism'. The eye is always caught
by the formal regularity of an organised being
21. Minor & Major Symmetries.
23. (1) Substantive and (2) Meristic variation



- 26 Variation is apt to be symmetrical - much changes together, the phenomenon of similar variation of parts is common.
The fact is not surprising for all these parts arise by a process of division
- 30 We must for the present be content with the belief that in some undefined way there is a relationship between 'homologous' parts and that is what is meant by calling them homologous
- 32 (Individual members in a series - a common assumption about their phylogeny compared to that of the individual history of *Canis* etc. - - -)
36. It is possible that the resemblance between the two sides of a bilaterally symmetrical body may be in some essentials the same as the resemblance between offspring of same parent - &
Quoted me - "which follows with some chiefly to illustrate the manner in which the facts of Natural History correspond with the suggestions there made"
- 38 For a diagram of variations of horns of Lamellicorn beetle which is at least dimorphic
- 40 Earwigs - course from 583 of them (very good results)
- 43 Color dimorphism - large collection insects, butterflies, birds
- 46 berries - especially change from red to yellow & from light yellow to dark -
- 47 Effects of chemical reagents { } it is therefore very
- 48 prob: that the discontinuity between these colors is chemical
Color patterns - cats fall into color groups: black, tabby, silver gray & silver breasted, sandy, tortoiseshell, black and white, white. - Yet they mix freely.
- 49 Lady birds
- 54 Reversed varieties - right-handed, left-handed. molluscs & flat fish
- 55 Hairy fowls - angoras
- 56 Naked skins, mice -
- 57 Jaw bones - many in various - carps & other fish
- 59 Nectarines - Darwin's summary

- 63 Part of Cock roach. meaning of 'perfect' variation²
 64 and includes law of error deviations - Brattley measures.
 65 } Summary, good to quote }
 67 Parallel between discontinuity of sex & of variation - no intermediate form ...
 69 "Is it then not possible that the discontinuity of Species may be a consequence & expression of that of Variation? The suggestion is strong - see also 568"
 "Upon the received hypothesis it is supposed that Variation is continuous & that the discontinuity of Species results from the operation of Selection"
 "If the perfection & definiteness of the type is not due to selection but to the physical limitations under which Var² proceeds..." he is very cautious about pressing to a conclusion.
 71 It is possible that Meristic division may be a strictly mechanical phenomenon and that the perfection of the process is ~~unaffected~~ ^{influenced} by the fact that the various forms of variation correspond to different conditions of mechanical stability.
 Substitution variation may often be due to chemical discontinuity.
 72 Colours of plants, butterflies ^{orange red & purple - if by continuous series} - x Why is purple a good colour for this creature (a S. African butterfly)? If purple is a good color & red is a good color how did it happen that at some time or other all the intermediate shades were also good enough to have been selected? (in order to account for continuity)
 73. Some chemical facts
 74 In diseases we meet again with the same problem of discontinuity. Virchow "every deviation from the type of the parent animal must have its foundation in a pathological accident."
 75 Heredity in modern light - "the relation of parent to offspring, if it has any analogy with the succession of property, is rather that of trustee than of testator".

- 76 "On the hypothesis that all perfection & completeness of form -- is the work of Selection it is difficult (!) to explain the discontinuous occurrence of new forms possessing such perfection & completeness
- 77 Finds just fault with a passage in Darwin about the double uterus due to reversion to marvellous conditions, because by identical reasoning double headed monsters c^d be accounted for
- 78 "brilliant and facile deductions" high time they sh^d cease.

