

## **Notebooks on Visualising Inquiry**

### **Publication/Creation**

1864-1880

### **Persistent URL**

<https://wellcomecollection.org/works/bbdtskgc>

### **License and attribution**

You have permission to make copies of this work under a Creative Commons, Attribution, Non-commercial license.

Non-commercial use includes private study, academic research, teaching, and other activities that are not primarily intended for, or directed towards, commercial advantage or private monetary compensation. See the Legal Code for further information.

Image source should be attributed as specified in the full catalogue record. If no source is given the image should be attributed to Wellcome Collection.



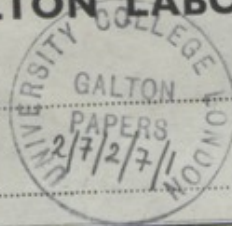
Wellcome Collection  
183 Euston Road  
London NW1 2BE UK  
T +44 (0)20 7611 8722  
E [library@wellcomecollection.org](mailto:library@wellcomecollection.org)  
<https://wellcomecollection.org>

University of London, University College, W.C.1.

## THE GALTON LABORATORY

Presented by.....

Purchased.....



19

Not noted and

University of London

0207 x 210

used or might have  
been used in London  
Faculty - May be worth  
looking at again





The search for a theory to explain Heredity, is like that made by travellers in successive expeditions, through a district cut up by canons and abounding with ~~unpassable~~<sup>dense</sup> thickets, to find a way to some distant peak whence a panoramic view of the whole country may be gained. Each expedition learns something more of the possibilities of the way, than was previously known, so that long before the peak itself has been conquered, it ~~is possible~~<sup>has become</sup> ~~advisable~~ to put markers as signposts. If ~~flourish~~<sup>succeed</sup>, travellers against certain openings which appear promising, but have been found ~~hopeless~~<sup>hopeless</sup> and to point out others ~~which might have been overlooked~~<sup>which might have been overlooked</sup> but have been found to afford good paths for a long distance in the desired direction.

My object is to put up one of these sign posts at a place where two <sup>principal</sup> routes diverge. I wish to show that the various hypotheses concerning the nature of heredity, to say which of them ought to be followed ~~and I will show that it explains~~<sup>by following the path of least resistance</sup> has it rapid,

scales the hill and leads <sup>attaining a position</sup> ~~up to~~ <sup>roughly</sup> where <sup>a large part</sup> ~~many of the~~  
 principal features of the county can be seen.  
 though I do not profess to know <sup>any further</sup> ~~the way~~ <sup>still less can I</sup>  
<sup>act as a guide for</sup> the peak itself, whence <sup>one of them</sup> every feature of it is  
 openly displayed, as in a map.  
 But I do not profess to have explored the way any  
 further; much <sup>do I know</sup> ~~less~~ <sup>the path that leads</sup> to the peak itself, whence  
 every feature of the county ~~without exception~~ <sup>might</sup>  
 appear ~~clearly~~ <sup>as distinct</sup> displayed, as in a map.

~~The bifurcation of which I speak is this. The~~  
~~many hypotheses that have been put forward concerning~~  
~~heredity can be divided themselves into two groups, which~~  
~~may be respectively called the molecular & the~~  
~~non-molecular hypotheses; none of them lies~~  
~~between the molecular and non-molecular views~~  
~~of heredity, one or other of which~~

~~The bifurcation of the route at which the sign~~  
~~post has to be placed, is <sup>in question</sup> ~~where~~ <sup>at the point where the road to all possible</sup> ~~the~~ molecular~~  
~~theories of heredity diverges from the non-molecular~~  
~~and the object <sup>of the sign post</sup> is to show that the former of the~~  
~~two onward courses <sup>of exploration can most hopefully be made</sup> ~~is~~ <sup>road to</sup> the former, not the~~  
~~latter.~~

The bifurcation in question is at the point where the road, which leads to all possible <sup>hypotheses, based on germs</sup> ~~molecularly~~, ~~hypotheses~~, diverges from that which leads to the non-molecular ones, and the sign post I desire to raise is to show that further exploration can most hopefully be made along <sup>it is by that</sup> the true route to the peak <sup>with almost certainty</sup> ~~without doubt~~ by the former <sup>way</sup> of them. In other words, that the true theory of Heredit<sup>y</sup>, whatever else it may be, is <sup>based on the idea of germinal</sup> ~~undoubtedly~~ a ~~molecular~~ one.

The molecular hypotheses of Heredit<sup>y</sup> are those which ~~look upon the~~ <sup>suppose</sup> origin of every animal or plant to have been derived from a large number of distinct <sup>germinal</sup> molecules which have mutual affinities, that the non-molecular are those in which the original material is supposed to be more or less uniform, and that the diversity ~~from~~ <sup>subsequently arises</sup> which ~~exists~~ have been made by the action of some mysterious vital force.

Before going further, it is necessary to be quite explicit in the meaning of the words <sup>germinal</sup> molecule & affinity. The literal signification of molecule is a small heap or aggregate but it is used to express a definite compound of ~~grains~~ of

By a <sup>germinal</sup> molecule <sup>of some</sup> small object of the nature of a <sup>seed</sup>, which if <sup>it could be</sup> magnified sufficiently, <sup>it would</sup> appear like any other <sup>different</sup> object, in that <sup>it is</sup> smaller, <sup>and</sup> each of definite size. A molecule is <sup>therefore an</sup> ~~an organized whole~~, <sup>an</sup> integer, which cannot be divided without suffering destruction, <sup>in that</sup> it cannot be divided without complete loss of its properties, any more than a watch. And if sufficiently magnified, would appear ~~like any other~~ <sup>as a complex of</sup> definite objects, occupying space and having the <sup>essential</sup> ~~character~~ qualities of matter, <sup>all every magnified object is</sup> in that it must occupy space, <sup>that it must have neighbors</sup> and that its <sup>influence upon</sup> ~~affinity~~ to other germinal molecules must be aided or thwarted by <sup>its accidental</sup> ~~the~~ vicinity to them, <sup>thwarted by their</sup> or distance from them. <sup>the affirmation</sup> Therefore ~~say~~ that all animals or plants during any early stage of their existence were composed <sup>merely</sup> of germinal molecules, <sup>by implication,</sup> carriers, or <sup>more along</sup> ~~best deal~~ <sup>it</sup> ~~by implication~~.

By the influence, which one germ <sup>is qualified to</sup> exerts upon another, it is <sup>sufficient</sup> ~~unnecessary~~ to speak in other <sup>in</sup> ~~than~~ a purely abstract manner, they are in <sup>in</sup> ~~much~~ <sup>in</sup> reality by very numerous & various, many forms of action <sup>readily</sup> occur, <sup>to the imagination, is probable,</sup> such as attrition & struggles <sup>of</sup> ~~the~~ footlings <sup>of</sup> ~~struggle~~ <sup>the various</sup> for existence ~~at~~ <sup>in</sup> place, but it will be <sup>soon seen</sup> ~~found~~ that we <sup>are not required to enter</sup> need not enter into any details respecting their nature, so long as we consent to ~~not~~ recognize their <sup>meaning</sup> existence.



? inserted in 9

It is also sufficient to speak in general terms of the power of multiplying  
& developing of these germs still in an undeveloped state as well as of the  
Capacity of any of them for development, we need not enter into any detail  
as to <sup>where</sup> ~~how~~ the germs may



It is sufficient to speak in purely abstract terms  
of the <sup>character of the</sup> influences which one germ may exert upon  
another. They must ~~not~~ doubt be very various, and it  
is easy to imagine <sup>some of them</sup> ~~that~~ there would be affinities of  
various degrees to <sup>of the germs</sup> ~~some~~ together; also, that these  
mechanical causes might ~~push~~ <sup>push</sup> the germs out of their  
place, & so on; but we need not enter into any details,  
<sup>we have only to</sup> ~~can~~ confine ourselves to recognition of the fact, that  
<sup>myriad influences</sup> ~~they~~ must exist. The effect of them is shown  
by ~~the~~ tendency to coordination, of which ~~about~~ which  
we ~~will now~~ <sup>shall very shortly have</sup> proceed to speak & consider!

After these preliminary explanations, we may proceed  
without danger of being misunderstood to the evidence  
upon which <sup>all</sup> ~~germ theories generally~~ <sup>are</sup> ~~are~~ founded.  
~~We have to show in the favor of germ theories generally.~~  
What warrant have we to suppose that the various  
organs of the human frame ~~came~~ were derived from  
distinct germs or sets of germs, seeing how beautifully  
they are coordinated into a symmetrical whole?  
In order to reply, we had best <sup>take for example</sup> ~~begin by~~ some definite  
characteristic; and with ~~per~~ <sup>our</sup> turn, and the

drawn from the <sup>peculiar</sup> great dissimilarity of brothers  
& sisters to them

I will now give reasons why the <sup>parents in</sup> ingredients  
of the stirp must be ~~looked upon as~~ <sup>have at some time</sup> existed in a  
state of medley, and not in an organized form.

The first <sup>reason</sup> drawn from the great dissimilarity that  
often exists between brothers and sisters. <sup>anthropologists</sup> that

~~that stirps we have seen to believe that their stirps contain~~  
~~hardly be doubted that their stirps must be~~

~~closely similar as each of the ingredients in them~~

must have been derived by direct descent from their  
parents & must also be <sup>comparatively</sup> of a very simple character

now <sup>the</sup> simpler organisms breed far more true to  
their kind than the <sup>but the most compound organisms</sup> more compound ones; <sup>breed nearly true to their kind</sup>

the several ingredients of the stirps of the brothers  
and sisters must be <sup>very</sup> closely alike. If then the

organization was <sup>directly derived from the parents</sup> also ~~inherited~~, then the brothers

& sisters themselves would always be closely alike,  
which they are not. From this we must

conclude that the organization is <sup>(directly derived from)</sup> not ~~inherited~~

<sup>the parents</sup> but is an after condition; in other words, that  
the ingredients in the stirp are unorganised.

Upon this hypothesis all difficulty disappears.

and then I wish emphatically to point out that  
 it is not necessary to agree with his Darwin that the influence  
 of mutual affinities are the only causes which cause  
 one germ to prevail over another. We may know the causes  
 of what is the case, may be ~~wholly~~ <sup>wholly</sup> undecided, ~~it may be~~ <sup>it may be</sup> affinity it may be  
 It is sufficient to be assured that where there are two  
 candidates for one place, there must be assignable reasons  
 why one gets it & the other fails.





happen to have <sup>more aff.</sup> affinity, is the nearest to <sup>it.</sup> A.  
Now the position of the <sup>regions</sup> molecule, when they  
are in the condition of a mere mob, must  
depend to a great degree on a multitude of  
small, external accidents; it is the impossibility  
of knowing any thing about these, that gives an  
apparently capricious character to the <sup>individual</sup> results  
of heredity.

So soon as we have unreservedly consented to take  
~~any kind of germ hypothesis~~ <sup>theoretical</sup> ~~molecular views~~, certain broad results of a very  
reasonable character immediately follow. Thus  
there must be a limitation <sup>to the</sup> of number of <sup>germs</sup> ~~molecules~~  
in the strip, ~~it being obviously impossible~~ consequently  
there must be a struggle among the competing elements  
of the same to enter into the <sup>it</sup> strip, followed by  
a survival of the fittest. The struggle must be  
sharp, because the strip of the child can only  
contain half as much as the sum of the strips of  
his two parents, and yet there is no quality from  
either of them which he <sup>might</sup> ~~may~~ not have inherited,  
~~therefore~~ exactly one half of his ~~possible~~ inheritance must have been suppressed.

set in, there is nothing to check its <sup>fatal</sup> course, ~~when it~~  
~~has then genetic~~ in the offspring of a single parent  
~~but there is in the offspring of two parents.~~ In the  
first case the race <sup>it</sup> tends to die out, just as for exa.  
the same reason <sup>(almost every case)</sup> that ~~the~~ <sup>ultimate</sup> ~~disappearance~~ <sup>disappearance</sup>  
namely that there is always <sup>some small</sup> a liability for them to  
~~disappear~~ <sup>become extinct</sup> and when ~~once~~ <sup>the</sup> ~~they disappear~~ <sup>it is gone, it is</sup> the race is  
for ever. In the case of two sexes, more is destroyed  
than is needed for the bare maintenance of the race

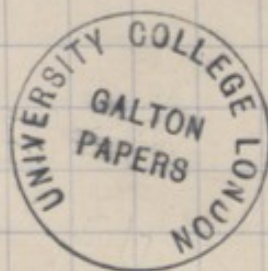
Much wonder has been expressed at the fact, that the life of a race cannot be <sup>long</sup> carried on ~~for more than a~~ ~~short time~~ by any process of budding, but that the occasional concourse of two sexes is essential for its indefinite maintenance. The explanation of this fact is a simple result of what has just been stated. There is a salutary struggle <sup>between a superfluity of competing molecules,</sup> for existence, in the one, which is absent in the other. In the former case, the stirp of the bud is almost <sup>perhaps quite</sup> the same as that of the individual from which it sprouted; in the latter case, the stirp is an entirely new combination. In the former case, the life of the race differs little from the life of an individual, and when deterioration sets in, which in the ups and downs of existence it must <sup>at some time</sup> do, there ~~is~~ no source whence what has been lost may be repaired. The case is ~~curious~~ <sup>analogous</sup> to that of the extinction of surnames, <sup>here to</sup> there being always some small liability for every surname to disappear, and when the chances have once arrayed themselves against it, the surname is gone for ever.



It is quite clear, as has been already pointed out, that the individual man had been developed from ~~one~~ from a small selection of the ingredients of the stirp. <sup>segregation of the</sup> ~~These~~ ingredients <sup>must be</sup> being alternative, <sup>since</sup> ~~is assumed~~ as they are <sup>(in fact)</sup> to a large degree incongruous and in some degree contradictory. <sup>being the variety of every man's ancestors his</sup> ~~The~~ stirp <sup>usually</sup> must contain <sup>even things</sup> ~~all~~ that <sup>that is requisite</sup> ~~need go~~ to the making of a tall man, or of a short man, of a dark or of a fair, of an intelligent or a foolish, of a vigorous or a sluggish one. <sup>almost</sup> ~~because every~~ <sup>body has had</sup> ~~these varieties among his immediate ancestors~~ He actually <sup>transmits to his descendants and</sup> transmits the qualities of many of these, while there is every reason to believe that he is capable <sup>under favorable circumstances</sup> of transmitting ~~these~~ many more of them, to his descendants. Every peculiarity however minute that has characterized any one of hundreds of ancestors, may have its representative in the stirp. It is a very rough estimate of breeders that any characteristic of which they desire to get rid, cannot be wholly extinguished under eight generations. According to this, the stirp would contain all

the peculiarities of ( $2^8 =$ ) 256 persons. Out of this vast and incongruous medley only so much becomes developed as suffices to form one congruous individual; the large residue is undeveloped, and remains latent. The reason why such and such <sup>germs</sup> ~~molecules~~ succeed in obtaining a place in the nascent organization and <sup>why</sup> others are superseded, is ~~a general~~ intelligible enough in a general way. One important cause has already been specified, namely, that of <sup>the</sup> accidental position of the several <sup>germs</sup> ~~molecules~~, by which faint affinities may be favored, or powerful ones may be thwarted. <sup>The effects of</sup> these and other variable causes disappear, when we look at the results of heredity on a large scale, while those of <sup>the</sup> ~~such~~ constant causes ~~as are~~ the most will invariably become manifest; hence it is, that a statistical treatment is peculiarly suitable to inquiries in heredity.

Notes found in  
"Illegitimacy"  
Leffingwell



The <sup>prevalence</sup> of illegitimacy, <sup>a different place, when it is</sup> measured by the percentage  
~~has~~ <sup>has</sup> the <sup>percentage</sup> registered as illegitimate to the total number of those  
 has two curious features. It is <sup>very large in some</sup> peculiar to certain districts, <sup>as in</sup>  
 & remains wonderfully constant in the same <sup>district is</sup> successive years. <sup>It may be found in one district as</sup>  
 is so large & so widely spread that it is easy to compare the effects  
 of the various <sup>hypothetical</sup> causes in districts where they <sup>seem to</sup> differ  
 while the <sup>other</sup> conditions are <sup>the same</sup>, and shows <sup>as it appears</sup> that no great  
 influence can be assigned to Poverty, to Country or Town life, to Education  
 or to the professed Religion, <sup>as in</sup> districts that are <sup>contiguous</sup> may differ  
 as much as 4 to 1 in the amount of illegitimacy, as noticed above. The  
 countries as whole that are most free from it are Ireland <sup>with the proportion of 28 per thousand</sup> and Russia; those  
 where it is most prevalent are Bavaria & Austria with that of upwards of 145  
 England & Wales are half way, <sup>at 46 per thousand</sup> Scotland considerably lower down at 79  
 In one small district of Wales, whose name requires 21 letters & 7 syllables  
 to express it, about one in 200, 7 children was illegitimate. In another  
 in southern Scotland the illegitimacy is greater than in any one of the 89  
 départements of France, Paris only excepted.

