

Notes on Natural Selection, the Origin of Variety, and Further Topics

Publication/Creation

c1888

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Resemblance

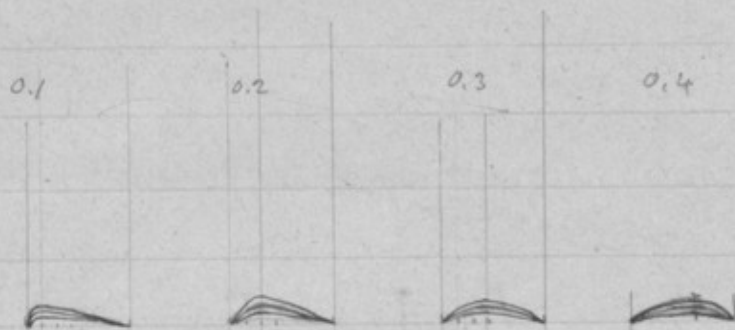
p. 1

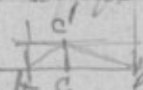


The publication of Mr. R. very important memoir, describing
 origin of species being due to infertile peculiarities in the reproduction
 system of individuals ^{of which they are composed} ~~which~~ ^{these} infertile to other individuals
 their group while fertile into it, induces ^{more} ~~the~~ ^{many} ~~the~~ ^{prominently} than I had
 otherwise supposed, on ^{earlier} ~~earlier~~ ^{about} ~~some~~ ^{views} ~~of my own~~ ^{conception} ~~which I have~~ ^{known} ~~long~~
 they would perfectly concur in the description that Mr. Romanes views are true & correct
 but had it not been in view of that dis. ~~which~~ ^{which} ~~has~~ ^{been} ~~of a somewhat~~ ^{of a somewhat} ~~parallel~~
~~kind~~ ^{kind} ~~of the~~ ^{of the} ~~which~~ ^{which} ~~agree~~ ^{agree} ~~It seemed to me that the primary~~
~~peculiarity of species~~ ^{was expressed as a rule} ~~fact is that individuals do not~~ ^{with those} ~~mate with others or except others~~
~~of their own species~~ ^{but have a strong influence to do so.} ~~Therefore that the tendency~~
~~that a species is a variety rounded off by the peculiarities of sexual instinct~~ ^{compensated}
~~off of species should be looked for as a phenomenon due to a modification~~
~~of the sexual instinct in individuals~~ ^{its separation from its earlier members} ~~certain resemblances~~
~~that make them to~~ ^{or rather, exogamy} ~~were rounded off~~
~~marked by infertility in exogamous pairings~~ ^{if they came were as Mr.}
~~Romanes put it~~ ^{we should find varieties} ~~of the same kind~~
~~animals of different species freely pairing together~~ ^{in infertile marriages, but this is not the case}
~~when from~~ ^{at the same time} ~~but we do not~~ ^{again, when} ~~animals~~ ^{animals} ~~of different varieties are kept together~~ ^{but apart}
~~under the pretence of sexual desire~~ ^{needs} ~~not otherwise to be satisfied~~
~~occasionally induce them to pair & when they pair occasionally to breed hybrids~~
~~allayed, and hybrids are to be found in many cases thus produced~~
~~Natural hybridism would frequently occur in nature if~~ ^{only a moderate amount of mutual}
~~with selection A & B were the primary cause of~~ ^{of them} ~~separate~~
~~varieties~~ ^{fundamentally, at their} ~~the basic argument would apply to~~ ^{plants} ~~flowers as~~
~~well as animals~~ ^{by that} ~~that~~ ^{that} ~~can be hybridized artificially~~ ^{are} ~~are~~ ^{are} ~~found~~ ^{found} ~~hybrids~~