266 Variability in domestic animals is not markedly associated in wild ones. (see also 572)

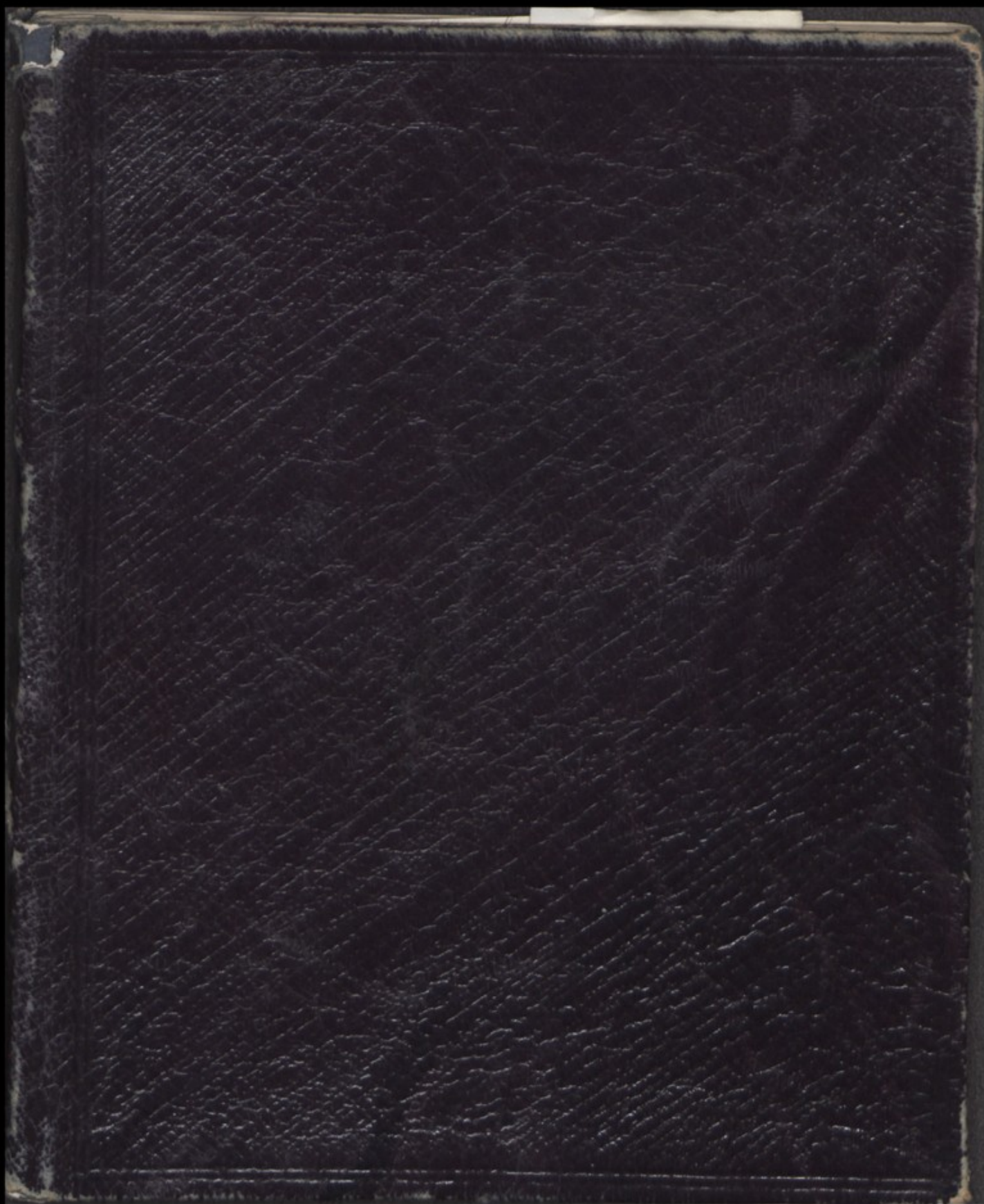
181 Mammals

561 Double headed snakes some 20 cases - several were of good size & must have lived long - 3 specimens were taken out of one brood of 120

567 Concluding reflexions - no attempt to summarise conclusions - the first object has been to bring together materials

572 Few will still ask us to believe that the fixity of a character is a measure of its importance to the organism

573 "The belief that all distinctness is due to Nat Sel & the expectation that apart from Nat Sel, there would be a general level of confusion agrees ill with the facts of Variability. We may doubt indeed whether the ideas associated with the words of speech "Pauvre" are not as false to the laws of life as the word to the laws of language.



F. Galtm
42 Rutland Gate

~~March 1994~~

November 96

Letters received before Meeting of the Cttee on Dec 4/96 P. 28 (1)

Zola Bot
sh. be combined

W Bateson "I can't say I'm glad I am that something, insect greenhouse, hybrid finches, (at least) effect of close breeding on naturalistic parental character"

G. Bourne "I can give it my most hearty approval" "accuracy of accounts is too little to be depended on - efforts are sporadic and they do not appreciate the importance of the utmost accuracy attainable"

Burbury

F Darwin "There is neither money nor enthusiasm for the two schemes - no advantage & many disadvantages" "Separating animals & plants - for insects & many birds, specialises exist in form"

Cassan Ewart

M. Foster "Most favourably disposed" "prefers to keep the two schemes separate" "Suggest E. & Lowe FRS as likely to hold upon breeding, a wealthy."