Inquiry shows that the laxity of the social opinion is quite as different  
 in different districts & to me, viz. that there is no shadow of a doubt that



The frequency of illegitimacy in different places, as measured by the number of births so registered to the total number of them, has two remarkable features. It <sup>may be</sup> ~~is~~ even four fold greater in one district than it another that seems similar, circumstances, ~~is even~~ the ~~affected~~ <sup>affected</sup> ~~districts~~ and it is remarkably constant during many successive years in the same district. The data are very numerous and have been investigated by D. Leffingwell (X) (1881)

which shows that it is not greatly influenced by any one of the causes to which it might at first sight be ascribed, such as Poverty, Town or Country life, want of education, or professed religious creed. The reason is in large part, though here I cannot agree with him, to heredity from previous times, and in a secondary, but I should maintain it was in a primary degree, <sup>connected</sup> to the social position of the district, which tolerates largely in some places & is exceedingly severe in others.



Residence goes to little whether in town or country goes to little  
as a matter of fact the returns from towns come out the best.

Legislative effects ~~can~~ may be notable in the sense that <sup>the status of</sup> matrimony <sup>can</sup> may  
be accorded less readily, or among the women ~~to be~~ <sup>more able</sup> ~~to be~~ <sup>increased</sup> matrimony  
by throwing obstacles in the way of marriage, as has not infrequently been done.

52, 147 15 6, 12  
Parliament English, Scotch, Ireland  
Constitution 21, 33, 34, 61, 63  
British 31, 33, 35, 1



52, 147 31  
Laws of 1900  
To the right of the  
2nd edition of the  
Laws of 1900 NE-1/16/12

Great diff<sup>ce</sup> in different places at home abroad  
Persistence in each

25, 30  
Poverty 28  
Poverty 28

Country & Town Life

Education 35 37 38  
Education 35 37 38

Nature 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Legislation 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Heredity 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Constitution 68 (John Halliday) 70 73

Country & Town Life 83

Conclusion 85

Parliamentary 78, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

The professed religion whether Catholic or Protestant, has little power for though <sup>the</sup> Catholic part of Ireland are far fewer than illegitimacy than the Protestant yet among the nations the highly Catholic ones of Austria & Bavaria reach the lowest, far below the Protestant ones - the proportions are closely the same for many successive years as those of 1819 will serve as an example Ireland 21 per thousand, England & Wales 46, Prussia 80, Scotland 79, Norway 74, Bavaria 141, Austria 147.

The variations between neighbouring districts that profess the same creed may be enormous. The adjacent North Eastern district of Scotland <sup>comprises</sup> ~~includes~~ Banff Elgin Nairn Kintyre & Aberdeen & the adjacent North Western district <sup>is composed of</sup> ~~includes~~ Ross, Cromarty & Inverness, the former has a rate of 141 illegitimate to each 1000 births, the latter has only 64.

Banff stands the lowest of all countries, with upwards of 160 <sup>the 18 European nations, recorded in the book, it has</sup> per thousand births <sup>(160 illegitimate to each 1000)</sup>

But of smaller districts a Welsh town <sup>one</sup> whose name consists of seven syllables has 21 illegitimacy to be the worst of all <sup>7/1000</sup>  
In other words one in every 6 children <sup>in Banff</sup> is illegitimate. &

Poverty is sometimes shown to have ~~little~~ no dominant effect. The poorest districts are according to this test the chastest as <sup>the</sup> ~~the~~ <sup>the</sup> ~~the~~ in Ireland and so.

Perhaps no more instructive evidence in the power of Social Opinion can be found than in its effects on legitimizing illegitimacy. The data on which I ground the opinion are partly those that are expressed with much clearness by Dr. Luffingwell in his small book bearing that title (Sven Sannerstein 1892, 20/6) together with the results of a few inquiries of my own, but my conclusions differ from his. He shows first that the rate of illegitimacy varies greatly, even as much as fourfold in different neighbourhoods, districts, but is singularly constant for a long succession of years in the same district, and he <sup>concludes</sup> ~~examines~~ the effects of a prevalence in the course of many alleged causes.

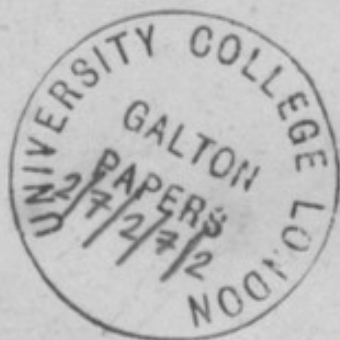
He finds that education has a somewhat negative effect: Thus in Kenton in South Scotland 99 per cent of the married women could sign their own names which is larger ~~proportion~~ <sup>proportion</sup> of women thus far educated than in any country of Europe or any country of England or Wales, and yet the rate of illegitimacy is higher there than in any one of the 84 departments of France, Paris only excepted. During the ten year period, 1879-1888 there was not a single year in which the rate of illegitimacy in the much more highly educated province of <sup>Western</sup> ~~Commanche~~ <sup>your up country</sup> than in that of the ignorant population of Commanche. In France, Finisterre is rated as the most ignorant of the 84 departments of France but stands lowest in the rate of illegitimacy. It is 34 per 1000 births annually which is lower than that ~~in any~~ at the same time in any one of the countries in England, Wales or Scotland.



1875  
note book  
Twins ve be

F. Galton  
42 Rutland Gate.

1875



# TWINS

p. 15

Dictionnaire des Sciences  
Médicales. Art: Jumeaux ~~p. 504~~  
p. 504 Ratio of twin accouchements  
to single as 1 : 80

Primaries in general not 1/placental  
to each ~~other~~ but at <sup>line of</sup> ~~each~~ birth that  
usual present only a single mass.

Moreau J. J. de Tours.

La Psychologie morbide par le  
Docteur J. Moreau (de Tours) médecin  
de l'hospice de Bicêtre. Paris. Librairie  
Victor Masson 1859.

Page 172 speaks of "two twin  
brothers who were confined, on account  
of mania at Bicêtre...."

Physically the two young men  
~~were~~ <sup>are</sup> so nearly alike that ~~one~~ readily  
the one ~~was~~ <sup>is</sup> easily mistaken for the

" other. Morally, the resemblance <sup>is</sup> ~~is~~ no less complete and I ~~presenting~~ <sup>is</sup> most remarkable ~~points of details in~~ details. Thus, their dominant ideas are absolutely the same. They both consider themselves subjected to imaginary persecutions; the same enemies have sworn their destruction & employ the same means to accomplish it.

Both have hallucinations of hearing. <sup>melancholy</sup> ~~sad~~ & morose, they never address a word to any body & ~~answer with~~ ~~iff~~ hardly answer the questions that others address to them. They always keep apart & never communicate with one another.

An extremely curious fact <sup>which</sup> has been frequently verified (constate) by the ~~persons in whose~~ superintendents of their <sup>section</sup> ~~part~~ of the hospital & by myself.



in this: - From time to time, at very  
 irregular intervals of 2, 3, and many  
 months, without appreciable cause  
 and by a ~~wholely~~ <sup>purely</sup> spontaneous effect  
 of their illness, a very marked change  
 takes place in the condition of the two  
 brothers. Both of them, at the same  
 time & often on the same day, rouse  
 themselves from their <sup>habitual</sup> state of stupor  
 & ~~habitual~~ frustration; they utter the  
 same complaints & <sup>they</sup> come of their own  
 accord <sup>urgent</sup> ~~beg with urgency~~ the physician  
 to let them free. I have seen this  
~~strange thing~~ <sup>strange thing</sup> occur, ~~however strange it may~~  
 even when they were separated one  
~~from the other~~ <sup>for</sup> some miles apart,  
 when <sup>was</sup> the one ~~was~~ at Bicêtre & the other  
 living at the Saint-Lune

J<sup>r</sup> Arlidge (John)

High Groove      Stoke on Trent

Read Bucknells Take 1874 Physiol: Med:

h-77. see 319 Austie about intense  
artistic feeling. — Read Austie

J. H. Take Mind & body 1872

G. T. Fechner — Psychophysik

Temperament by T. Ritchie in Cyclopaedia  
of Practical Medicine (best up to this date)

Peculiarities of the various studies viz Morbific -  
Moral - (apparently not intellectual) & physical.

Take from Penny Cycl: 'Temperament'.

Head af. about temperament

Moral degenerescence human

Sedwick Med Chir Nov April 1863

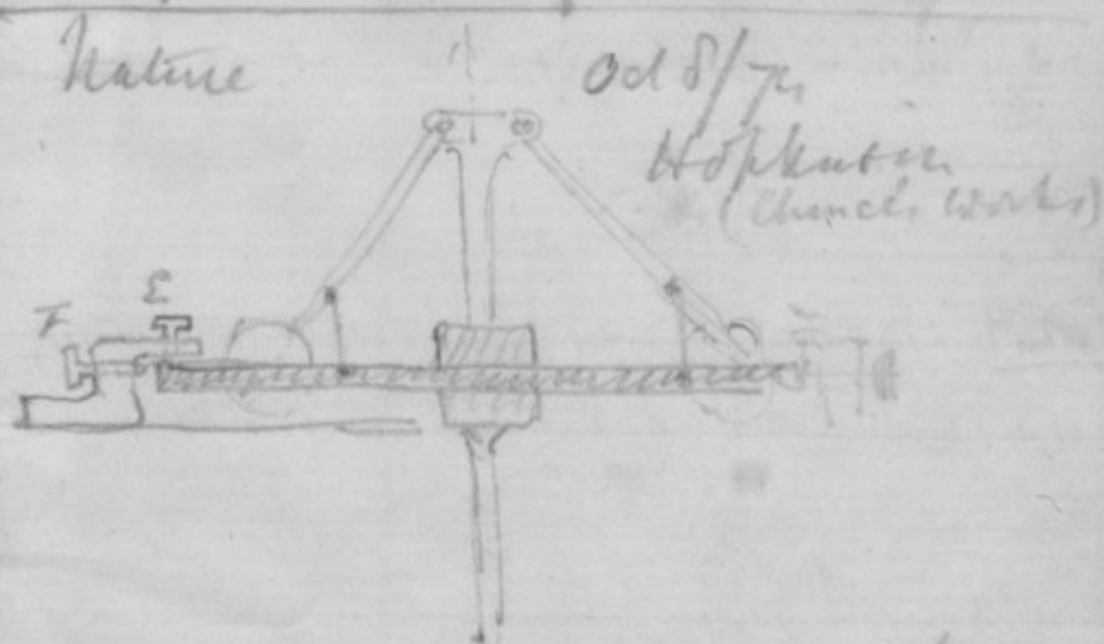
refer to Boethius <sup>see also</sup> & verify about Scott.

Whitehead Hered. Disease

Maudsley Hered. Disease March 1864

Stewart refer Med Chir N. 1864  
Crichton's cases.

Copy out addresses of mad doctors



The disc presses against E which is  
lipped with leather.

J.C  
Houzeau & Études sur les facultés  
 mentales des animaux Belgique 1872

Traité de la Folie des Animaux 4  
Pierquin Paris 1839

Frick, Physikalische Technik 2 bds  
 vol. reviewed in Nature - ~~is~~ it contains something.

Waller <sup>P.</sup> on Mechanism, - ? about his  
 apparatus.

Windt. Menschen und Thierseele. Lectures  
 4 & 23 velocity of nervous conceptions

Haeckel ? buy. (Animal Mechanism.)



D-Paget refers me to a case of twins  
 living apart simultaneously, made in  
 same way, in Annales Medico-psychologiques,  
 1863, N<sup>o</sup> 2, by M. Baume  
 p. 312.

see again reference to Troussseau in Ribot French.  
 (This is Part III beginning of chap. III.) the cited is Troussseau  
 in Ribot.

Should be I. 523 quoted at length in  
 in Chablon in Asthma? Darwin's Domestication II. 252.  
 (in 1<sup>st</sup> edition 1861.)

What is transmitted is Temperament  
 Constitution - (try & define these) II. 473.  
 and in 2<sup>nd</sup> edition 1873

Hönig, in Pflüger's Archiv "in reaction time"  
 of sensation of taste (D. Warden Sanderson)  
 = 1<sup>st</sup> part of 10 volumes

E. H. Weber's works -

Medico Historical Assoc F. 4v  
names photo of Librarian & Coa Surgeon

Attkin T.

Auldice

Bacon

Blandford

Boyd

Brown Curdin

Bucknall

✓ Clouston

Coxe Luff

Davey

Dove

Etchinit

Hill R.S.

Howden

Howe (US)

Jamieson R. M.D. Royal Asylum Aberdeen

✓ Jepson O. M.D. City of London Asylum Dartford

Kitching J. M.D. The Friends' Meeting York

- Kirkman J. M.D. County Asylum. Melton Suffolk  
 Laycock Thos. M.D. 13 Walker St. Edinburgh  
 Lindsay W. Lauder M.D. E. of Perth  
 Manderly H. M.D. of Hanover Square.  
 Robertson C. A. Lockhart M.D. of Hanover Square  
 Norie J. M.D. Royal Asylum Dundee  
 Sibbald J. M.D. Sanary Office Edinburgh  
 Toller - 2 S. County Asylum ~~Wotton~~ Gloucestershire  
 Take J. Ball M.D. 20 Charlotte St. Edin.  
 Take Daniel H. 1 River.  
 Take T. H. M.D. 37 Albemarle St.  
 Wood W. M.D. 51 Upper Harley St.  
 Wynter. A. M.D. Chestnut Lodge. Bolton Nox  
 Yelland J. M.D. N. Asylum. Gartnavel. Glasgow  


---

 Dr. Murray Lindsay Th. Cleaver W. Derby  
 Dr. A. M. Safferson 19 Bridge St. and 100  
 M. Selbach

Selbœuf Recherches théoriques et  
expérimentales sur la mesure des  
sensations. Bruxelles 1873. (Extrait  
des Mémoires de l'Académie de Belgique)

---

Leonard Dyell 42 Regent's  
Park Road.

---



Vauquessin involutin

f. 6v

Bonnet. Oeuvres d'Hist. Nat.  
tom V. 1781 p. 339 for remarks on the  
budding-out of the amputated limbs of Salamanders

Quatrefoies in Annales des Sc. Nat.  
Zool. 3<sup>e</sup> series 1850 p. 188 on independent  
existence of ovules

Above in same Vol. more than one spermato-  
zoa in reptile & fertilize an ovum

on same subject, Newport Phil Soci: 1851  
Vol. 196, 208, 200 and 1853 p. 245, 247.

on same subject Köhler & Gärtner  
Beitrage zur Kenntniss etc 1844, s. 345

on same subject Naudin in Nouvelles  
archives du Muséum tom 1. p. 27 (1865)  
d'histoire naturelle  
de Paris

Claude Bernard 'Tissus vivants' 1866 p. 22  
autonomy of cells

on same subject Virchow on cellular pathology  
translated by S. Chance, 1860 pp 14, 18, 83, 46.

Isidore Geoffroy St-Hilaire 'Hist des  
Anomalies' tom II. pp 529. 560 562  
hair-teeth in ovarian tumours

on same subject, Virchow p. 484.

Linnel Beale, Structure & growth of  
liver 1865 p. 21

Quatre mere Disjuncta 101800  
 Fuchs Librare Paris 1797 member academy  
 was a Bastille prisoner for 25 yrs  
 (in libretto)

They live 3 years & change skin in spring  
 will eat any thing if hungry, but always  
 prefer flies.

The author invents the word Anemometer  
 see notes. (p. 144.)

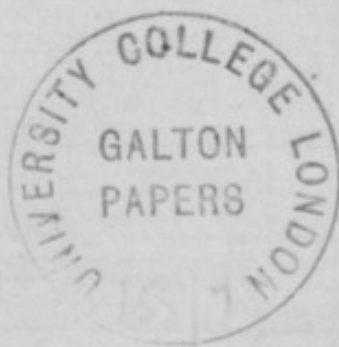
The male sleeps 11 months after year  
 & is solicited by numerous females when  
 he awakes. - The female allows him to  
 share her web for 2 or 3 days & to eat  
 what it catches & he fattens thereon. The  
 amount of food p. 11. 200 Eggs - Sometimes  
 in very hot weather, the spider lays Eggs 7 times  
 p. 15. Reaumur tried to use them &  
 weave with. Most unlucky - they eat  
 one another

The Spider undoes all his web every 24  
 h. 41.

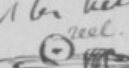
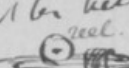
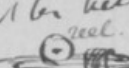
Woman & mother and the

p. 48. The boy <sup>aged 8</sup> the violin, which the big  
 spider came forward when he began to  
 play. <sup>in his little sleep</sup> at length the spider came on the  
 hand of the artist - the <sup>mother</sup> ~~mother~~ <sup>said</sup> the  
 spider one day doing this & killed it. The  
 boy fainted with <sup>a war. It for 3 months, his hands</sup> grief. He became the  
 great player Berthome; his tutor de  
 Mierre vouches for the story.