Foreheads outline of independent of their shape

f.3



Taking the distance between brow-ridge ^b & the lip-parting as unity then a length of the forehead = 0.7 from the brow-ridge has to be described, call the upper limit of their forehead-length f . Join bf . Let the point on the forehead that is most distant from bf be called c' .  draw cc' perpendicular to bf . Then the first division of the forms of foreheads is according to the distance of c from b . whether it is ^{most nearly} 0.1, 0.2, 0.3 or 0.4. The other cases do not occur. The range of cc' is between 0.05 and 0.15. Three cases in each of the four forms may be taken (1) $cc' = 0.15 \pm 0.03$; (2) $= 0.10 \pm 0.03$; 3 = 1.05 ± 0.03 . In all of these the maximum thickness of the line will be 0.06 and this will be at c' . Hence it slowly lessens on either side & comes somewhat abruptly to a point both at b & at f . Thus there are $4 \times 3 = 12$ cases in all.

over

on the one hand agreed harmful breeding in x in y or
 the other hand ^{appears to me the primary aspect} it sounds off a species.

There is yet ~~to be seen~~ ^{do} not even yet touch ground

I wish I saw my way even ^{under} the faintest glimmer of light
 to the solution of

the question that underlies & connects the two hypotheses
 of the exogamic infertile & endogamic instinct

namely why it is that as a ^{wherever} rule, sexual instinct & fertility
^{is generally} go together, ^{the capacity for} mutual fertility & is generally associated with ^{sexual} sexual
^{attraction} instinct, which the incapacity for it in animals ^{that seem to} ~~apparently~~ ^{is} closely
 alike in all ^{other} ~~obvious~~ external characteristics (as in ^{two slightly} ~~two~~ slightly
 differing varieties) is generally associated with repugnance?

I also have a theory ^{it is} different from his though it runs on parallel lines & was prompted by the same keen sense of an inadequacy in the theory of Natural Selection to account for the origin of varieties. I should not however have published it ~~until it had been~~ more fully worked out ^{extensively} in the directions I had the present occasion not arising until it had been more matured.

Origin of Varieties

not
wrote from abroad a book not
yet been the ~~same~~ original
manuscript published by the Linnæan
Society

45

The publication by W. Romanes, ^{in the last three numbers of Nature} of his very
important ^{contribution to} ~~memoir~~ ^{book} in which he ascribes the
origin of Varieties ^{in large part} of animals and plants to
peculiarities in the reproduction systems of certain
individuals, ^{which} ~~that~~ render them more or less
sterile to outsiders while they remain fertile
among themselves - induces me to send the
following lines - They are forwarded as a

contribution to the discussion that the ^{late} ~~de~~ memoir
by ~~W. Romanes~~ is due to Cooke ^{though} ~~but~~ ^{under the circumstances}
should say that had this occasion ^{not} arisen
I should certainly have ^{hesitated} ~~hesitated~~ ^{perhaps from humility}
^{own feelings which runs parallel to that of W. Romanes though I am not prepared}
^{my view} ~~until~~ ^{had} been better prepared
to develop them ~~it~~.

It has long seemed to me that the primary
characteristic of a separate Variety ~~should~~
be looked for ^{rather} in the fact that the individuals
who compose it do not, ~~case~~ ^{as a rule} ~~case~~
case to mate with ^{all those who are outside its pale,} ~~individuals of another~~
^{but form through reciprocal inspiration a caste by themselves}
~~varieties~~ ^{and} ~~therefore~~ ^{consequently} that each Variety is ^{probably}
rounded off ^{independent} from ~~its~~ ^{the} neighbors by peculiarities
^{out of the middle of the parent stock} ^{means of sort}