W. Heape

Sir J. Hooker "If the explanation of the origin of life can be no question" "commends scientific existing institutions as physical lab at Kew" "difficulties of getting persons with different leisure to control personally" "the sec work will be very good" "these correspondence knowledge to test"

R. Meldola "doubt advisability of saddling ourselves with a few scientific superiors"

Lloyd Morgan

"Whitman's Scheme was in the Embryonic state, does not know Clifton Zoo & friends but even too then would be disposed to cooperate in observing if brought into touch with an organized scheme"

A R. Wallace

"Had (Dec 2) just written to Boulton hoping they wd do something of the kind, but R. Soc still better but to separate but from 200"

Lord Lothian "quote" "I can at least undertake --- undertake them"

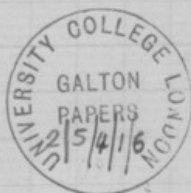
K. Pearson

"The Darwinian Institute wd be a most glorious scheme if money were forthcoming"

12 of vol 2 will come

F.2v

Extracts from letters
& conversations



29 ~~Comtee~~ ^{Letters after meeting of Clee Dec 4/96}
~~reaffirmed by Council~~ ^{with power to add ordinary accessory members.}
 Selater (at H. Perry dinner) Convocation

Dec 11. Sir J. Lubbock, will think over.

A Dec 9. Thistleton Oger. Has long thought valuable results might be got by cooperation, especially among plants, by continuous observers. - The facts seen in ordinary Horticulture are simply absorbing - but so difficult to get accurate acc^{ts} of their history - Thus Cineraria got Baleson
 A enormous possibilities of variation (policy) that select. Seen when very young of these. Thinks Huxley at Oxford virtually threw overboard - most important then to establish a body of facts secure from attack - the continuity in the difficulty - that must be unimpeachable. How to secure this? Discusses for 20 years proved a failure. The best carelessness of an abstract may vitiate all. He found it most difficult to secure accuracy in the most trifling matters. The canons of scientific certitude are not intelligible to the average mind. The only chance is in some man of means like Sir J. Lubbock or Dr. Darwin who will be content to settle down & pay away years after years carefully at the result - Good difficulty of deciding on exper^{ts} whose significance is true.

Dec 11. Mrs Romanus sent M.S. of her husband - a says "if it is a question of money let me know. His wife suggested rate for tetelegony white and wild. (? mice of different races)

Dec 9. Talk at R Soc with Salvin - Islands - Farm Ist (L. Armstrong), Lundy, Walasey, Caldy Bass, Bucklethorpe

Dec 14. Talk at Abingdon with Ray Lambert. Made notes at & certainly be written to - what matters must necessarily wait for some time

Dec 17. Sir John Lister with "have much pleasure in assisting you in any way" ^{desire} Adam Sedgwick - a full & good letter. Must have a practical object which practical people can understand once start this & the purely scientific work will follow. Appoint a man who will hit it off with breeders & be in contact with them, find what they want & where they differ & how far they go? (and their establishments be interested in them)

Dec 22. Talk at Abingdon with Sir E. Mellis - He has records of all the Basses (some 2000) bred from a few known stock and many something of birds, & a began annually as well. He read the his lecture & stud book.

Jan 5. Dr. Wainwright, & scheme of systematic obs^{rs} recording in 2 he put before breeders, drawn up in precise language for each particular line of enquiry - Is it any to join Clee

Jan 3. Balam; afterwards at Abingdon. Jabs full extent elsewhere, cross breeds for balance between killed & other cattle of various degrees of interbred ancestry - Inherent in how breeding, transferors & dilutes new facts.

Jan 5. Heape (unintelligible) infertile & its causes, (2) rules followed by breeders.

Jan 6. Godman. who is very glad to assist & serve on Clee if wanted.