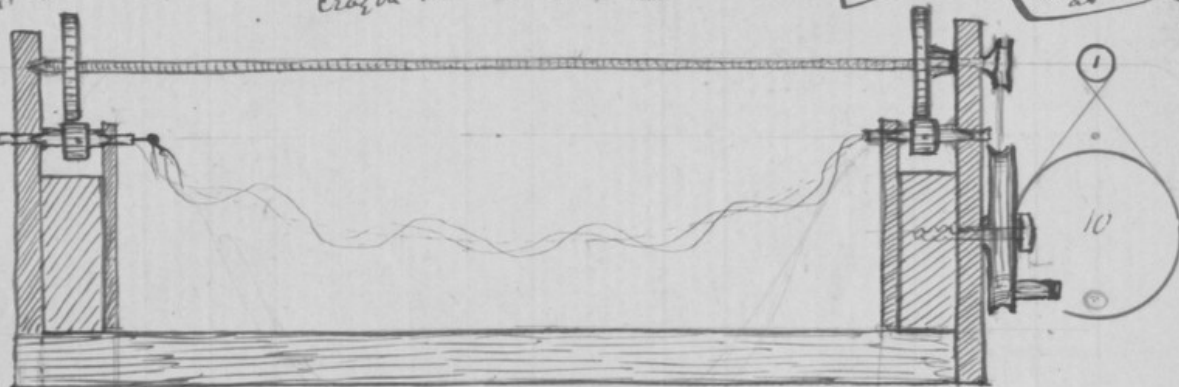
57. He observed a case of a spider killing  
 a ~~great~~ musician who played the harp  
 (Mercier)



? as to change wheels on one side.  
 at all events leave room for things  
 where one end of the thread is held faster  
 than the other it seems to produce a difference  
 in the vibrations - they travel more slowly then.

The thread might be held like the lead in a  
 cross holder     
 then - the slide <sup>2nd</sup> holder  
 might be a tube with  
 cross arrangement  
 at end.

Not high enough  
 to be held in the  
 space between the  
 wires also allow  
 a bit of wheel.



$\frac{1}{2}$  natural size  
 to be used with thin white cotton.



Diameter of thread

Velocity of revs

11.0 threads to one inch.

I twisted the threads thereby  $\frac{3}{10}$  of an inch ~~in~~ at  $\frac{1}{2}$  second =  $\frac{6}{10}$  in 1 sec.

or might have been  
12. a threat war, / revolution

or might have been  
is a three way revolve) ~~the~~ *the extent of motion* = *le grade de confusion*

16 times per second would allow for persistence of image on retina

*[Handwritten scribbles]*

through  $\frac{b}{10} \times 120$  thread breaths (= 84) in 1 sec

or about  $\frac{1}{5}^2$  of that in three's circumference, ( $= 28$ ) in the second

19. the thread revolved under 30 times per second.

Suppose pinion to be  $\frac{3}{10}$  inch in diameter = say 1 inch in circumference; then -

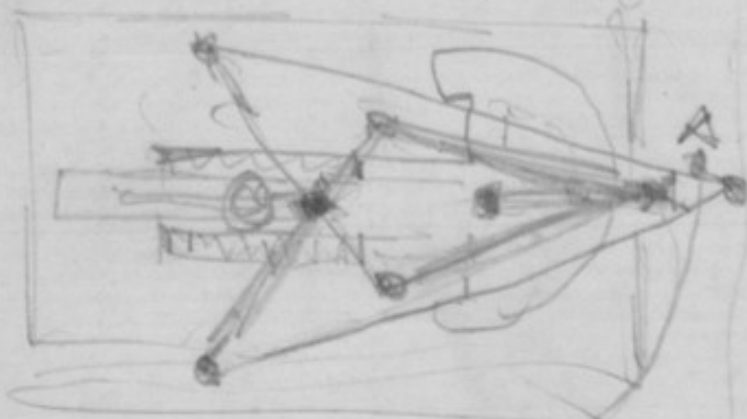
that it might vibrate 30 times per second, its circumference must move

30 inches per sec - (very moderate). The hand can make 3 rev.

therefore the wheel must multiply at least 10 fold, better

15 foot) <sup>however,</sup> the pinion might go for 3<sup>1/2</sup> & the wheel to 10. = 30 or 40 ft. d.

Brunet here in Paris  
Pencil sketch complete (N. Tanguirard 150)



A in section  
rests on paper



Size overall 11 inches by  $4\frac{1}{2}$  inches  
drawing line of 2 feet

Engine Belin is the chief  
constructor of relief maps  
publ. by Institut de Géographie

Annales Médico Psychologiques  
 4. Série 1. 1863 Janvier - Juin  
 p. 312. by Dr Baume.

"Singulier cas de folie suicide chez  
 deux frères jumeaux - Coïncidences  
 bizarres."

Francis Martin, 50 years old, worked  
 as entrepreneurs on the railroad between  
 Quimper & Châteaulin. Martin had  
 twice ~~thrice~~ had slight attack of insanity.  
 On Jan 15 a box in which the twins had  
 both placed their savings was robbed. On <sup>the night of</sup> Jan 23-4. Francis who lodged at V.  
 Quimper & Martin who lived with  
 his wife & children 2 leagues off at V.  
 Lorette, had both the same dream, at  
 the same hour of the morning, 3 am.  
<sup>both</sup> & awoke with a start (en sursaut) crying  
 "I have hold of the thief, I have hold of

the thief, they are doing harm to my brother  
 and they both were in extreme agitation  
 and gave way to the same extravagances, dancing  
 & leaping. Martin sprang on his grandchild  
 whom he declared to be the robber & ~~he~~ <sup>had to</sup> ~~presented~~  
~~by other~~ ~~from~~ tried to strangle him & he became  
<sup>steadily</sup> worse, complained of violent pains in the  
 head went out of door on some excuse &  
 tried to down himself <sup>in the river stair</sup>, but his son who had  
 followed him <sup>close after</sup> stopped him <sup>by force</sup>. He was <sup>then</sup> taken by  
 several dunces, who had procured the necessary authority  
 to a mad house, the same evening where he  
 died in 3 days.

Whilst this <sup>was taking</sup> ~~took~~ place Francois <sup>had been</sup> ~~was~~  
<sup>sufficiently</sup> ~~calm~~ ~~down~~ in the morning of the  
 24<sup>th</sup> & he employed the day <sup>trying to</sup> ~~in~~ ~~find~~ out  
 the thief - By a strange chance he  
~~arrived at~~ <sup>crossed</sup> his brother's path  
 at the moment when the latter was  
 struggling with the gear dunces. He

became himself again maddened,  
 & after some extravagant gestures and ~~making~~  
~~made~~ ~~some~~ ~~of~~ ~~this~~ ~~same~~ incoherent  
 proposals (similar to those of  
 that his brother) ~~had done~~  
 and asked to be bled, which was done.  
 Then declaring himself better, he  
 went out under a ~~false~~ pretext of  
 executing some commissions and  
 actually drowned himself in the  
 river <sup>Steir</sup> at the very spot where  
 Martin had ~~just~~ a few hours before  
 attempted to do the same.

This is an abstract of the original, which  
 is longer & contains <sup>some what</sup> more detail. & closes  
 with the following)

"In this way, two brothers who were  
 twins, met their death: their  
 madness, developed through the same



effects of the same cause, presented  
 almost ~~the~~ the same peculiarities,  
 it declared itself at the same hour  
 and would so far as the twins were  
 concerned (a l'insu des deux aliénés)  
 have ended by the same <sup>kind</sup> description  
 of suicide, and at the same place."

(I leave out 3 lines at the end)

- 1 Existence of germ
- But <sup>cells</sup> germ can produce germ
- 5 Mating
- 7 Sticks
- 8 The mutual affinities of the germ cause coordinate development
- 10 Homologous (allotropy) structures of different material
- 11 Effects of limitation of space in sticks
- 11 Sublimation / half of the inheritance of <sup>genes</sup> <sup>from</sup> <sup>parent</sup>
- 12 Why two parents are necessary
- 13 Small number of gradations in heredity
- 14 Movement of germ in the stick
- 14 Segmentation
- 15 Brothers & sisters
- 16 Twins alike & unlike
- 18 Sterility of developed germ
- 18 Child unlike parents
- 20 Deterioration of race
- 21 Disease in alternate generation
- 22 Relation between child & parent
- 25 Conclusion

24 x 8 x 28 words in M.S.

400 [5600] to, 1400 2d. 2d. paper

ask C. Darwin

f. 13v

any facts about chicks out of the same egg  
sex and likeness.

what about Balbiani

where has he written about evolution  
being arising due to males. (his transmission)  
where is there a collection of facts of acquired  
Do breeds deteriorate by loss of organic units  
How can I learn microscope,

Shall I get into a scrubber if I assume as  
generally accepted

Ques. Independence of origin of organic units - orig  
~~Independence of their origin~~ (germs)  
That germs can breed germs  
That cells can breed germs somehow  
That organization is due to the number of efficient  
of germs

Quite ignorant for the present where the  
germs are located & how they get to be  
organised into sexual elements.

intensity of sexuality differs -

F. G. Allen Sep 16/75 f. 14r

Take a fresh departure  
in Committee the existing Office shd  
be so far represented as to ensure  
their work being understood - not so  
far as to let their conservatism overrule  
the others

We made 2 mistakes

1. Thinking ocean c'd be more  
easily mapped
2. Laying too much stress on  
self recording instruments &  
minute ~~recording~~ changes.

For consideration  
Whatever we do henceforth, begin  
by thoroughly working up the  
collected British weather results -  
types of weather

Numbers of whole year  
Start a new system for a definite  
term of years after which all

to be reconsidered

Storm warning. But in p.m.  
we must get Telegraph and  
other to be more liberal

Must give existing weather  
more promptly

Must work more on the  
grand scale

Upper currents

Amos

Abandon all self-recording  
station except Kew & Dwyer  
year of notice work at bush  
with

Abandon attempt to charter  
the ocean

Get a sec't of the C.M. a well paid  
mathematician & bag him with  
hotel for office.



3.28

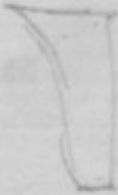
4.18

4.44

5.2

5.33

6.6



Ch. Darwin

f. 16r

At Down. Sept 23

The pears are luxuriant.

is about the shape (Haldane

has not grown, the whole row is gone)



Claude Bernard

f. 16v

Revue Scientifique

Leid No<sup>r</sup> 14 v 15

I have put faint ~~notes~~<sup>x</sup> in pencil at

p. 324 2<sup>d</sup> col

325 " "

327 " "

352 " "

748 605  
400 300  
120 150

1268 1350

311

552

21

201

600 or 200

200 or 200

Cyclopedia Anatomy & Physiology vol IV

Teratology 1943 Article by Vrolik

"Embryogenesis teaches that the formation  
of the several parts of the body is not essentially  
the result of that of the nervous system but  
that on the contrary each part is formed  
& developed independently. .... J. F. Müller,  
Rathke, Bischoff, Bardach  
& Stannius, agree with me."

The malformed parts are restricted  
to their determinate place - Fleischmann  
lex topi coram

953. Fingers of walls various kinds, including  
hare lip. - Skull 957 of back part of body

960 Acephali

965. Defective formation of extremities

967. Fetus in foetu

" in utero - in abdomen a preformed

in College of Surgeons :- in anterior mediastinum  
in the scrotum & testes, sometimes inside the testes  
& sometimes outside. In the intestinal canal,  
in the orbit and at the palate - Also parts of



a foetus occur in tumours on the foetus & are covered by the skin - In cheek: neck: epigastric & umbilical region, sacral & perineal regions, this is the most frequent.

Hunter's works 1837 vol IV p 34. on the Free Martin.

34. Hermaphroditism occurs most rarely in man, has never been a specimen; the same of dogs & cats, but in the horse ass, sheep & black cattle it is very frequent. - As an animal can't have both a penis & a clitoris, it must partake of both <sup>sexes</sup> functions in a hermaph: . So the testis & ovary may form  
 \*note by Hunter "Quere is the Sac in nature one body without the properties of either. - This compound part is generally found in the position of the ovary. In graminivorous animals the udder & scrotum are both between the hind legs and the testicles of a hermaphrodite, which has both

they & the udder, may descend into it.

The hermaphrodites he has seen always appeared externally to be females, from the penis being the part principally deficient & there being an opening behind; the testicles seldom come down & the udder is left in its proper place.

In sheep, goats, pigs &c these are generally kept; being supposed to be females. - Among horses such are very frequent - I have seen many - Detected an asp

When a cow (<sup>as far as I yet know.</sup> in black cattle) brings forth two calves & one of them a bull-calf & the other (appearance a cow), the cow calf is unfit for propagation but the bull calf grows up a <sup>superior</sup> bull. - Such a cow-calf is called a Free-Martin. & is common & well known among farmers as either a cow or a bull. - The calf is hermaphrodite - they are kept for fattening & are like <sup>in bellows & in fatness</sup> oxen - they do not show the least inclination for the bull nor the bull for them. But this is not an invariable rule - they sometimes breed. He dissected 3, one of John Wells Esq & Bickley Farm near Brompton in Kent.

Späeth Studien über Zwillingsg. p. 184  
 Zeitschrift der Wiener Gesellschaft der  
 Aerzte. 1846<sup>Nov</sup> p. 225 & p.  
 Nov 15-16.

p. 225  
~~The~~ In 14880 births at the Lying in Hospital  
 I had the opportunity of observing 185 cases of  
 twins (1-10.)

p. 226. The "nachbarsorgane" were submitted  
 in 126 cases to an adequate examination, & showed  
 all the known differences - ~~very~~ found.

49 cases of separate placentas 2 Chorions, & 2 Amnions

44 .. joined .. 2 Ch & 2 Am

28 .. joined 1 Ch & 2 Am

30 { 2 .. joined 1 Ch & 1 Am  
 1 .. " " doubtful

~~One of these is doubtful as regards the 2 Amnions.~~

In the joined placentas generally, the anastomosing  
 of the blood vessels was not very complete - this  
 is contrary to Kiwisch.

Consider 1 Chorion & same sex a certainly  
 doubtful 1 case of Arneth.

In 176 cases only 62 were fully ripe  
 h not yet viable  
 108 not ripe but viable

In the most part the children were of unequal size f. 19r

			Percentages	
Same sex	opposite sex	months	Total Cases	same sex
				opposite sex
32	16	1	39	25
26	20		36	20
			<del>225</del>	
all 30			24	24

Sir Edw<sup>d</sup> Parry  
 His mother was daughter of  
 John Nibby Esq of Lancaster &  
 Gr daughter of Dr Taylor of Norwich

Nov 5/75

E. 19v

Notes taken (copied here) at Museum  
Coll: Surgeons from Teratology Catalogue

### Transposition of viscera

Embryonic variation is exceedingly likely  
to occur as accompaniment of disease,  
for new conditions (? affinities of germ) arise

Disease passes by insensible degrees into variation  
Tendency to duplicity

Sometimes but very rarely, additional digits  
on one hand & deficiency in the toes

Dichotomy or fissure into 2 parts (plantar axes)  
This goes with a single germinal area.

XVII. Twins in a common chorionic or amniotic  
cavity are probably the normal result of the  
formation of a double embryo upon one yolk.

See C Daresse. Sur les œufs à double germe  
Ann. Sc. Naturelles. 1842. tom. XVII pp 42-49  
and Van Beneden's Recherches sur l'œuf Bruch 1870.

Arrest of Development (? how far deficiency of germ)

In one form, Differentiation fails at an early period  
XXII. With regard to the nature of arrest, nothing  
is known positively

2h. A woman had malformed births 3 times

Fries-Martens are androgynous (not gynandrous)  
i.e. they are males whose development was arrested

See preparations - in Catalogue pp 97-101.

Hunter was wrong in thinking them more female  
than they are. The apparent vagina is really the  
bulb of the urethra, which in the bull, is normally  
a capacious pouch



p. 108. Double yolled eggs seldom produce  
2 chicks. Twin chicks are probably produced  
from single yolled eggs.

Multiple Gestation N. Garthshore MD. Phil. Trans:  
1787 vol LXXVII pp 344.

Allen-Thomson Remarks on the  
Early condition & prob. origin of Double Monsters  
London & Edinb. Monthly Journal of Medical Science  
1844. p 581.

Panum Untersuchungen über die Entstehung  
der Mißbildungen. - Eier der Vögel. 8<sup>te</sup> Berlin 1860.

He tried 70 eggs of Fowls 3 of geese all with double yolks  
artificial incubation & opened at the 5<sup>th</sup> day. 21 no development  
15 found 1 goose 1 had developed and the other 10 fowls  
regular development for each yolk, no trace of union between them  
4 of these vitellus had a weak development or dead other none  
in 7 fowls. Each vitellus had a monster in it's own  
natural the other & monster

1874/559

## J. Simpson's Obstetric Memoirs

There is an excellent investigation  
 of this subject by Sir John Simpson <sup>together with many useful</sup>  
 from the statistics <sup>of 143 females & 100 males</sup> ~~of view~~ <sup>whereas</sup>  
 it appears (Obstetric Memoirs I 327)

1. That in the human subject, females  
 born co-humans with males are, when  
 married, as likely to have children  
 as any other females, those who are  
 infertile being only one in ten
2. That they are equally productive <sup>the finger being 4.5 in</sup>
3. That the same law <sup>appears so far as is known, to be</sup> free  
 mastication is peculiar to cattle  
 cows. but the evidence here is very  
 imperfect except as regards sheep  
 see also <sup>Quotations &</sup> Remarks of his II. 257, 349.  
 Free-mastication is the rule in cattle.

marrage & 4.25 being the general average

p-32D. The notes how strange it is  
 that the malformation should be limited  
 entirely to the reproduction organ of  
 the female twin, while those of the male  
 twin are perfectly & fully developed - (This  
 is inaccurate the "female" twin is not  
 a female. The case rather is that when  
 one twin is a true female & the other is not  
 a true female then it is always a ~~fact~~  
~~but~~ true male - on the other hand when one  
 is a true male & the other is not a true male  
 then it is always ~~an~~ usually an animal of imperfect  
 sex.)