of sexual instinct which prompt ^{what apothropologists call} endogamy, ^(a marriage with a horse) and check exogamy. ^{which} If a variety ^{arose or supposed} ~~was~~ ^{was} ~~once~~ ^{was} ~~merely~~ ^{merely} ~~became~~ ^{became} ~~fast~~ ^{fast} that its members were more or less infertile with those of others. Sprung from the same ~~parent~~ ^{original} stock, we should continually find cases in which members of the variety ^{combined} ~~paired~~ ^{where} ~~with those of the parent stock~~ ^{if long as the period of mating was the same}. These unions might be sterile, but they would occur all the ^{same}. Again we should frequently find ^{many} hybrids ^{with} ~~between~~ ^{with} ~~the~~ ^{state} ~~varieties~~ ^{the} ~~parent stock~~ ^{parent stock} whenever they ^{both} ~~lived~~ ^{lived} ~~at large~~ ^{at large} in the same ~~district~~ ^{district} had similar periods of mating and were ^{found} ~~capable~~ ^{capable} of producing hybrids when ^{they were} ~~mated~~ ^{mated} artificially. But we hardly ever observe pairings of such a description among ^{such} ~~animals~~ ^{of different varieties when living at large in the same district}, and we hardly ever meet with hybrids to testify to the existence of unobserved pairings. Therefore it seems to me that the hypothesis of Mr. Romanes fails while that which I have sketched out would stand.

The same kind of argument applies to plants. If

both is steady breeze -
having, however, a small breeze

If insects visited promiscuously ^{both} the flowers of an incipient variety & those of the parent stock - supposing their reproductive organs to be ^{in both cases} alike, and their periods of flowering ^{to be} the same, and that hybrids ^{begeth} could be produced by artificial cross-fertilisation - then we should expect to find numerous cases of ~~such~~ hybrids ^{in abundance} whenever members of the new variety and those of the parent stock occupied the same ^{closely or contiguous} districts. It is hard to account for our not doing so, except on the supposition that insects feel a repugnance to visiting the two varieties promiscuously interchangeably.

No theme is more trite than that of the sexual instinct. It forms the ^{principal} ~~subject~~ of a principal subject of each of the many hundreds of novels and of ^{the still more numerous} ~~most of the~~ poems that are annually written in England alone, but one of its main peculiarities has never so far as I know, been ^{even} yet clearly set forth. It is the relation that exists between different degrees of contrast and different degrees of sexual attractiveness. When the ~~female~~ male is little ^{at all} attracted by close similarity.

The attraction ^{rapidly} increased as the difference in any given respect between the female & the male increases, but only up to a certain point. When this is passed, the attraction again wanes until zero is reached. When the diversity is still greater, the attraction becomes negative & ~~it~~ ^{and} passes into repugnance, as moderately fair men ^{most} feel towards a woman of a negro tint. I have endeavored to measure the amount of difference that gives rise to the maximum of attractiveness between men & women, both as regards eye-color and stature, chiefly using for that purpose the data contained in my collection of "Family Records" and have succeeded in doing so roughly and provisionally. To determine it thoroughly and to lay down the ordinates to a curve of attractiveness in which the abscissae represent ^{or the ordinates to the strength of attraction} are proportional to the amounts of difference, would require fresh & special data that have yet to be collected & discussed and about which I will not now speak. Suffice it to say that such inquiries as I have made,

f9v

~~6.24~~

8
9
17

6
4
10

only the differences which we are able to recognize as distinguishing one variety from another, may connote a host of unseen differences the aggregate of which would be amply sufficient to erect a barrier of ~~sexual indifference~~ ^{sexual indifference} ~~mutual sexual repugnance~~ between those varieties.

7 9

Nancy 112	8.22	10.24
Chalons arr	1.27	1.43
Chalons dep	2.46	
Rheims arr	4.29	
Laon arr	6.28	
	7.34	
Torgny 101		

Rheims & Amiens 101. B.