Jan 7. Heape who cannot attend Clee. Sends his suggestions which I shall communicate (they are also copied in my note book)

Romanes' plan of exp^t & notes (Nov 12. Dec 11/96) (4)

Dr Leonard Hill - University Coll. knows all about them
1891 letter from S Pembrey ^{then at 1. Crowndale Road, Camden Town.} then a youth going in to final examⁿ, had
kept a breed of pigeons since a schoolboy for 8 generations (8 years), all descended
from one pair and bred in and in, eventually brothers & sisters often,
They continue perfectly fertile, their characteristics are unchanged - no
sign of colour or reversion; all are perfectly white - they are as large &
as active as the original stock

Try if any residual effect on white female rats (or mice) after being
impregnated by wild male.

May suggested exp^t which I do not copy of grafting ovaries - injecting sperm. &c

Extracts from letters

f.6

(5)

Jan 11 E J Lowe. Shall be very glad to cooperate, have worked

since 1837 (work in ferns (encloses a memoir in Soc Journ. XXXII))

Excellent man to help is Mr Richard Stratton of the Duffin near Newbark. on Council R. Agric Soc, a great breeder of cattle, Lowe I get him to help. Lowe has crossed cattle & pigs. He has strange stories about a fire transferring peculiarities of the first female he sired, to the 2^d & much else.

Jan 13. E J Lowe encloses a letter of Stratton the breeder who is willing to help - He also gives some acc^t of his ferns & book

Jan 14. Neither Salvin nor Meldola can attend Ctee E. Darwin's invitation to Ctee to down next Sunday.

Jan 14 Ctee Crit Evans Darwin Bateson Weldon & Self
Heard Haife Bateson Salvin Goodman Langdon Mallett,

Jan 15 Letter from Collins enclosures from H. Spencer & Adam Sedgwick I reply asking if Collins is himself really interested - if so I will prefer him for Ctee - may I keep the letters a little?

Question - What exper^t would you yourself wish to make on the suppositions: - a that an experimental station existed, suitable for plants and small animals ^{of all sorts} b that a system of cooperation had been established ^{between many} among several leading breeders ^{& the Ctee} for carrying on such simple exper^t as they might be expected to do well. & were recommended to them by the Ctee

Wrote to Haife, Collins, Spencer, Adam Sedgwick, Meldola asking about question
Jan 16 wrote to Salvin, Goodman, Lowe, Copan Swert. Sunday dated Jan 16. E. Clarke R. Agric. S. Poulton. G. B. Bourne, Lloyd Morgan,

Jan 18. From W. Darwin. Some rate, £65 for insurance £60 at least for repairs (total £125) revenue say £25 - Has no idea how to raise the money

- 18th Adam Sedgwick (1) Potentilla and "abundant" hybridizing to get new types. (2) when failure, at what stage? (3) teleology in birds mammals & plants (3a) amount of change produced ^{by changed conditions} on asexual organisms (4) transmission a acquired modification asexual & sexual, external conditions being maintained (5) ditto after condⁿ changed (6) as before for a variable time & no. of gen.^s (7) a sustained series of exp^s in breeding (8) ditto with occasional fresh blood & its effects. (9) inbreeding in the culture in furoria (10) continuation of (Waters?) exp^s in producing male & female Notifera at will (11) a thorough inbreed^g of parthenogenesis in insects. (12) effect upon ^{well established} a race by allowing all individuals to breed, particularly in plants

All small animals ourselves go to great breeders for large mammals - find out what they want & by suggestions increase their wants

- 18th Melville (1) per saltum develop. (2) Inker: accu. fac: too easy of color ^{beautified} ^{volley} ^{flies} (3) ^(He will speak about this in his anniversary address on 20th Oct. 1890) Physiological correlations - but be ^{brought up under} of a variety of species, ^{reared under} diff^t conditions - fine dealter - & effects of each particular condition (4) sterility of hybrid moths (very little has been done ^{see Huxley's coll.})

18th F. H. Collins - W^d be delighted to assist - His letter to "Nature" was April 17/90 p. 539 We ought to write to Weismann - De Vries - Haeckel of Jena - Gegenbaur - Dohrn? (Naples) Strasburger - Get the thing thoroughly thrashed out before beginning work at all. Then begin by renting near some important place with laboratories - New-Agricult College - Leamington - See Darwin's "Life & Letters" vol. III the last 30 pp - In notes keep sheets with various headings & enter contents of letters into these.