Stadthart Wiegner

Incidental advantages, then, how  
to teach.

Mechanical instruction sh<sup>d</sup> be more  
common in schools

Scientific men want it. - Few

Scientific men practical (antecedent)  
What Cambridge is about.

The new department

Comfort in a settler's home is not so  
much a matter of money as elsewhere

Englishmen are ignorant of handicrafts.

Effect of climate, indoor occupation

Production of articles by machinery

No lack of all trades,

There is at a disadvantage - has not learned

to forge - temper - solder - drill.

On the program bridge - brass - leather -

General institution will supply all this

$$\begin{array}{r}
 2, 4, 8 = 8 \\
 \hline
 2 \quad 2 = 4 \\
 4 \quad 4 \quad 4 \quad \underline{12}
 \end{array}$$



2.2

30

5.5

35 7

748

713

393

80

33

11227

1050

177

20.50

196 20.

114

600 21.0

300

150

1050

2500

300

3750

121

22.12

2.0

15.59

28

50

20

48 1/2

25

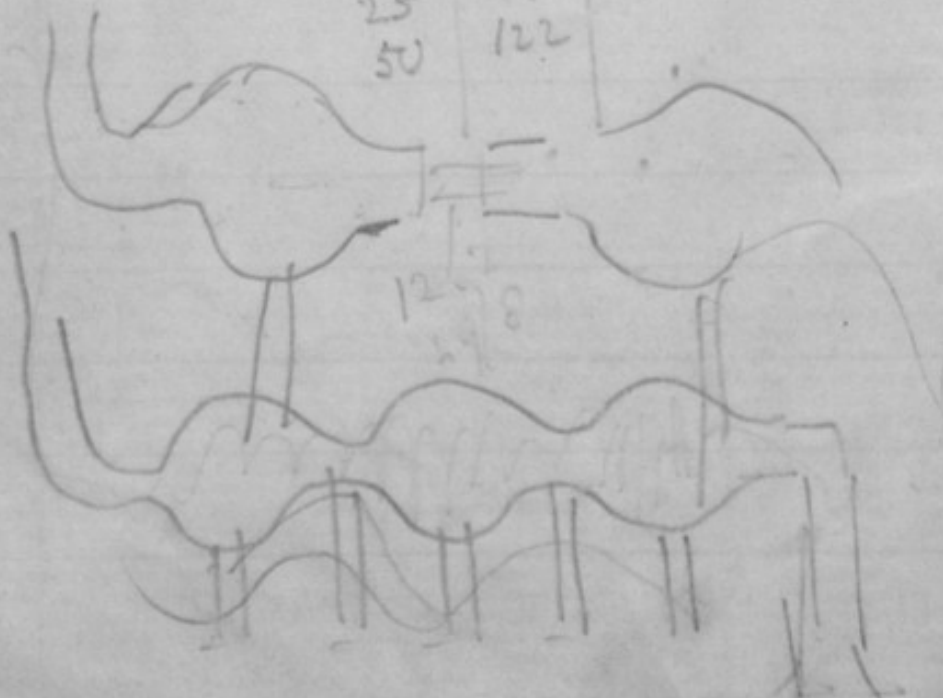
61

50

122

12.2

59.8



6. 18. Hardy garden  
Giltspur Road



University of London, University College, W.C.1.

**THE GALTON LABORATORY**

91E 117

*Presented by*.....

*Purchased*..... 19



6d



Eng. 64.2.19  
N. 10.11.27

A phrase in Herbert Spencer "First principles"  
p. 15 " - projects imaginaries that it  
afterwards projects into the external world  
and by a by mistakes for realities"  
(Mem. he thinks ~~it~~ religion is not to do)



Tarrar see Reader Oct 1884

Dutch at the Cape

Spaniards in America

French in Canada

Negroes in America

Danes & Norwegians in Greenland  
? Iceland

### American books

Herera General History of the  
doings of the Spaniards in America  
translated by Stephen Svo Book 1740

Casas las. - 8vo London 1593

In Greenland Crantz Hist of Greenland  
1. 242 244, Prevost Hist Gen'  
des Voyages tom XV 152 not. (96)  
?

Buffon Hist Nat. III 1784-1785, 103 114  
 .. recherches Philosoph sur les  
 Americains

Rousseau

Ae. up to 17.

Ulloa

Humboldt

- Robertson II. 62 feebleness of constitution  
 63. Smallness of appetite. 65  
 absence of love immutability & beauty  
 the natives treat their women with  
 coldness & indifference. neither tender  
 attachment nor ardent desire. The  
 missionaries express astonishment  
 at their coldness (see quotation see also p. 103)  
 71 Difference in certain localities.  
 71. Hardly any were deformed sunlight  
 or defective in their senses, but when  
 taken care of they are so see Ulloa I. 232

Albino among the  
 have a monstrous animal. This  
 Montezuma had collected. See  
 Cortes of Ramusio III. p. 261

108. Parental love is strong

110 Filial love small

-- "render the union between  
 husband and wife unequal. They  
 shorten the duration & weaken the  
 force of the connexion between  
 parents & children.

397 Difference of temper between an  
 Amer. Indian & a negro quoted from  
 Tertre ii. 490 (see Mr. Douglas - Maurtier)

The many independent communities in  
 America having common qualities  
 shows that these are due to nature not  
 tradition.

110. Among the Natchez Indians  
 despotism & suttee

141. In Hispaniola Cuba, &  
the Caciques had extensive power  
over rain & sunshine

141 Bogota ranked in civilization  
next to Peru & Mexico

150 Love of vengeance

159 Cruelty to prisoners

Vengeance is the  
principle instilled into  
the minds of the children

161 Indifference to death, fortitude  
under torture

165- proceeding in S American country  
Captives

167 Passive fortitude - patience & ad-  
vantage

177 Attentions to dress and ornament  
had more reference to war than to  
gallantry

188. The cold phlegmatic ~~operation~~  
temper renders all their operations  
languid — "the work of an Indian" is

anything is ~~the~~ the execution of  
which an immense time has  
been employed & much labour  
wasted

195 Religion consists in averting  
wrath of evil spirits

199 Religion of Katchez - Sun  
200 " - Bogota - Sun & moon  
human victims

207 Incantations Soothsayers  
anxieties

210 Dancing - a serious exercise  
have no relation to love & gallantry  
as those of the African & Asiatics

213 Immoderate love of gaming

214 Drunken

220 Murder parents

226 Non gregarious

228 No Sympathy - the Spaniards



Sometimes found it necessary to  
enforce the common duties of humanity  
by positive laws

229 never care for their dogs

230. Is a serious, melancholy taciturn  
animal - will sit whole days in  
one position without opening the lips.

Marching Indian file - rowing canoe  
in silence.

232 Secrecy - often lying - An  
insurrection at Fern was hatching  
for 30 years, unsuspected.

233 Perseverance & dignity

234. Partisanship (community)  
Zeal for honor of their tribe

236 A man can conceive no other  
kind of life to be tolerable than his own  
Tartar - American - do not cavil at  
not comprehend civilization. are

menagerie in S Africa

Bates tells me June 21. That it was reported that the King of the Barotse, who lived near the Victoria Falls in the Zambezi, and who was driven out by the Caffres some (? 20) years ago. 'Anyhow he lived even there a little before Sebitane's time; - had a menagerie. Hippopotami came to be fed from the river and he had many other animals, whether as pets or in confinement Bates does not know.



amazed at it.

237 despise European white men

383 a note - Excellent returned  
of American character

388. The negroes are more in-  
feriorable & though slaves look  
down on the Indians

---

Ulloa in Pinkerton XIV 315

He marvels that the descendants  
of the whole Peruvians, who he is  
bore (Quote this to show the utter  
wreck of ancient efforts toward progress)

517 are remarkably slow but very  
persevering — mechanical aptitudes

518. Debauch — do not gamble.

520 Religious inaptitudes

522 Little or no natural dread of death. ✓

523 Praise the Jesuits' penitents &

those taught among the Spaniards  
at Quito

Bay. Ramayana French transl:  
Mahabharata.

Zendavesta

Vedas

Menu

Shah Nameh - (Herzikest Persian)

---

Mexican birds & beast. Hernandez  
the naturalist was sent at great cost  
to describe them. Works not pub: till  
after his death. Hernandez Plantarum  
Animalium & Mineralium Mexicanorum  
Historia fol. Nov 1657

Edgar

Quintet Génie de Voltaire

Two seals way of tending  
them - half domesticated  
Sir / Simpson voyage round  
world I. 223

~~Hottentot~~ Popul

Naumann history of the insects  
whose talent for observation seems almost  
human amounted to genius

Cogswell's book on the Butterflies of America  
- page 53

Superstition among gregarious animals, vanity.  
Character <sup>of the animal generally</sup> does not consist of a number of  
independent factors any of which may be  
separately eliminated.

Virtues exacted by gregariousness - French duellists. respect  
+ law, superstition. Dull individuals have their thoughts  
reinforced by one another's actions - Jackals never  
bite each other (Speer)



Monachism in Tibet (Buddha & Rom Caths)  
 Bannister British Colonization & Colored Tribes  
 Howitt Colonization & Christianity

Ac.

See Charles Nicholson & conversation with Burton

The black Australian children are teachable  
 & most amiable. A year or two after puberty their <sup>superior</sup> ~~superior~~  
 passions become ungovernable & they become violent  
 to the last. The black fellows are always gentlemen

In our constitutional country the classes are so sharply  
 divided that a man has no practice in behaving  
 himself as subservient to those above them, i.e. - barbarous  
 despotism a Hun speaks as a man, to a king.

Excellent mimic

Société Ethnologique Paris <sup>origin in</sup> 1839

Society for Protection of Aborigines U.S. "

Schomburgk Brazil (1849)

## Cutes Edificantes

p. 118. Meadows says he has remarked and  
 is sure ~~dogs~~ animals dogs for instance do not  
 understand commands. if the ~~objects~~ in  
 their world - - <sup>the way</sup> ~~the way~~ - construct a vocabulary  
 for speaking to dogs <sup>mainly</sup> of e as in meet a a, in father  
 u as in bull also of the intermediate sounds  
 a as in fate & o as in lord. For such purposes  
 by man he would systematically combine

f. 13ar-27

then with the weak consonants h w m l,  
then, "wooshah" "celoo." ~~woah!~~ surprise

A white feather in a pigeon punished with  
death from a hawk as much as indolence.  
or any vice.

Free will & predestination Bird in cage.

Civilized life does not eliminate short sightedness  
few children due to later marriages

Children from selected unions - keep down population - neutral  
polygamy & polyandria - Girls pass nature early strong & lost.

Antiquated employment as usually complicated - adaptation  
rather than complexity - the scheme of nature.

Aristotle *Problems in Endemic* 11. 6-12

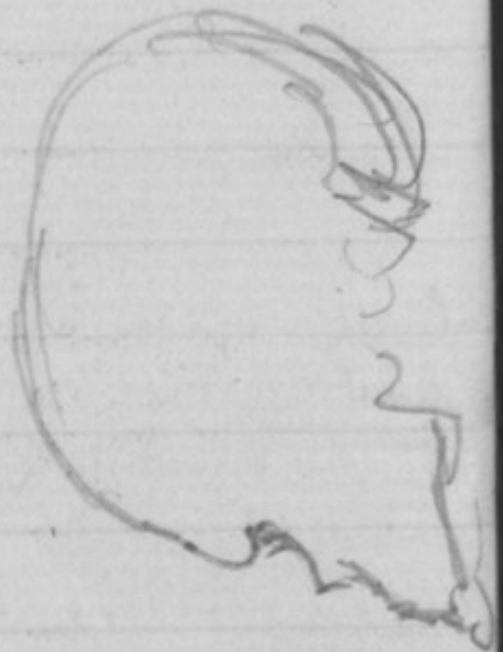
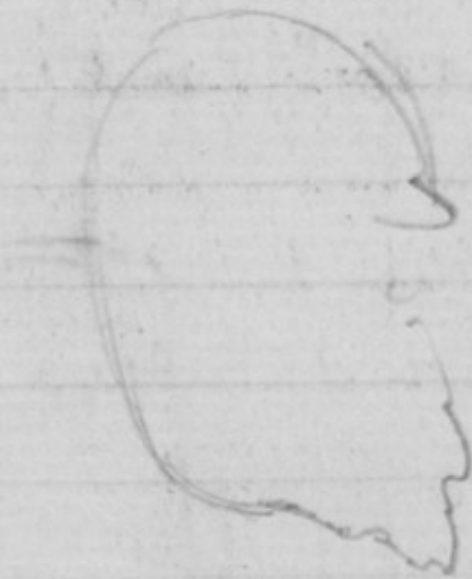
Free will, —

(Will is a first cause, a creation of)

Interest in descendant. Jews.

f. 13av

22



Sir George Grey Australia.

F. 13b

A.e.

"The savage is naturally of a thoughtless restless disposition" Sir G. Grey speaks in above report...

His Labours "neither constant nor steady" etc.

Mr. May Intelligence ~~read~~ look through, Shows number of sporadic attempts none(?) have <sup>produced</sup> ~~some~~ permanent effect.

As a consequence of civilized roads native art & knowledge whatever may have been its previous development at once declines - what the white men bring is far superior. The natives are abashed & discouraged.

A.e.

### Colonial Intelligence

Sir F. Head's dispatches in the affairs of the Indians  
just before or in about 1847

J. Thompson report (also book) of New Zealanders

Women white children - can't lead them best of  
to the whites.

Aborigines 1. 71. New <sup>South Wales</sup> ~~South~~ reply to a  
Select Committee of Enquiry - Summary. - "the  
love of a wandering independent life prevents their  
settling anywhere to work, except for a short  
time, then compelled by want of food & clothing  
& encouraged by kind treatment"

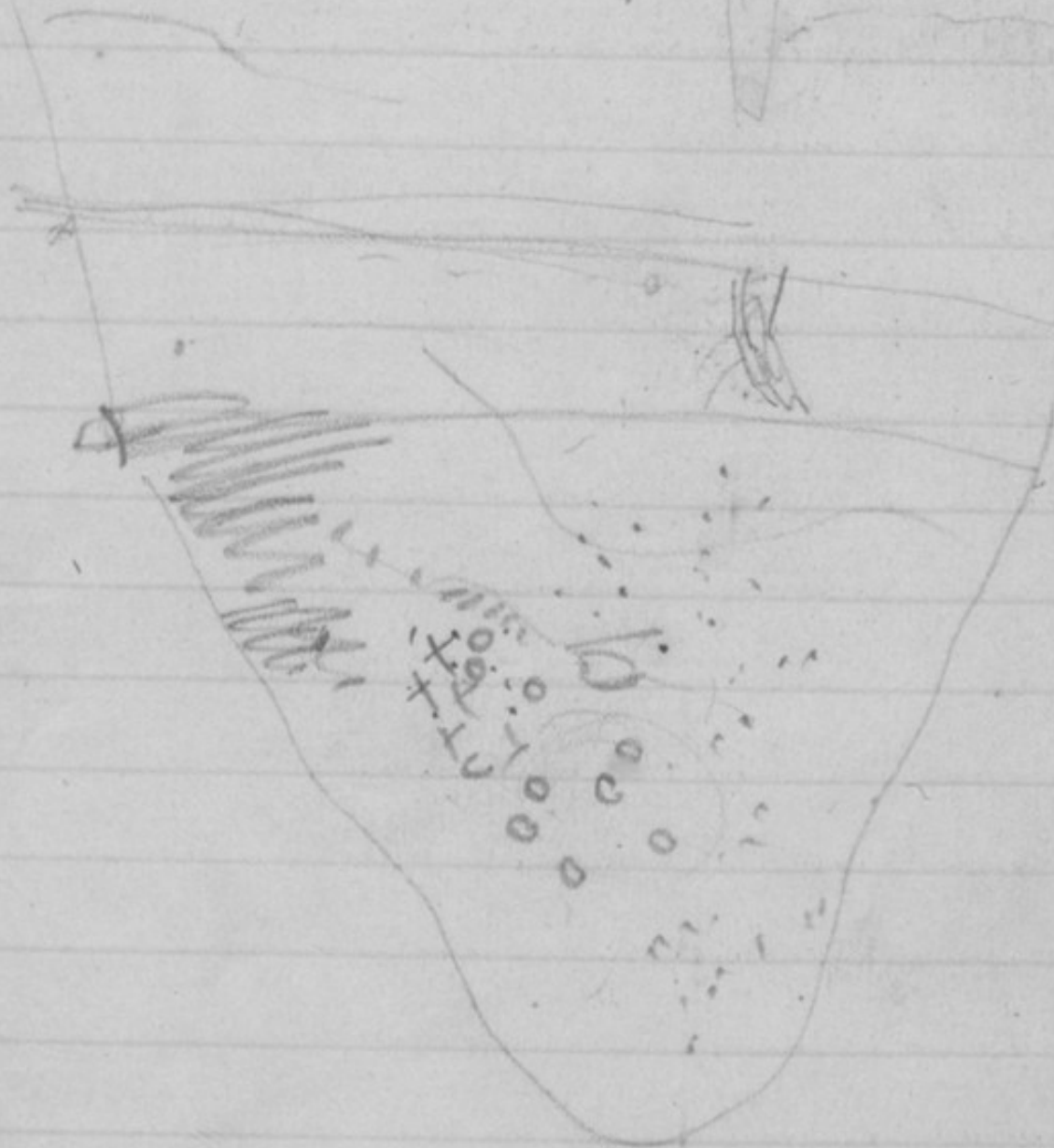
A.e.