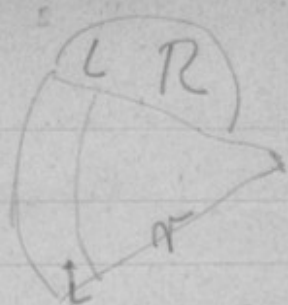
Nancy & Montmedy Longwygn
114. A

Longwygn & Montmedy & Mezieres
113. G

Mezieres & Hursin
113. E

Hursin & Valenciennes
100 E

Rheims ^{arr} dep	5.25	8.52
Laon dep	6.49	
Amiens arr	8.38	1.28
dep		3.2
Bouligne		5.37



if $s/q = 6$

140v

$$\pi(r+l^2) = 6\{\pi(r+l^2) - r^2\}$$

$$r^2 + 2lr + l^2 = 6[2rl + l^2]$$

$$r^2 - 10lr - 5l^2 = 0$$

$$\sim \pi\{R^2\} = \pi\{6\{R^2 - 2lR + l^2\}$$

$$5R^2 - 12Rl - 6l^2 = 0$$

$$R^2 - \frac{12}{5}Rl + \frac{6}{25}l^2 = 6l^2 + \frac{36}{25}l$$

$$R - \frac{6}{5}l = \sqrt{\frac{156 + 36}{25}}l$$

$$R - \frac{6}{5}l = \sqrt{\frac{180}{25}} \times l$$

$$= \frac{13}{5}l$$

$$R = 4l \text{ about}$$

$$\begin{array}{r} 13 \\ 13 \\ \hline 39 \\ 13 \\ \hline 169 \end{array}$$

p. 11r

those habits of plants and animals
which are prompted by their individual needs

who first propounded the Theory
elaborated by his more distinguished grandsons
[?] Charles Darwin, remark
and elaborated by

by his own illustration given by Charles Darwin
which ascribes to individual animals a filiality
when severally struggling for their separate well being
the indirect unconscious and highest function
of furthering the development of their respective races
and of perfecting nature as a whole

which ascribes to the self preserving impulse of a filial
affection of individual animals and plants
the indirect and higher function
of furthering the development of their respective races
and of perfecting nature as a whole

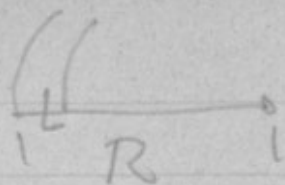
which ascribes to the activities
 prompted by ~~the~~ individual needs and appetences
 of ~~the~~ animals & plants
 the secondary & higher functions
 exercised indirectly in various ways through interaction

of modifying their respective powers
 both in form & intensity
 as closer adaptations to the conditions under which they exist
 and thus of furthering
 the development of organic nature as a whole

In Memory of
 ERASMUS DARWIN MD; F.R.S.
 Physician, Philosopher and poet.
 Author of Zoonomia, Botanic Garden, &c.,
 (Earliest propounder of the Theory
 elaborated by his more distinguished grandson
 Charles Darwin
 which ascribes to the appetencies of plants and animals
 prompted by their individual needs,
 the indirect and higher function
 of modifying through inheritance
 the forms and instincts of their respective species
 in continually increasing adaptation to their external conditions,
 and thus furthering the development
 of organic nature as a whole. 1802.

b. 1731; resided in this city 1756-81; d. 1802

$$sh \cdot g = 13$$



f12v

$$\pi R^2 = \pi \times 13 \{ R^2 - (R-L)^2 \}$$

$$R^2 = 13 \{ 2RL - L^2 \}$$

$$R^2 - 26RL = -26L^2$$

$$R^2 - 26RL + 139L^2 = \cancel{R^2} 113L^2$$

$$R \approx 13L = 10.5L \text{ about}$$

$$R = 23.5L \text{ about}$$

say $24L$

or 1 inch thickness of $L = 48$ or $4\frac{1}{2}$ inches
of cylinder

probably $\frac{1}{50}$ in w² do for the purpose

of More theories of D.

C. D.
 which ascribe to the vital acts of plants & animals
 though primarily performed
 in response to the pressure of their individual needs
 the secondary but higher function
 of contributing to the vigor of their respective races,
 through links of hereditary transmission,
 thus bringing their forms and instincts
 in increasing adaptation
 both to one another & to the physical conditions of their lives,
 thus working toward the perfection
 of organic nature as a whole.

exercised their indirect but certain, influence
 through links of hereditary transmission.