Jan/97

18th Reply from Clarke Sec R. Soc. 11.30 any day19th ^{20th} Reply from Lankaster, who is "thoroughly interested" but too busy for clue
I wrote F Darwin suggesting Phil Club clue, they so far assured thatwe there w^d be immediately available that I felt justified in advising contd of it
21st ^{Erasmus} ^{letter from H. Spencer} ^(I had rather muddled what he had said with Ballou)
22nd ^{F Darwin} ^{thinks in bird in hand principle the selection must be made before taken up at Cambridge}21st Heape (1) Effect of different foods and different quantities of foods on the breeding
capacities of animals and on their offspring (cannot phys: as to suitable foods for exp)(2) phenomena attending heat - also in domestic ^{in mammals} relation of heat to oovulation(3) artificial insemination - not only of same but of other species (4) a carefully
tabulated record of effects of inbreeding (5) exper^t to induce tetragony. Allthese c^d be done on small mammals, mice, rats, rabbits, guinea pigs & w^d
prove of interest to breeders eventually - exper^t to be conducted by breeder, wait & see,

but take care the money too broadly expenses (£25) is not wasted

22. Heape - has seen Ernest Clarke & will soon probably interview a breeder

26 F. Darwin - If at Camb: sh be certain under a small Camb: clue themselves under the R. Soc. clue and clue
much jealousy of Cambridge - at next meeting we sh determine whether to start clue
capital or wait till we can mainly fund income. Should set that clearly settled & sh^d wait clue & clue

25 Salmon he & Godman are so busy with their own work that they could not themselves

originate exp^t at laboratory or he will see me at the R. Soc.

27 wants sample & not exactly beginning - If all proper, really, helpful for it help considerably

29. Collier in addition to a wish that he as a business man w^d plan a scheme28 Lloyd Morgan. sample beginning, Whitman's book, faad. He thinks coop
between English & American workers desirable & helpful - Thinks some organization
of work at existing centres should precede undertaking a farm

28. Casser Inward denied with me R. Soc. Club gave list of County, Community & Breeder

28. W. M. Romanes about rats: gives names of his relations

31 Sir J. Lister - cannot give more, has done & is doing so much.

Feb 1. Meldola approves my circular in Feb 11, so I have sent it to printer

1897

f. 9 7

Feb 2. (Bateson) long careful letter re 1 Cooperative material (2 exper^s) forwarded to Wallace
He w^d be glad of a place to read his own butterfly book to, each summer when necessary

(Wallace in Feb. 1897) a long list of exper^s on various heads

(Wallace) in 1895 does not object at all to the hurriedly written letter being shown only
to them being printed

Feb 2. E. J. Lowe could subscribe mentioning many who w^d offer £ a month apart
enclosed printed account of obsec^r. faooring telegraph.

Feb 3. W^m. Romanes. Write give £25 a year for 4 years.

Feb 4. Lloyd Morgan. Clifton Zoo, will have much pleasure in assisting our Ctee. suggests
conference with Chairman.

Feb 6. E. J. Lowe. is then Curator of Clifton Zoo has been their Chairman (Harrison). He will
be much pleased to devote some of the cases to our inquiries - writes about hybrid ferus
& reads me his book. Says Stratton feels how much more we want to know in breeding
hardy cattle but how are we to master sterility? Subsequent find by the book &
some strange stories about hybrid & illegality

Feb 8. Meldola cannot attend Ctee on 11th (but he did)

Feb 11. Letter from Heape advising delay in Exper: Farm.

Feb 11. A very full & important Ctee meeting. Sub Ctee of Self-weldon Bateson Heape F Darwin, W. M. Meldola
& Charles R. Agriant quite approver of Heape plan with help Meldola

Feb 12. I write to W^m. Romanes to say I held her offer to be off under present circumstances, might apply
also to Lowe & Morgan

Feb 15. Connor Swart. Proprietor a Scotch Sub Ctee (later failed) of say 3 fellows R Soc & 3 or 4 Scotchmen
to work harmoniously with us & obtain what they c^d from Scotch County Councils &c. He has
himself a limited command over 1600 pigs & has 40 horses & a Tobie stallion, and Indian bull
& a number of dogs, rabbits, and pigeons. Prof. Cunningham told him that various exper^s are
in hand in the Dublin Zoo - an Irish sub Ctee might be formed.