Meadows 591. "Savages are 'fan fuk puh ting' <sup>as the Chinese call them</sup> ~~hit~~  
& thither, not fixed." They are unstable and  
unpersevering." A.e.



Chadwick address on Public Health  
Social Science Assoc. Glasgow 1860  
p. 576. "The primary qualities  
of those whom we are accustomed to  
call Anglo Saxon, including the  
Scottish Scotch, are, great bodily  
strength, applied under the command  
of a steady, persevering will, mental  
self contentedness, inflexibility to  
external irrelevant influences, which  
carries them through the continued repetition  
of toilsome labour "Steady as time" "

If acting <sup>by conscience</sup> & reasonable, must be  
 in accordance with conscience. See also  
 Shame - Sin = sense of dishonour.



horse shying from skullduggery  
or affedation

horse back jumping

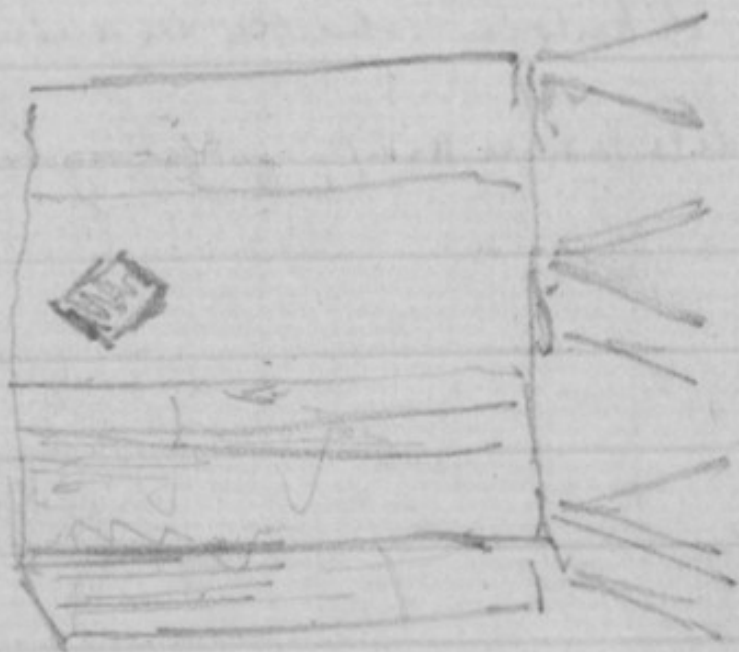
unsoundness of English horse  
they are bred for - -

Can breed what temper can take  
" " intellect

Geoffroy V. Helaine Compl. Rendu III. 29  
also Cours d'histoire naturelle des animaux

Proudhon de la Justice II. 279 physiology unyawning  
"Victrix causa Deus placuit!"

vae victis



Lucretius II. 55

A2

f. 16

"For even as children are flurried and  
dread all things in the thick darkness. &  
thus we in the daylight fear at times things  
not a whit more to be dreaded than those at  
which children shudder in the dark & fancy  
sure to be. Their terror therefore &  
darkness of mind must be dispelled not  
by the rays of the sun & glittering shafts  
of day, but by the aspect and law of nature."

(a)  
Sine injustice & society is untrath  
& one's own nature

(H)



Hereditary. G. H. Lewes II 378  
 quotes. Prosper Lucas Traité de l'hérédité  
 naturelle 1847-50 Lectures on the  
 Physiology of Breeding Orton 1855  
 (2 <sup>unusually long</sup> <sup>1844</sup>)  
 Traité de Génération Gibou de Bazareingues  
 Girou 1828  
 Moreau de la Physiologie morbide 1859  
 Westminster Review July 1856. Hood: Influence.  
 See also Herbert Spencer Principles of Psychology.  
 See Varent Duchatetel - Da Gama Machado

Australians Mathew has written ? where

Whitcroft sketches & characters Saunders & Co  
 1853

Butler Garh - Australia -

... life in the Bush.

North American Indians utter indifference & melody  
 chivalrous, vivid sense of honour.

Indians of California Bryant

André  
 Asiatic nations. stability of their character  
 no spirit of curiosity or speculation.

1.59. Hindus a very good passage quote

Read Adam Smith's moral philosophy

<sup>on national character</sup>  
Chetty in library of Athenaeum quote in appendix  
 his passage on the influence of individual geniuses  
 in moulding the destiny of nations <sup>vol 2,</sup> p 41-43. & after.  
 Read his chapter on Morality of different nations vol I. 157.  
See some pages on

When 210 million }  
 Buddhists 200 million } Smith Brown  
 1887. A 2 copies

Glacier is (not) thermobaric? } like  
 more water fed

Types of branch

Break of into new forms

Infinity - any other look of 0?

Side of billions... the rapid change...  
 the part of billion system, the other 2 in  
 & there are some relation between many of  
 average of the supply. we take our time &

Come in occasionally to something  
 splendid  
~~to the~~ - man

= Macaulay says <sup>where</sup> the Puritans put  
 down bear baiting their zeal was  
 less inspired by pity for the bear  
 than hostility to a popular amusement

Jerome III 316  
 R. A. C. 1890.

Individuality | Man perishes like  
 or family  
 a nation does! breaks up & recombines  
 in new combination

Electro biology individuality  
 merged in another R x

A child is ignorant of the feelings of other people  
 yet is consistent in itself. — . h x

$E=0$  as true for trees as for men

individuality of trees. — made up of star cells  
 and a life force.

over Properly objective behavior is  
 subjectively heart felt.

Parental affection shown by children to dolls  
~~modeling of woman in acts of concern~~ x  
 Conscience may impose — — — Sabonah x

## Beer Anti Patriotism loyalty

Disinterestedness. - a person forgets himself and too readily  
 & throws himself into other peoples ideas & schemes and  
 see Mr. Douglas letter about Africans & Hindoos

Council meeting, - forget all other matters for the time temporary  
 individuality of the meeting. - ditto of States, families - schools  
 regiments.

With entire ignorance of the purpose for which we are called into life  
~~the~~ <sup>notwithstanding</sup> a conviction of the deterioration of nature we cannot  
 help believe also see a decided tendency to progress of type & of complexity &  
 natural harmonies in this world (of which alone we have any knowledge, that only  
 during some 6000 years & a most partial one) we have therefore reason rather  
 than the contrary to believe the comfort on strong natural hope (Anglo Saxon)  
 that there is a purpose & that we are more than mere sports of nature

## Colebrook Vedantic papers

Wilson Rig Veda - Vishnu Purana  
 Ramanujan Rig Veda  
 Rodwey Koran  
 Bourneuf,

Text books Physical Geography published by  
 Blackwood & Co. - see Times advertisements Jan 3. 1875  
 Advanced text book Phys Geogr Page 12.  
 Introductory ditto Page  
 Elements Modern Geogr Mackay

~~Wilson~~ Vedas as 1200-1400 BC Wilson  
 Zoroaster 589 <sup>Pliny's Cyl: see</sup>  
 Daniel 530 <sup>Bryant's analysis ancient Mythology</sup>  
 Confucius 551  
 Abraham 1900  
 Moser 1500  
 ? 1000  
 315 Buddha  
 252 Mahomet  
 111 Brahmac - see Colebrook Asiatic Research VIII 349-466 reprinted in  
 120 Christians his miscellaneous essays p 9-114



Identity - what does the Lama of Tibet think  
of his identity see Penny Cycl V. 532 top left column.

Aug. 26	1.27	4.58
Sept. 2 -	6.50	10.25

Aug. 28	9.26	1.27	2.20	A. 4.40
Sept. 15	10.25	2.15	4.55	

★

Sept. 2.50	5.57
Nov. 4. -	6.50

Pouchet his Table of Linnæus & Syst. Nat.

Homo Americanus	{ Pertinax, contentus, liber Regitur consuetudine
" Europæus	{ Levi, argutus, inventor, Regitur vitibus
" Asiaticus	{ Severus, fastidiosus, avarus Regitur opinioibus
" Afer	{ Vafer, sequis, negligens Regitur arbitrio.

Congregational worship. α

f. 22

Apparition a far stronger evidence than for  
example the return of x on the spirits in the  
streets of Jerusalem at the time of the Crucifixion.  
Sight seems spontaneous, might be bred.  
None is an most imperfect - want knowledge  
x cannot get it - Confession

Barbaric ancestry - as surely as I  
well nurtured dogs & shown by their sniffing at  
dirty meat.

Motive of duty against the grain,  
labour of love &

Hodgson Mortality among Clergymen.  
Expectations of life . . . 3? Jan 1865 C. E. Layton

Stanford's classified Catalogue of Educational  
works. (Geograph)

American Indian indifference to death

Ulloa (Pinkerton) XIV 522. Good passage & quote.  
I have marked it.

That great suicide of I & Saxon mankind. <sup>encourage</sup> we allow suicide  
& Saxon others or for the good of others not for one's own  
'relief'.

W-Atbun Enclosed 2  
 Benjamin Handley  
 5 Park St Westminster

---

Clergy on committee -  
 Lawyers opinion of 2 widows  
 Convocation - prayer at beginning

---

King Charles - 1 extant  
 Buccleugh (Southampton) Grafton (Northumberland)  
 St Albans Richmond. 4 extant 2 not so.

---

American Indian,

Esquimaux

Hindoo

Arabs

Chinese

Negroes

Papuan

English

Character

is written out, (Robertson mainly)

Grand 7 death

Ulloa Pink XIV. 522.

Hall when deserted to die an uncomplicated

Huc - Gabat China Doc II Chap. I. p. 41-3

Brodie. Bacon.



(Spotten woodi list of book)

Bournouf Introduction du Bouddhisme Indien

37. Proselytism 189 disinterested death. 198 Facets  
with which poor were admitted by Brahmins

Spiegel Zoroaster

Wilson Rig Veda

Ramohun Roy Veda (as well as Wedant)

Colebrooke's Essays

Mena

Oxford Essays Max Müller

Valhalla - Westminster Abbey - O. Paul  
 Snider self help - Campbell Index & L<sup>d</sup> Chan

## D<sup>r</sup> Eury's papers Statistical Journal

XVII 20. life of clergy & medical men.  
 (mean, the latter are exposed to contagious malarial p. 22)

XX. Summary of previous inquiries 115.  
 Table of duration of life in the 3 learned professions 90  
 Conclusions 71

XXII. mean age of Sovereigns & ruling clergy Lawrence  
 p. 135 (? a right reference - not in Index)  
 Summary of previous papers 337  
 Duration of life as affected by social occupation 355.

There are times when a man needs the support of sympathy - what he believes  
 to be sympathy does as well. - The alt: says there is no q. on that assumption & feels  
 a devout man would be due to his belief in sympathy not to the reality of it. But is there  
 any extraneous influence? Is there more than can be accounted for them? Devout people say yes.  
 Eminent men believe it, but they more than any others require such sympathy, for they are  
 misunderstood by their associates.

Walford Men of the Time 1862 Routledge  
 2 Van Eyck's & sister Margaret pictures of  
 Verger - Child in our National Gallery.

See "Grandeur of the law" by Fogs.

f. 25v

# Campbell's list of the Chancellors p. 265

## Chancellors with distinguished relations

**Vol 1.** Turketil 33. grandson of Alfred  
 Roger Pauper 55. nephews of Roger the Great but a job  
 Thomas a Becket 61. Father was sheriff of London, not  
 - with standing his poverty.  
 Longchamps 106. very eminent & a foreigner accused of  
 inducing his relations into power

Godfrey Giffard 115 same family as predecessor - he did well.  
 both as Chancellor & as bishop

Robert Burnell 162 very able, accused of nepotism

225 Nov 3 VIII Langton 173. related to Cardinal of the Magna Charles  
 - 2 brothers both Chancellors.  
 More 504 Son of Sir R. More, a judge

**II** Sir Nicholas Bacon 112 in high praise of him  
 Lord Bacon 112 Son of above, had also a talented mother,  
 (Noble house derived from the bar 82 in number p. 260)

Finch 542 Father a good lawyer.

Littleton 577 of an ancient family of the robes - father, also a justice

**III** Whitelock 18 strongly connected with the law father  
 & great uncle were judges. His son W<sup>m</sup> rose  
 to great eminence at the bar (p. 83) & his eldest  
 son was distinguished as a soldier.

Herbert 109. His sons distinguished 109 - Eldest rose to  
 a high command in the army, 2<sup>d</sup> the great  
 naval officer who was created Lord Torrington  
 3<sup>d</sup> son became Chief Justice of K. B. followed  
 James II. into exile & was made Keeper of Great  
 Seal in partibus

Clarendon 110. uncle Chief Justice of K. B.  
 daughter 169 daughter of York (& mother of  
 Queen Mary & Queen Anne) 199 with a agreeable  
 manner much place. - 270 3 sons who gained  
 some distinction

Bridgman 272 Son of a Bishop

Shaflesbury 208. Son of a clerk of the Council

(See for the profligacy of this ancestor of our L<sup>ts</sup> S)

Finch 300 Father was 1<sup>st</sup> cousin to the previous Finch. Also closely  
 London & speaker of House of Commons. - 428 "His  
 second son almost recalled his father in the  
 brilliancy & success of his professional career." "on  
 the bar will not set of a man in  
 a natural facility of speech such as the family of the  
 Finches, is eminent by" - made Solicitor Gen<sup>l</sup> a Lord of the  
 He completed the list of eminent men that have made their name  
 of Finch so conspicuous in our legal annals.

North 431. Vice character for breaking to 232 mother a person independent.

Jeffreys 497 Chancellor as well as judge - never was child so unlike his parents. Who were quiet people.

IV Preface "...the Chancellors of the 18th century are much less important characters than a Beckett Wolley more Bacon Clarendon Shaltesbury & Jeffreys"

Somers 44 His father was the most eminent attorney in the county of Worcester.

Cooper 240. ancestor of the Poet.

Harcourt 500 family distinguished some generations later

Macleodfield 515 Son a celebrated mathematician & President of the Royal Society

King 567 Nephew of Locke the philosopher. descendants 647 in first generation nothing more but in the next the talent of the founder of the family broke out with fresh lustre - the late L<sup>d</sup> King

Talbot 648. Father Bishop of Oxford Salisbury & Durham. eldest son (686 and 685) of whom great hopes were entertained, died young of the next ~~son~~ <sup>son</sup> ~~son~~ <sup>son</sup> succeeded to his father's virtues. { Thomson the poet opens his poem on Liberty to him to his memory.

V Hardwicke 172. Sons one a Lord Chancellor <sup>York</sup> & eldest son a man of letters & excellent politician 3<sup>rd</sup> son ambassador to States General. 4<sup>th</sup> equally talented with the other brothers but private. 5<sup>th</sup> a Bishop of Ely

Northampton 175. Father one of the politest & accomplished men of his day.

Pratt 230. Father distinguished. an eminent barrister & Chief Justice of K.B. Son distinguished to his public services.

York 366. Son of L<sup>d</sup> Hardwicke

Bathurst 433 son of L<sup>d</sup> Bathurst who acted a distinguished part in public life during 40 years. - His father was the only individual except the father of Sir Thomas More who lived to see his son L<sup>d</sup> Chancellor. 434. The son of the Chancellor was the L<sup>d</sup> Bathurst who filled high offices under George III and IV



Thurloe 660. made his brother a bishop.

VI Erskine & his brother Henry <sup>704</sup> excellent jester as well as lawyer, also the other <sup>half</sup> mad brother, L<sup>d</sup> Buchan

VII Eldon brother of L<sup>d</sup> Stowell <sup>707</sup> judge of the admiralty raised parli<sup>am</sup> - presented to the king at the same time as a king's advocate the other as Solicitor General & so on. both made lords

p. 71 117 Chancellors in the book Whitlock Thomas asserbert  
54 + 3 commissioners <sup>during Commonwealth</sup> whose lives are written  
Since including Henry VIII

Lucas (Prosper) Traité de l'hérédité naturelle.  
247 <sup>254</sup> L'inceste. 249. Susceptibilité & sperm. coffee calomel  
I. 477. Drunkenness - ~~Heavy~~ Gambling. meat  
478 Sexual passion. women men. 480. Crime to property. 486 monomania to steal  
496. Crimes of violence

579 "La génie véritable est toujours isolée, disent d'une commune voix Spurzheim Virey Lardach Bardach etc. : il ne se recueille point dans la postérité.  
(References are given)

581. Eloquence & other qualities historical &

583. Sculpture - painters - music

601 Dancing 605 Summary.

II. Melancholy Johnson (see Burton?)

2. 250 immunity from infection & phthisis

252. Lord Althorpe's reply to Mr. Baring about luxury. Short lives as headstays 260 the man <sup>8121</sup> dying father <sup>102</sup> had beaten him for not saluting his grand father 173. also X. 58

341. Hindoo thought Son is a perpetuation of father's life  
Bibl: Manon, IX 8 & 9 & more on other authorities. Institution  
Carter de l'hérédité: (belonging)

## Combe Phrenology.

Religious glory, wealth, intellect, poetic power  
 purity, asceticism, combativeness

172 on personal identity - girl with double consciousness -  
 -ref. 174 a lunatic thinks himself Napoleon &  
 feels poignant remorse for the massacre at Jaffa.