Earliest profounder of future theory
 largely substantiated by his more detailed ground plan

which ascribes to the operations of animals & plants
 which are primarily prompted by their individual needs, and trace
 the secondary, unconscious, but higher function
 of modifying through inheritance

by various indirect and slow though sure ways
 the forms and instincts of their respective races,
 as continuous adaptation
 to the steadily changing circumstances of their external life,
 and thus furthering the evolution
 of organic nature as a whole.

the increasing adaptation
 to each other & to their physical surroundings,
 and thus and thus of furthering the
 the development of organic nature as a whole

Clothes

Drap best.

New Shirts - Black cord & 1 waistcoat

(Thin Brown suit on)

Old suit for work

Boots at abroad &

cap
2nd/6 Postat order
to H.C. Stewardson

f.15

Books Logarithm B.A.s. Topmin
Life of Darwin
his memoirs

Photo Appar moderately int (I at all)

Camera Lucida

Double image prism

Photo Stores book

Blues
order Eastman's
dishes

Wine with us 1 Marsala 2 pint Claret 1 Whiskey

to follow 3 Marsala 1 Whiskey 1 Brandy 6 Claret

What to do

Write lecture on Chance

Bother about profiles

write
address to Emma
Horn R

address to Horn
Stewardson with P.O. 2nd/6
Blotum with address
Darwin's photo to
the photographer address
6 which

Foreheads slope of

The slope ^{of the} seems very independent of the outline
& it ranges between -10° and $+20^{\circ}$, or through 30°
If determined to 5° it is ample, this gives 6 cases.

Hence the total combinations of outline & slope may
be taken ^{at first} as $12 \times 6 = 72$ but this figure might ^{be} much reduced

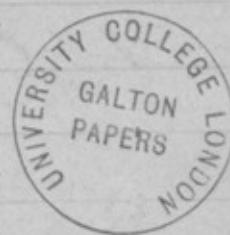


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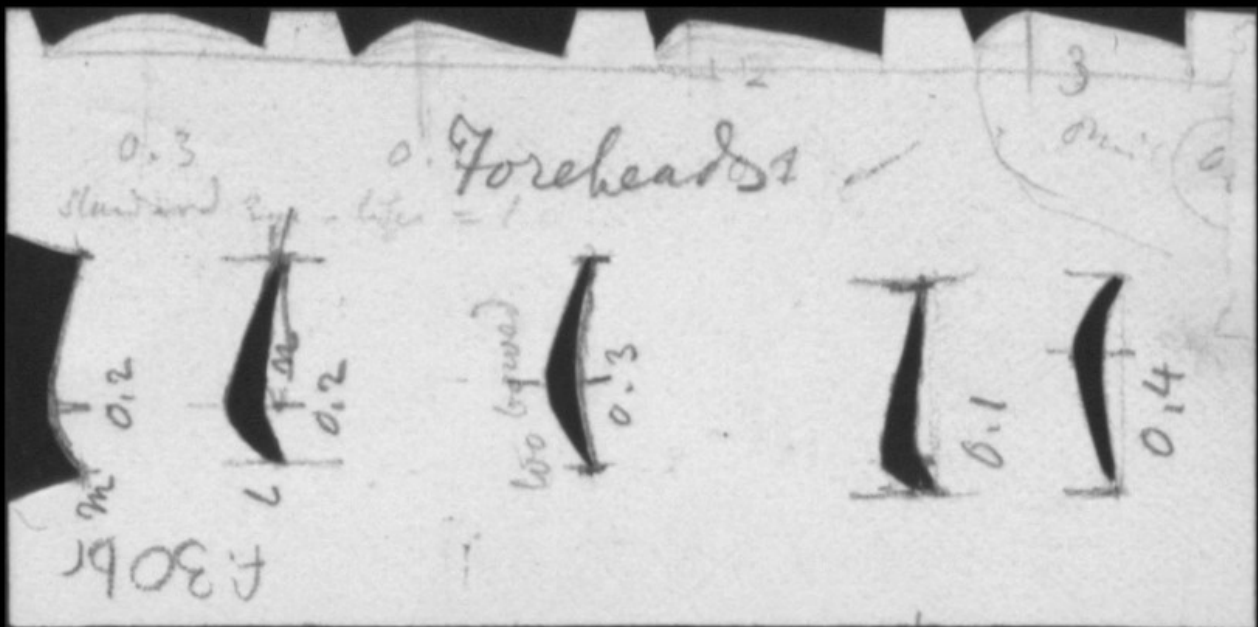