241. Gall says but doubtfully, that in all animals  
 where both the 'male & female' concur in rearing the  
 young, marriage for life exists - where the female is  
 unaided, marriage is temporary. - Vernon mentions  
 many instances of social animals.

## Van Troop - Maxims Aurelianus

Jacobi (Proctor) continued from last page

371. Moral nature consists of Sensation - Sentiment -  
 intelligence - movement - They are so many forms of  
 action of one & the same principle.
- 372 Sensation. Touch - varied sensitiveness - ~~as~~ one calls hot what  
 another calls cold. - Smell & firm weather - Endowed - Hatred  
 of light 382. Smell & taste - 385 Stetiness & sweetness are purely  
 matters of individual taste. Strength of scent in same dogs - Evman-  
 -dices - 390 Hatred of flesh 397 table of congenital blindness  
 very important. (399 quote Hazzard sur l'amebiocration  
 des chevaux en France 1808) ~~Ames~~ 405 colour blindness  
 420 hearing.
- 434 Sentiment 461 (quote Richard Manuel des Haras,) Horner 461

read

Broc *essai sur les races humaines*.George Leroy *perfect bête des animaux*

Chenévix 1.137. Morality of different nations  
 virtue submission with the war with Neuchâtel  
 (blood funds - duty) hospital, Trade  
 cheating. pride magnanimity vulgarity  
 fashion (nation's lament degeneracy a  
 magnify the dead of old time, show the standard  
 becomes more life - man improved -  
 Laws of honor Pallas definition quoted 158 as "a  
 system of rules constructed by people of fashion and  
 calculated to facilitate their intercourse with one  
 another, or for no other purpose" alone for an outrage  
 by fighting, duel. - a debt of honor has precedence over  
 all other debts - Trade rules. - Code of honor among  
 thieves. (Code of honor allows cheating in selling horses  
 because cheats are associated with - must do so in  
 self defence) Chivalry. Importance affirmed in  
 human life. Politeness among Chinese - Socialism  
 Rules of war. Divine rights of Kings titles of  
 Kings. Suicide p. 147) Sultans. (Sacrifice, p. 151  
 human & other) Infanticide p. 183. (which  
 whether the highest motive maternal satisfaction in the  
 well being of the infant, or the good of the state.?)  
 (Cruelty is quite an instinct.) 181 onwards) Priestcraft

Every thing is fair in love. Monastic life. Men of taste  
 Superior races improving among inferior races

= Theophrastus (de Buxire) Breviary. Adversus

R. B. Walker  
10 Milbourn Grove  
West Bromley

Caesar Smith's Dictionary <sup>±</sup> 554 B column

"His moral character as far as the conduct of  
the sexes goes, was as low as that of the rest of the  
Romans of the age - his intrigues with the most distinguished  
Roman ladies were notorious, & he was equally lavish  
of his treasures in the provinces" - 552 Cleopatra  
had a son by Caesar who Caesarion, p 556 was  
executed by order of Augustus. He married p 587  
~~Cornelia~~ Pompeia & Calpurnia Children Julia  
~~Cossutia~~ by Calpurnia married Cn Pompeius. besides  
Caesarion



lat by rule 51.30 long 71

f. 29r

face rt

face left

20.45

20.50

21.5

21

~~21.50~~

22.30

22.5.31

22 21 18.7  
25 2 3 3  
25 1 32  
21 16.20  
5 422.5  
7.50 18.50  
2 3 40

1.35 sud: face rt

~~22.15~~

18.10 21.50

18.5 21.55

18.15 21.45

18.30 21.50

18.30

18.50

22

23

24

27

27

28

31

32.45

32.50

33.0

33.0

33.0

33.0

34.0

x 1/2 0  
x 1/2  
x 1/2  
x 5  
x 6 1/2  
x 7  
x 12

least

30 30'

30 0'

30.45'

30.30'

33 30

x 2 1/2  
x 3 1/2  
x 4 1/2  
x 5  
x 7 1/2

31.30

31.30

34.50

34.55

34.55

35.5

x 15  
x 19  
x 14  
x 21  
x 22  
x 23 1/2

34.50

31.30

31.30

if wire  
an other: in art. hr  
eliminated this.

think 9

lat error from center  
na 31.50

Continued  
March 20 lat. 51.7  
Error 0.20

March 21 lat 51.30

quite right! only off on obs at 12 aft



Read Roman Lancers Semiticus

R. de Nemusat. Revue de 2 Monde 1834  
Race Hamar.

Population of Europe at time of black death  
in 1347 has been estimated "at 105,000,000, -  
a high estimate" - Cornhill Mag May 1868. Blackfriars

Mitchell of Oxford is said by Brodick to have made  
out that all the 1st class men of Oxford belong to a very  
limited number of families.

Relationships. Isaac Taylor's family - The Gregories  
Bunsen & Father. Carlyle & Father & brother of Dante.  
Milton's father wrote a sonnet & composed some music.  
Ptolemy married sister to ... generations - So did  
the Persian Kings

(A see next page)

Enlist. Hist of Civilization

at the beginning of the 10<sup>th</sup> - cent's barbarism  
had arrived at its extreme term (perhaps)

Say 30 generations ago.

Then came feudalism between the 10<sup>th</sup> & 13<sup>th</sup> cent's. (180)  
the right of <sup>personal</sup> resistance - a terrible, unsocial right, which  
appears to have & to have, which is the destruction of social duty  
-- "the very nature of feudal society, was repugnant to  
order & legality"

see p 421

426. Instances of the coldness of wandering -  
Savage Bruce Leventhorpe Iroquois. Matthew  
Robertson

Is there an instinct of expiation?

Facinus xxi "To devote both day & night to deep thinking, is a disgrace to no man"  
 "They yield to gambling with such ardour, that when they have lost every thing else, they place their own liberty in the hazard of the die"

Insert, education like fencing - navy work  
 monstrosities in dogs  
 individual variation  
 Epitaphs  
 Grace King, Kent  
 George Henry Leves  
 Show that self-interest is noble  
 I don't depend on statistics alone but can  
 quote private cases without breach of confidence.

### Distinguished families

Hannibal. Philip of Macedon incl: Ptolemy. Charlemagne.  
 Macaulay. Coleridge. Sheridan. Pollock. Wordsworth  
 Stephen. Tenn. Stanleys. Thompson (Math). Gregory  
 Palgrave. Kingsley. ? Dawson Turner. Lushingtons  
 Butlers. Hooker. Darwin. Brontë. Merivale  
 Wordsworth. Pitt (see Rotten). Herschel (Caroline) Niebuhr  
 Napier Burns. Kennedy. Kennedy (see A last page)

Several  
Some models of rocks  
in white plaster

x Aussee talk mine

~~May 1st 1914~~  
~~Petermann~~  
Richard, Antiquary

Salt mine Hall in Tyrol  
not very good

Shanklin bc Isle of Wight  
x 6 ft x 3 1/2 very dark colored  
but might do

x Mining District of Cornwall  
colored wood.  
2 ft x 1 1/2 ft

xx Australian quartz crushing  
4 ft x 2 ft I fear too heavy  
x Landship at Forester 3 ft x 1 ft  
dark mahogany

xxx Isle of Bowbrom <sup>Hammer</sup> 1 1/4 ft x 1 1/4 ft  
Le vend chez Adam 19 rue de  
Berthier Presented by Ecole de  
mine

In Geological Museum Jermyn V.  
 Alton Bay very minute & great  
 X beauty but a good deal of colour  
 but not too much probably. The  
 white about 4 ft x 2 ft

Average large too much colored  
 5 ft x 5 ft

Isle of Arran 3 x 1 1/2  
 too much colored

McCen's col 2 ft square  
 X white contour lines I fear too  
 delicate. otherwise a beauty

The Alps generally  
 too green a most careful  
 model. trees want to.

X Salt mine Hallsatt  
 3 ft x 1 ft very good



St Paul in Indian Ocean model of bronze  
 made by Noova some blotches  
 in metal - cast the by taken in plaster &  
 Paris. Charts to correspond 1 admiral  
 2. Noova — excellent in contrast  
 with stereoscope.

X Bauerkeller's Sarty: in paper  
 Mr. Blane

✓ Gibraltar very large

✓ Isle of Wight.

North Italy large plants under shelf

✓ Monte Rosa large in drawers very good

✓ Table Mt. Cape Cod slope

✓ Abyssinian coarse but effective names

Frankfort green under shelf

Island of Clare large very good.

Jan 7 Lake away

S<sup>t</sup> Paul

Bauerheller Mr Blam

Table Bay

Alpina.

Page - la Plata

7a

South, tale of Paraguay

Letres Edificantes (not much) vol 177

Jesuits commenced their missions 1608 - expelled 1768

Charlevoix seems the authority. 1761. Paris

Chrétineau Joly Histoire de la Compagnie de Jesus

Uloa San Antonio

Tableau des Peuplades formées par les Jésuites  
(he discusses with animosity the father <sup>Azara</sup>)

Sobrizhofer de Abiponibos (Azara thought it a  
corruption)

(Jesuits' half-breeds included wild beasts of all kinds)  
Charlevoix

8<sup>e</sup> Orbigny

Voltaire (where?)

Robertson tells

St Woodbine Parish letters.

N. Duran. 1758. Relación de l'insigne  
progreso de la religión Christiana

g. Lincoln Asylum. 1848

h. Littlemore Asylum 1849.

7 Statist. Maladies Mentales Hüberty <sup>1853</sup> He  
was a Danish Commissioner to report on Danish  
madmen in 1847 - They were nearly 4000. - He  
groups the returns but the returns do not enter  
into detail. -

Report on Crétinism to Carlo Alberto Turin 1841  
a 900 ("Blue") book. An Italian nothing about  
religion apparently

Journal Statist. Soc.

IV. 278 Tuke is quoted to say that 1 Quaker  
in 300 is insane.

~~V~~ Lunatics at Sierra Leone - Religious excitement

729 patients in 10 years.

VII. 310 Thurnham. relative liability of the 2 sexes  
He shows an error of Esquirol who takes the case  
existing or not occurring. -

to mental derangement was always counteracted  
by the consolatory influence of true religion. In  
the first paroxysm of his disease prayer &  
God afforded a <sup>to his distraction</sup> temporary solace, and  
later in life the sense of his obligations & duty  
to his Creator arrested his upluffed hand in  
the act of suicide.

There is a deal about Wilson in reference to  
intensity - ~~many~~ cases are given but the  
writing seems unbound - too much theory.

---

Vol. 1

Tracts, Alienation Mentale - not much  
Tours asylum.

---

Tracts Vol. 1. Insanity & Lunatic Asylums

- 1 Esquirol Illustrations des Aliénés
- 2 Beaudeau Aliénés Bar Nhein. Paris 1840!  
number of mad, much the same in all religions p 29.
- 3 Statistics of the Retreat New York. 1841
- 4 Stafford Lunatic Asylum 1846



3-a

Abeberg retreat for Cretins - Paff.

---

Causes of Idiocy Howe (a report to  
Governor of Massachusetts) Edinburgh 1858.  
page x. "Nature outraged in the persons of these  
parents, exacts her penalty from the persons  
of their children" p viii 574 idiots were examined.  
p. h. quotes Séguin the type of an idiot is one  
who "knows nothing, can do nothing, cannot  
even desire to do anything"

The book ascribes much to intemperance of parents  
but is vague & American.

---

Causes of Insanity Jarvis  
a popular lecture in Massachusetts

---

Burrows on Insanity 1878.

p. 28. Cooper "the morbid tendency of Cooper"

and find mad Romanists & mad Lutherans 11:10.  
A statistical paper by Dr. R. Hubertz on the  
state of mental diseases in Denmark (<sup>? in the</sup> see Journal  
Physiological medicine July 1858 p 441) states  
that the proportion of idiots & insane varies  
considerable with the sect. viz in Socy 1000

inhabitants Romanists 3.34. Jews 5.85  
+ The paper itself throws doubt on these  
Calvinists 9.16. Bethlem returns are "altogether  
valueless" on the extent of the influence of religion  
as affecting the chance of recovery & death" p. 34  
"this we hope will not be the case in future."

p 37. Married & unmarried. Bethlem results  
do not confirm Dr. Pritchard & Esquirol, which  
show an enormous preponderance to unmarried

page 83. Perverted religion 37 in 435 cases  
among men 11 in 545 among women. These will  
probably be yet higher if more was known of  
the history of the Bethlem patients.

---

1a  
Paris

Alienation Mentale Aubanel et Thore 1861

27. Causes no mention of S.N.

h9. Madness hereditary from 1: 2.89 Esquirol to  
1: 15.30 in Palermo.

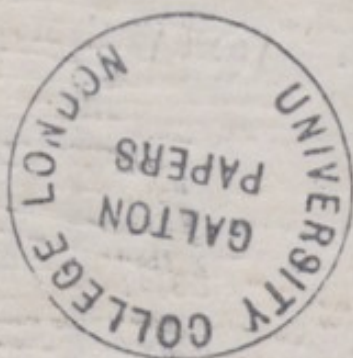
175 Causes. Deostri Exaltée 5 in 87. there are 2 causes  
of h. Amour contrariée & Frayeur. Misère of 18  
& Chagrin domestique of 2h. all the rest are left in  
that year 1839. in the 7-year previous Deostri  
was ~~found~~ only 1 in 472.

---

Hood Statistics of insanity Bethlehem Hospital  
from 1866. 1855

1. 30. Religious persuasion of patients admitted  
as curable. "Scarcely any thing is more difficult  
than to determine the real influence of religion  
on insanity". He quotes Pritchard (? who) largely.  
The Prussian States on the Rhine appear the only locality  
where a comparison between Romanists & Protestants  
may be fairly instituted. He takes Düsseldorf  
Aix la Chapelle. Treves Cologne & Coblenz

Aug 1864



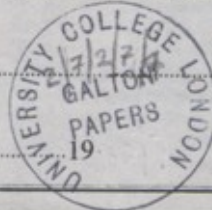


University of London, University College, W.C.1.

**THE GALTON LABORATORY**

*Presented by*.....

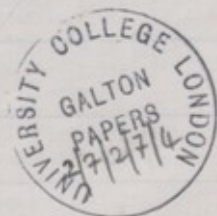
*Purchased*.....





# Contents

2	Shakes, personifications	3	Preferences - Introduction
4	Printed written numbers & words	5	Printed & written <u>numbers &amp; words</u> <u>colored</u>
6	Numbers form uncolored	7	Numbers form uncolored
8	Numbers form <u>colored</u>	9	Numbers form <u>colored</u>
10	Dates uncolored	11	Dates <u>colored</u>
12	Years & months plain	13	Years & months <u>colored</u>
14	Weeks & days plain	15	Weeks & days <u>colored</u>
16	Alphabet plain	17	Alphabet <u>colored</u>
18	Heredity	19	Heredity
20	Evidence of change <small>note in other copy book p. 81</small>	21	Oddities <u>colored</u>
22	Cannot account for them	23	Can account partly or wholly
24	Visions	25	Visions
26	Dislike of many persons to be quoted	27	Personification to quote names
28	Writing generally	29, 30	music music <u>colored</u>
30	how to teach	31	memory - full details
32	important letters to quote	33	blank
34	names of persons whose forms are drawn in M.S. plates	35	names/forms in M.S. plates
36		37	blank



Edith Watson at Miss Lewis School sees 3 always as  $\frac{3}{7}$  because she was when very little  
set to copy and a pattern - The dress it reversed  $\frac{3}{33}$  and had to copy it again!  
 $\frac{3}{33}$   
 $\frac{3}{33}$

Algebraic Identities & Formulas  
Mnemonics

Hardy, clear, - less sunny  
Early Aug. 11)  
Abundant - some difficult to get from corn  
Mammals



4.)

## Printed &amp; written numbers or words

f. 2v

D'Abbadie (friend) interested for applied mathematics sees each figure singly at a convenient distance from him like a person's head at a small window

Murray the 56 is in large gold characters with two lines underneath

Larsen cannot hear a word without seeing it, except in very quick conversation when he is conscious only of the matter. — Mr. Strongy — Evid. at Miss Lewis' <sup>Garnett</sup>

Minkinsind has a friend in whom every sound takes the form of waves

Garnett — Every word & letter appears before my eyes in print (copied)

Archibald.

Armstrong  
Oliver & Wetherick  
Capt. Buxton  
Lamb. Brunton  
Dark

crow

white or black  
black on light background  
black on white background  
dark in yellow ground  
in slate with black  
pencil is in hand  
black on left in right  
black



Printed & written numbers or words colored

f. 3r (5)

see copy book of notes p. 2-5 for  
the particulars of

4 Achard  
2.3 M. G. Butler  
2 Foster  
5 G. E. E. E.  
5 Mrs. Croftfield  
2.3 Henlow

Anna Lloyd  
John O. O. O. Sack  
O. E. E. E. E. Maxwell  
Mrs. T. T. T. T.  
Mrs. Shuttleworth

abstract ideas colored or personified

Personification

Anonymous A (warring, etc. Everything is colored, names letters & all except numerals  
abstract ideas in colors





number form not colored

f. 4r

(7)

As shown the figures are colored

8.)

Number form colored

f. 4v

## number form colored

f. 5r (9)

O'Connor the figures are colored

Sustap Sirey  
When I add figures he counts & do it always with the hands of the numbers  
but when he adds the numbers several numerals are dealt with in these different ways  
they 5 and 2 are visualized as on cards: 6, 7, 4 as commonly written 8 and 10 are both represented  
both verbally & audibly & visually 8 appearing red and 10 black

10.)

Dates uncolored

f.5v



Dates colored

f. 6r

(11)



12)

Years & Months plain

f.6v

Probably the clock face has ~~been~~<sup>been</sup> to do with the Form of the Year (12 months)  
still the numbers are often reversed & the 1<sup>st</sup> month is not at I

Years and Months colored

f. 7r

(13)

14)

weeks & days. Maria

f. 7v

Weeks & days colored

f. 8r

(15)

Col Yale day 1 week



16)

Alphabet plain

f. 8v

## Alphabet colored

f. 9r

(17)

See Copey book notes p. 245 for cases

Howlet is offended unless the Spectroscopic Diagrams run correspondingly & notes of pious forte, quiescent vibrations & highest notes & the vocal

George Bentley gives his colored letters - Says they only appear when he thinks of the letters as abstractions, not when he pictures them before him arranged in words. Also he must be in an idle humor of mind & be conscious of any such appearance.

Key I suppose I must abstract a print his first letter. Probably I would get something about him from Prof. Baynes. (I have put this letter with the illustrations)

De Baulays are contours of Whittell as well as contents of the young lady Miss Flores Isabel Flores the colors seen to rest in the letters - in common words however the colors are not to be seen



Heredity

f. 10r

19

Quakers a color blind self.



Col: Gale.

Pucci had been practicing & observing colors & began to succeed - found great pleasure

decoy de Boisbrenon

Leland's eye - memory

V. Abbe's friend - his big dog. His growth & promotion was sudden (colored)

woodcut - stands in number from opposite his own age the point shifting around with it



Oster Saeken. small size of objects virtualised

Edgeworth - Schindler. the stretching of the number carae - Also Achard & Mann

Mann. has omitted entry in his ledger dreamt of at night & proving correct

A Anonymous (summarised) { Witherell } <sup>certains</sup> Numerals applied to human life become a perspective of  
suggested to fiction (grotesque) a person of the corresponding age - As regards words, by 51  
63 he had composed a glossary of a text before the numerals appear

Ball proceeds of X's from old S downwards has been to regard every n<sup>o</sup> as an aggregate of smaller than

Sci. P. Beckett's best inventions are made in church.

Bridger draws simultaneously with right & left hand [center for all] & writes to, also, (see Schindler)

Bridger's father - method of calculating by dealing with numbers as concrete things not mathematical symbols  
is described fully in Math. C.E. vol. XXXV. p. 267 - I had believed that every body might calculate in words  
Spottiswood, when 19 was overworked telling me that mathematics gave great repose. - Chadwick's concordance  
Brough a child always associates the heart with yellow & the soul with blue - no form with them  
said that the heart

J. W. Bush. Hearing incessant thuds as if a clock or hammer. I mentally group them into fours  
very often tell in that way how many without directly counting - I have then counted by chessmen a brook.

Bark Endorsed his return in some Reports he had to make to the Home Office, which must have  
gratified the clerks.

S. Darwin. Col Clark told him that after a weeks practice he was able to multiply 6 figures by 6  
and to remember the results through the night & that a man in the R.E. office can multiply 11 by 11

De Candolle Poets associate words by their final letters & there always have been poets..... Paris.

Erasmus's Latin additions see under Number form - colored

Douglas Galton used to multiply 6 figures by 6 mentally - doing it just as on a slate, cannot  
understand any other way of doing it - He used to play 2 games chess at same time, saving  
without being bored

Garnett thinks virtualising correlates with ease of learning language by ear

Hawthorne simultaneous mental utterances 'how do you do' 'I am going home'

"The letter P on the forehead. "By no effort can I turn round inside & look through the back of  
my head as I do through my forehead" - [in all cases it is as though the virtualiser can behind the object]

Heurhan child 6 1/2 unintentionally writes backwards (10 years) child's printed letters) see Bidder above

T. H. H. refers to traces of thought in word mouths. Garrow universities & Garrow virtual

M. W. Humphreys - the number diagram is always to the West of him. Child's the afternoon

"I am the eldest of them all" (a song) he always sees a man at that point

(Huxley) Phantasmagoria cleared on one side of field of mental view

in the left hand favorite doctrine that persons' souls differ more than their bodies

Novel see his diagram associated with the front of the compass he is facing north & looks at it  
from the south. (with Herichelt too) also B. Wood Smith - also M. W. Humphreys (see just above)

F. Petric Accuracy of estimation of fractions, an easy & delicate test of that sort of accuracy Nature 16 Dec 1875

Schindler's ~~method~~ absolute force on from right & left with faintly

From above  
Stretching - Numbers viewed as aggregates - Division into three - four - <sup>hundreds of symbols</sup> powers of mental availing  
writing, right & left & upside down

22.

Cannot account for them

f. 11v

Book

8 answers by Willenoh

Summar-

Can account partly or completely

F. 125 23

How the most interesting to find out how far the mental picture was first started in the mind of

lower end of social image

Children numerous associations - half legend & historical

Dora Du Cane Vermillion

Children & imaginary companions (Miss Harker)

Miss Harker - clock

Loring Keese his views are excellent & should be put at length.

Miss Jane Mills cotton & words - thinks power may be strengthened by cultivation.

Platt about his daughter & the Seize surprised at dix & rendered the aphorisms ridiculous & the small

Sir F. Pollock recollects his Kings of England from a dyed-in-the-wool puzzle map

Broderick

Seale - could perhaps learn much from half-witted persons.

Wood Smith can never let others put in his opinion

[A number form. is sometimes like the edge of a solid object, may be viewed in many aspects.]

Barrow has formed a clock dial

De Candolle - does not associate words not by their sense but by their final letters; as words have existed in all

hands it shows that man has a sad tendency to false associations

[Learning to write in a picture should be those that the eyes follow with the greatest ease]

Wood thinks he can account for his numerals (must re-read the letter)

Wesley Jaggard & Clock. dominos counters abacus (Miska, Shuttleworth) coins. measures

of length (carpenter's rule) - of weight (lead N. bearing its own weight and Douglas - linear

magnitudes in most forms - angular revolution as in Charleston's box.

Flinders Petrie

Wesley Jaggard is child hood - road to Dorchester - getting in in life see lady by W. H. P. & among

my reference of length to Claverdon walk of acreage to Paul's piece (the scholar it is a 4<sup>th</sup> & my lie less down

Troutman & L. H. Cawley. This is just what the children do with numbers.

Caricatures & exaggerations sufficient alike to be often recalled - some like other things are to them distinct

in outline - Elmslie & travel - by experiment - winking.

Excellent with visual & auditory memory - These latter not so well for the one another. Most: Granville

has recited what says our mood - evocative - saving. Spite. Nicknames that stick

Popular airs - coat words - (dancing, epidemics) rhyme from the

[Children have much more experience of height & depth than men who always tread the earth. Children

are tossed & lifted & swung - When one is let down over a cliff or goes up in a balloon there is

always a pleasant new sense of the 2 coordinate. What a layer coherence flying & swimming things

must have - Mother that has been once & small & that fly too have for better & worse opportunities than

we not only for familiarity with the 3 dimension of space but for a superadded variable as well - often time.

Time - If they had human intelligence their celestial coach would be as 5<sup>th</sup> & 3<sup>rd</sup>

"Phrases like times are a long time making themselves at home in the brain" George Eliot Scener Clenlife

"Abbadon's Zoologist why is on violet" you see that said a part of my name (which I withheld)

means 4 in the local dialect of the province where I was born, consequently 4 is my raison d'être

d'Abbadon's little, one of M. Jacques Bertillon - number form - garden walk - (as for the before named Zoologist)

Do not like sergeants but like a captain)

Didder thinks clock face. But it grew up unconsciously & spontaneously

J. Brown has a clear conception of the position of the <sup>four</sup> basic figures, and only sees the higher numbers as the

ordinary arithmetical numerals. He attributes this to having formed the scheme before he has learned to write. He was

last 6 before he began to do so - This bears out the theory that the formation of the scheme begins early in life.

Chatterbox Master. sharp angle of 15 perhaps also the fact that I learnt the multiplication table at 15 (that

De Candolle most prejudices are derived from ill conceived associations - fear of Friday - whether a salt cellar

[Connect the indifference with which I am often regarded to the shadow or indistinctness of some of my numerals

as in G. Eisen's form]

Shirley Robert "The two blacking shoe" & an example - good letter

Wood & Capron's complicated get to his mind & satisfactory way of account to his numeral forces

George Booth's months in circle possibly clock face



visions

f. 13r 25



Thos. Turrell. difficult of getting people to take interest it seems nonsense to them  
(L<sup>d</sup> Rayleigh on colour testing experiences)

d'abbasie not of the 68 men in Académie des Sciences. A distinguished botanist, has no  
number form & he hates dissection .... & an eminent physicist is also blank; the is mere  
psychology & I have an innate objection to such speculations.

d'Abbadie  
Bevan  
Meph Bevingli  
Bidder

Edgewood

Machado I think (but should be asked)  
Cotton Hill

Pool of Chanderhimer

Stewart L.A. (Christchurch)

B. Wood. Smith

Col. Gule

It is often reported that mental images of hard scenes are so unclear & so faded. [Continual shifts between particular - varying generalization.]  
 Larden is convinced that overwork results in indistinctly & difficulty of fixing images. - Exactly analogous to general attention & power of thought

Bacon. Great grief could not recall features of dead son

Bacon - child's buried note

Prof. Huxley says he can dream but visualizes well

Prof. Huxley says he can dream but visualizes well

Cromwell - re-perception used by a friend of his

Gay Schaffer saw object to be drawn in relief upon the paper

James Smith H'm H'm

Herbert Spencer's quotation from

Certain races of men have power of visualizing d'Abbadie says that ghosts become more

rare as you travel South.

Having seen intimate friends in so many attitudes & positions nothing is permanent

Bacon (not Howard told me) Great grief because he could not recall face of dead son. Mrs. H. H. H. H.

Such cases were common

Bidden doubts if in the mind images the idea of absolute magnitudes is present

Bradford puts all his thoughts in a geographical form. He cannot work suddenly having

first to prepare the tables of his mind

Supposes inability to see the feet is the reason that has led to Virgin Mary worship

Lauren Buntion speaks of angular gyrus as the seat of visual sensation & that of developed language

it would cause a hole in the posterior part of the skull - For some time past he has thought

this to be a fact. Woman's skulls are certainly more developed in that region than men.

William Butler cannot visualize by day nearly so well as at night. (? long dream may help)



Enclaves Dora - "Colloids in the brain"

W. G. declares (in letters) that his dreams have never to the mind of scenes voluntarily reproduced.

Ernest Hart R.A. had a very precise & as it were topographical recollection. Does not

visualize persons & doubts if persons could see their subjects quite clearly before beginning

How does good power of visualizing but he has difficulty in holding the images. They will change. As a boy

he would dream & really sometimes. - Extreme restlessness of his visual objects is characteristic and

place. They will rapidly oscillate or rotate & when the character changes of the same scene it is almost

impossible to critically examine them. I feel a mere spectator. I can hardly with them & when in full

control of change they are imperfectly & their refusal to be interfered with - this map of wood. - Visual Cycle

"Sensorial Vision" in Science Reports by H. M. C. July 1/1868.

Barth: Puer's story of wordsworth in road side gate by Rydal

Sensorial vision by J. Herschel in 'Familiar Lectures'

G. Haydon (and to publish) plays chess without men put by looking at a blank board. he does not think of his

servant that a sign is occupied, otherwise he does. - Solving, also felt aid in blank board

Levy de Boe's bandage is mentioned at p. 81 of Hamerton's life of Turner

Lord, thinks Carlyle had great power

Larden is sure that with him Visualizing is capable of cultivation

Leighton Sir F. has strong powers - It is not, but trying to draw what he visualizes that he discovers

deland's pamphlet on memory

George Macdonald - finds power to vary but has not traced conditions - 78 mind which is difficult of altering

a picture once formed. He finds it almost impossible. He takes a central object & every thing depends on it.

D. Mann story of the Bush boy - (Numerical of the Red Indian)

Marshall visualizes clearly his geography

Marshall visualizes his machines well & falls to sleep as soon as he gets to bed

How the compass bears in close association with all his mental images. The places are descriptive

recorder & each image bears a part of the whole. He finds they are wrong.

[An object seen out of the corner of eye not looked at attentively - can be true about magnitude or fact

Preise 1st letter c. not visualize color - after a while he shows me says he has perceived & increased.

Cromwell speaks of Mr. D. Thomson of New York using the term "re-perception" which however he

had not published on yet

(20 on page 38)

Howlett a note Dec 1.17

Armbuster hears music by fancy, but his letter as it is in reply to my Nature letter.

Preece gives the story of the musical band-master at an inn  
anonymous (quart by Westhead) has always music floating in his head of not satiated absorbed in some  
receiving present is even then it starts in - & I am recall a day-full of it.

Rev. F. Howlett (collected)

Hallel on realizing sound of written music  
Steadily follows. Music is hardly ever out of my head

F. Petrie can always remember absolute pitch

Music colored

Prof Aspin says that Herr Meyer a German attached to the Japanese Embassy has a  
large collection of color by associations with sounds which will probably form the basis of a book.  
Huxley a "musical phonetic spectrum" but give it a better name.

Socm J Howlett heard the other night his name called loudly







E. Anthony writes about Miss Stowe's remarkable verbal memory.  
 Benjamin Archibald - His mathematical perfects atrocious spelling with a disclerous exercise.

Why some things are remembered J. Bull recollects <sup>distinctly</sup> tens of thousands of individual specimens of plants and doubt if he can do so to 200 different people in the world. To say he pays no attention to the letter is not true. His wife observes deep with attention but recollects the face more than the text. When she absolutely forgets - even the fullness of his own paper.

It seems as if the available space for mental pictures had become crowded & there was no room for new ones. Brossard said that Mr. Hall (nick Bullock) challenged him whether he could name any day during the past 20 years & he undertook to say what he had done on that day. Oscar Heyer was one of one of the Maseles, whom they called at college "old gal" who had a similar memory. He was not especially able.

W. E. Cole's power of representing smells of places. He enumerates 6 or 7. I caught him to date of Archibald & he thinks this is a faculty that belongs to highly nervous persons of whom he considers himself one of the most modest specimens.

"Second - sight" not the word.

Fred: Hamilton cannot recognize faces - has felt his own mother's & father's face strongly on meeting them at a party.

S. J. Cronin "with me the right words seem to pop up of their own accord as if they were one with the idea. For some years I had a copy of Roget's Thesaurus but found it totally useless. [Cronin nevertheless told me the same. I also find it so, but I learn the many merged ideas in the same word by it all] - J. Cronin distinguishes faces with much difficulty unless there is some distinct mark.

Murphy (Habit Intelligence) writes much <sup>in his letters</sup> on the capriciousness of memory.

Schmidt has a very vivid recollection of motion [I ought to have had questions about this.] as the rolling of a ship with pitching. a Railway carriage.

[Poets raise subtle associations by jingle, harmony & rhythm & <sup>their phrases are</sup> ~~the~~ <sup>to</sup> present their spirit and ideas in a way that is prosodical, not the modulation of the voice as harmonical acoustics.]

Space memory ever under eye at once, with form present or virtuality. Time memory is sequence.

"Difficult things set the wits a-working & so remain longer in the memory" (Spectator). The way the mind is held in suspense during a long sentence. - (Direction to a calman, "as much as full")

Form  
in hand

- ✓ Mr. Leod, (Crosby Hall) number form

Mossbridge gives a very good account of the apparent cleanness of his writing and yet how it fails to stand exact analysis. (Like Mr. F. H. H. H.)

- ✓ Loring Neece

- ✓ Nozes is full & curious.

Osborn Sackee is good & moderate, about coloured numerals

- ✓ Roberts is a very good description ~~but his form is too introduced~~ N° 65

- ✓ Schmidt is very ample - clear & his is a remarkable case of clear oral?