f.30a1

Portrait		Positions				Outlines					Bands		
Plate	No	Forehead slope	nose tip	nose notch	chin tip	forehead	nose ridge	nose base	upper lip	lower lip/chin	lower notch	chin tip	nose notch
I	1	2	u	m	a	2	5	1	6	6	4	2	4
I	2	5	m	i	e	5	5	4	4	2	4	3	2
I	3	3	m	i	f	1	6	3	2	5	6	6	6
I	4	7	m	h	c	2	6	2	2	2	6	1	2
I	5	5	k	i	c	3	3	7	6	3	1	6	1
I	6	2	n	m	L	7	3	2	6	1	7	6	4
II	1	5	t	i	c	3	4	7	6	2	2	8	4
II	2	1	k	n	e	6	7	3	3	7	7	6	3
II	3	7	x	t	c	3	2	4	2	3	6	3	6
II	4	5	m	L	c	1	2	2	3	1	1	2	3
II	5	2	m	L	a	8	5	10	6	4	7	1	6
II	6	7	t	m	r	4	4	7	2	1	7	3	2
III	1	4	g	i	g	2	4	10	4	1	6	3	2
III	2	6	u	L	b	2	4	3	4	3	6	2	4
III	3	5	u	i	b	2	2	3	1	1	7	6	4
III	4	3	n	L	n	1	4	6	3	1	6	8	3
III	5	6	p	L	m	4	4	2	2	3	6	2	6
III	6	5	t	p	b	2	4	2	3	1	7	6	3



1300a



Mr Galton

f.30br

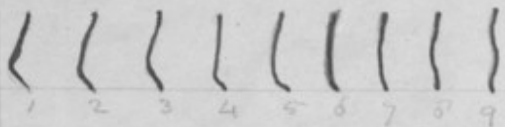
Mr C. J. Lambert.

will be greatly obliged by
the loan of "La Morte"

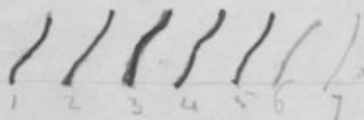
Union Club.

0.11
11.8
0.15

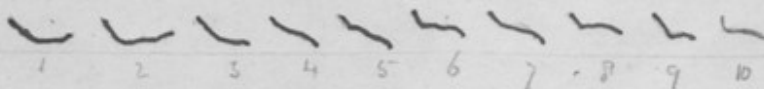
Foreheads



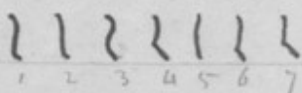
nose ridge



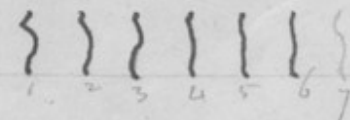
nose base



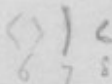
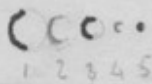
upper lip



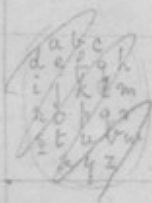
lower lip to
chin tip



critical bands



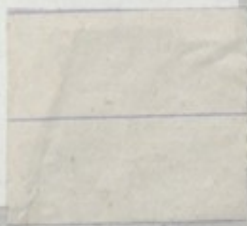
a b c d
e f g h
i j k l
m n o p
q r s t
u v w x y



131



f32



Rue S^t Honoré 209
DUPONT
Papeterie et couleurs fines