State his imperfection of visual memory

- ✓ B. Wood Smith about Mr. Knapp. (o himself too)

- ✓ Stewart is a very careful description of his way of seeing the form  
ward to far as his complex way of accounting for some numerals, he is masculine & confident

- .. Wedderburn in D. must insert his

to think [on muscular memory] very interesting (a schedule set)

- ✓ Yale Col.

d'Abbadie	66	44	not in own form wh: is brief but many <sup>highly</sup> extracts from his letters
Armbruster	49	45	French work: - French lady -
Archibald Douglas	56	26	it is in ref. E' Nature
Conna: 68			
Barnaud A	3	45	think as an authority for the diagram wh: is by M. Black
B	4	49	also for fact as bearing its own weight.
Butler? not at all			
Biddar George	43	20	referred from my article in Nature, quote from his father's biography when
Butler Mr. Arthur	17	51	at beginning of book he said everyone to multiply on he did. they tried to multiply
Booth Capt Gore	55	32	
Cheltenham made	18	53	referred to in brief - has good fossils
" his sister	18	54	
Croftfield M. J.	52	29	? insert in wood cut.
Edgeworth	13 14	50	but not in wood cut. - It is a very simple form of Nature
Edgeworth	58	35	place it in wood cut. - It is a very simple form of Nature
Edgeworth	13 14	50	place it in wood cut. - It is a very simple form of Nature
Eisen Gustave	59	36	place it in wood cut. - It is a very simple form of Nature
Ellis (Purcellton)	30	7	
Goodenough	29	6	
Henslow Res G.	1. 75	46, 75	
Henslow M. J.	2	47	
Hutchings	27	4	
Jacob Worth	68	41	

	No in MSB Plate	may quote name
Key B. J	74	69
Knapp Laura	63	40
Kingsley Miss	69	64
Larden W	24	1
Lewis W Bevan	48	25
Lloyd Miss	31	8
Loring Nease	50	27
McLeod H	60	37
Martineau Mr	910 11	55
Martineau Miss		56
Martineau Violet	12.3	57
Moore Mr. Norman	72	67
Nottingham		59 + 60
Noyes E	53	30
O C G (omitted Charlottesville G 2)	51	
O'Connor	61	38
Oster A	20	61
" E	21	62
" Leppie	22, 23	63
Pease G	5	
D	7	
O	8	
R	6	

} These are cut out now

Petrie (Flinders)	57	3/4
Poole ED	26	3
Poole W.H.	32	9
Py & Docke	25	2
Robert, Stingsby	65	43
Rosel J	47	24
Sanderson M <sup>12</sup>	16	52
Schuster Prof	44	21
Sewell	28	5
Smith B. Wood	46	23
Smythe G.F.	70	65
Stewart J.A.	62	89
Stones South	71	66
Tanner Max	64	42
Weld M <sup>12</sup> Kempe	73	68
Waller New T.H.	54	31
Yule Col	45	22
Zoolopist Fread	67	

Insert wetterburn ? in wood cut



In crossing a crowded street we may do so without hesitation, foreseeing where the vehicles will be at all stages of the crossing - Strategy

Marshall said Schultz visualizes best with the eyes open but in the dark - He is shorter short sighted but perhaps visualizes better than any of my correspondents - It takes him time to perfect the image of a person [see Tennyson ... (first infirmed dead, restored & married)] - He found as Hawtrey chaps. <sup>see</sup>

Willy Scheffer told Mrs. Hawtrey ... relief on paper

Samuel - visualized all persons except two or three are familiar friends, one his own sister whose features I cannot carry off, try how devil, for several years.

Seare thinks I might learn much from children & half-witted persons.

Skute - though very fond of art & a cultivated critical faculty cannot recall a picture - has no musical memory on the other hand an unusually good verbal memory. Reads books by sentences rather than by words. Thinks Babylon (Lewis Carroll lives in Wonderland) has investigated the matter - He is much interested in what I wrote.

J. D. W. Simon - <sup>voluntarily</sup> cannot see. All that he gets is something which his fancy corresponds closely to the schema of which Kant speaks in his Kritik, a sort of indeterminate form void of content. For present images sometimes obscure themselves suddenly with surprising distinctness.

South James (Arch'don) H'm H'm in mathematics

Anderson Smith - he likes about smelling - very wonderful

Wood Smith - He must lecture is apt to contract in his memory - sometimes finds himself craving for a complete absence of sensations - Great difficulty in getting over first impression of direction of compass

How Smith remarkable vis. power

Shuttleworth's power with vis. furniture & old curiosity shop

Shuttleworth's <sup>optical</sup> power

Sully very faint vis. - but great power of recognition - hard to forget a face - Sometimes vivid images enter involuntarily - He knows therefore ahead in presence of - like impression of a mere idea would do - Can see the interior of a faint room much better when looking at the ceiling

Tesler a special power of vis? the outside of books on shelves in a library

Temple P. C. Can think of nothing except in imagery. At the hour of prophetic work my mental pictures leave me - (A very short letter I ought to have answered it nicely.)

Ward suggests sound a color being connected with & these having severally the same emotional relations

[a savage's notion of how he will look when he is the subject of mourning]

Samuel Lloyd (Princeton returns) describes hyperbolically his great power of visualizing, at some time says he never dreamed that he has been heard to say so much in his sleep. (Hawtrey ...)

No person has a <sup>large</sup> volume of ordering visualizing - may be extremely rapid - to continue with the rational image.

[There are no space relations in the world of abstract thought. Topical memory imposes space relations upon them in what some feel a convenient way of] Verbal memory imposes time relations upon them.]

Numerals  
not in diagrams

Numerals  
(not in diagrams)

=

University of London, University College, W.C.1.

**THE GALTON LABORATORY**

Presented by.....

Purchased.....





Numerals  
not a diagrams

f. 1r



X Kate Anderson

In working sums mentally I always see the figures as if actually before me

X- Annie May Barker

Numbers only seen as arabic numerals. One line of figures only retained at once

✓ J. O. Bevan

Could (inaccurately) multiply 3 figures by 3 [evidently in a visual form]

X Miss Jane Kerr Davies

In mental arithmetic I visualise the numerals required in groups of 3 or 4 as needed, memory keeping the store cupboard

X W. L. Distant

If a word such as 56 be spoken I most clearly, easily and instantly visualise the figures. ~~I think by practice & concentration I could picture & hold fast many figures~~ (I do so almost automatically. I perceive that when I mention the word 'thousand' or hear of

shaken, the figures at once group themselves together, and I find it quite impossible to think of the date of a year without remembering and visualizing the figures though I express myself in words. The figures are always printed, type & size equal & resembling that commonly used on the top headings of newspapers. I cannot however appreciate a background, they appear simply in space; if such an indefinite term can have any <sup>in</sup>definite meaning. I think by practice & concentration I could hold fast many figures.

\* S. S. See Jackworth  
No feeble power for this Always & distinctly

\* Sir Joseph Fagor MD. FRS  
 I see the figures 56 [and can hold fast] two or three lines of figures if I know them well.

Fanny Fowler  
 I always see figures in a straight line, not many at once





Amy W. Graham

Can see figures well; [to rec'd of question] pretty fairly

X Susanna Green

I can see several lines of 3 or 4 figures

X R. Haslee

If I think of a number I see it, but cannot picture to myself many lines of numbers at one time. I can easily do mental arithmetic if its different operations do not embrace too many figures at the same time

X Edmund Hills

Can visualize a fairly long line of figures. Mental sum by visualizing the sum and putting down the working of it in my mind's eye up to square roots with two figures in the root and in algebra simple quadratics.

William Huggin Hill

I see figures but not more than two short lines

William Mathews

I conceive 56 as five groups of ten each and one group of six. I cannot picture lines of figures but have no such difficulty with formulae which I seem to see in the air.

✓ Major Mitford

Can see a line of figures, eight or nine in number. No decided power of mental arithmetic.

✗ Norman Moore LL.D.

Can multiply with effort 4 figures,  $\frac{1}{2}$   $\frac{1}{2}$  as 1490  $\frac{1}{2}$  5280, but partly only  $\frac{1}{2}$  image, chiefly mere memory.

Mr. E. A. Orson

Numbers consisting of not more than four or five figures can be seen. The figures slope upwards from left to right.

✗ Arthur P. Saunders

Power of mental arithmetic now very poor; once when in practice for several years, fairly good.

R. Shute Esq

The numerals are merely ideal sounds not ideal sights in any way. I have & used to have, very considerable power of mental arithmetic and mental algebra, but always used in thought sounds of the figures. In the process I always forget every step as soon as I had reached the result of that step.

R. Simmons

\* I can retain several figures in my mental view and work examples, seeing every figure in the process

E. W. Watson

I cannot picture the numbers but can multiply 3 figures by 3 (e.g. 576 by 349) mentally

\* Spencer Butler

Can see and mentally retain many figures. Can multiply 4 figures by 4 figures without practice, the operation proceeding visibly in the mind like

a sum upon paper. Have a tenacious memory  
for figures.

Ellen Sturge

Can do some mental arithmetic, the  
lines appear in the air <sup>also</sup> [colour associations with numbers]


John Ball

Great facility in mental arithmetic; stronger in  
work than at present; not only such things as multiplication  
of numbers of 7 or 8 figures each, but long calculations  
involving many different operations. In this the  
power of visualising enters but is not of itself adequate.  
One important factor at all events, in many of the  
operations included in your enquiries, is what I may  
call the geometric faculty, - the sense of space-relation  
which may or may not coexist with a power of vivid  
visual representation. To speak of the only example at  
hand, I do not think that I have the visualising power  
to any considerable extent, not to a remarkable degree,  
but in all the cases where I am able to answer your  
questions <sup>with very accuracy</sup> ~~in the~~ affirmative answers, I observe this  
sense of space-relation to be the chief factor.

Highland.  
~~John~~ Garnett

(see letter can visualise but does not use the locally  
in mental arithmetic)



The image shows the front cover of a book. The cover is decorated with a marbled paper pattern. The pattern consists of large, irregular, rounded shapes in a muted purple or mauve color, separated by thin, branching veins of gold and a darker reddish-brown. The overall effect is reminiscent of a stone or biological cellular structure. In the upper right corner, there is a small, rectangular white paper label. On this label, the words "Numerals" and "not a diagram" are written in a cursive, handwritten style.

Numerals  
not a diagram



University of London, University College, W.C.1.

**THE GALTON LABORATORY**

*Presented by*.....

*Purchased*.....



Visualising

Pictures of  
Numerals

=

= 13 full pages of Bitter  
 22 lines in page  
 9 words in a line  


---

 198 = 200 words in a page.  
       <sup>13</sup>  
 2600 words altogether

Nature & column

72 x 10 = 720 large type    or 4 large column type  
 80 x 12 = 960 small        2 1/2 small type





1) Miss M Dora Albright. <sup>(Rachel Albright sister)</sup> [refer to Stacey, cousin.]

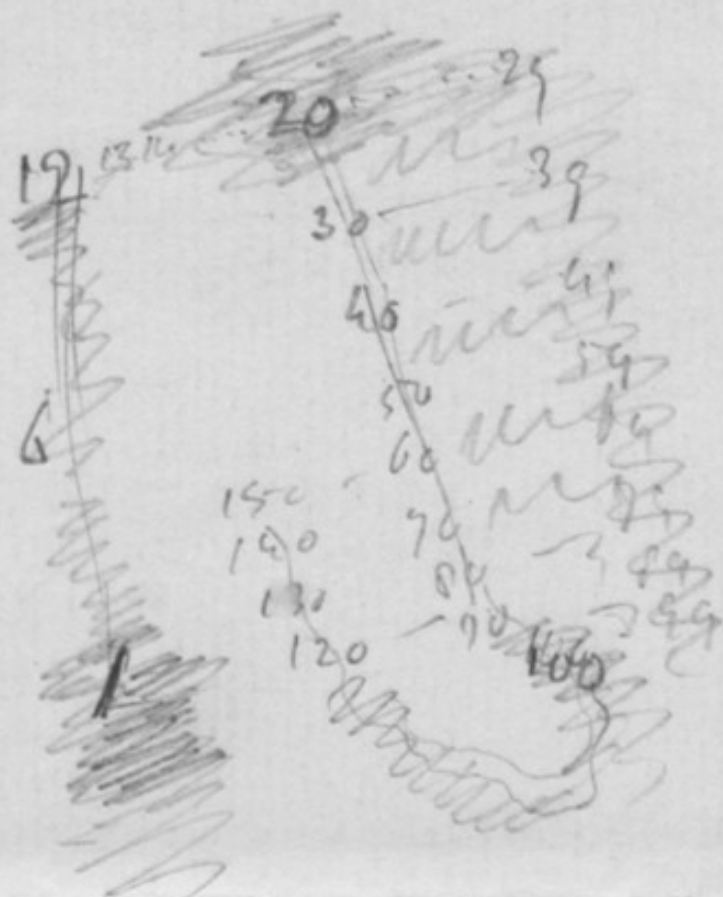
From the very first I have seen numerals up to nearly 200, range themselves always in a particular manner, and in thinking of a number it always takes its place in the figure. The more attention I give to the properties of numbers and their interpretations, the less I am troubled with their clumsy frame-work for them, but it is indelible in my mind's eye even when for a time left consciously so. The higher numbers are for me quite abstract and unconnected with a shape as far as I remember [a small diagram was appended]

In answer to a request for further information she ~~add~~ sends a diagram on a larger scale as below, and add

I am sorry to reply to your request with so rough and untidy a production. ~~Waiting to do it better, I may lose the opportunity altogether.~~ There is a little difficulty in the performance, because it is only by catching one self at unawares, so to speak, that one sees what one is quite sure is not affected by temporary imagination. As a whole and in many of the particulars what I have is



f. 2



Lora Albright  
rough copy



my mind's eye is unchanging in every circumstance  
 nothing more definitely takes its place than a person's  
 age. The person is usually there as long as their  
 age is in mind

This is the best I can do towards representing  
 what I see, but it does not seem much like, chiefly  
 perhaps because ~~it~~ that never seems in the flat  
 but in a thick, dark grey atmosphere deepening in  
 certain parts especially where I emerge, and about  
 20. How I get from 100 to 120 I hardly know,  
 though if I could require those figures a few times  
 without thinking of them in purpose, I should  
 soon notice. About 200 I lose any framework.  
 I do not see the actual figures very distinctly  
 but what there is of them is distinguished from  
 the dark by ~~the~~ thin whiteish tracing; it is the  
<sup>place</sup>~~shape~~ they take and the shape they make  
 collectively, which is invariable; also the shading.  
 The size I cannot determine

2)

f. 3v

Miss Rachel Anna Albright [sister to (1)]

I always see the figures distinctly. I see figures ascending in a direct perpendicular line in front of my eyes

In reply to a request for further information her sister Dora ~~writes~~

My sister says she does not see her line of figures in any particular colour and thinks a drawing would not give any more idea.

She subsequently sends a rough sketch

(When in the +)

Dr  
5  
11

3/

f. 4v

Isabella J. Clemes

(Numerals have no figure). They define the relative position of points in an ascending scale

In reply to a request for further explanation, she says: -

I should have said that numerals<sup>as they</sup> define the relative positions of points in an ascending and descending scale, for my scale is a geometrical line, having neither breadth nor colour, but only length, which is infinite. When whole numbers are considered there is no perceptible distance between consecutive numbers, but in the case of fractions the line is stretched out like an elastic string. Similarly a hundred in comparison with a thousand approaches very near the zero point, but in comparison with one shoots off to the far distance. The curve is perfectly flexible. I throw it out as a straight line to image the sun's distance, or I twist it round the earth to see the earth's circumference. The accompanying figure<sup>(1)</sup> lies in a vertical plane and is the picture seen in counting. The zero point never moves, it is in my mind; it is

Fig 11

p. 5r

that point in space known as here, while all other points are outside or there.

When I was a child the zero point began the curve, now it is a fixed point in an infinite circle, the finite bends being neglected in comparing with infinity. I have had the curious bending from zero to thirty as long as I can remember and imagine each bend must mark a stage in early education. You see it is absent from the negative side of the scale which has been added since childhood. I need hardly say the figure has been drawn to fit the paper and not at all to scale. Beyond a million the line runs out to planets, the sun & stars. To image these distances I move along the line making the light grow very gradually. In some calculations I see the nearest hundred as the projection of the zero point on a horizontal line and the numerals repeat themselves as in the first hundred. The Fig 2 will represent this

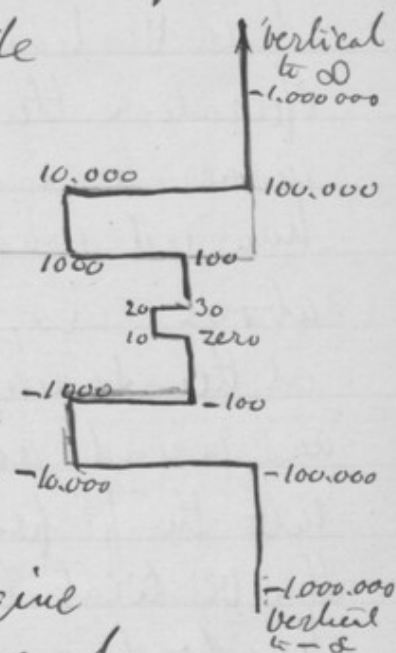


Fig 2 is an instantaneous position of the scale



in motion. At the commencement of an operation the line of hundreds moves horizontally until the hundred wanted is vertically above zero, the lower hundreds at the same time bend round and round and become compressed into the perpendicular, thus altering the vertical distance of the line of hundreds. The line above the starting hundred twists into the form of the first hundred as in fig. 2. Only two hundreds are seen at a time; as the next highest hundred enters at the top the lower hundred moves into the perpendicular.

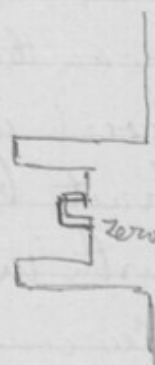
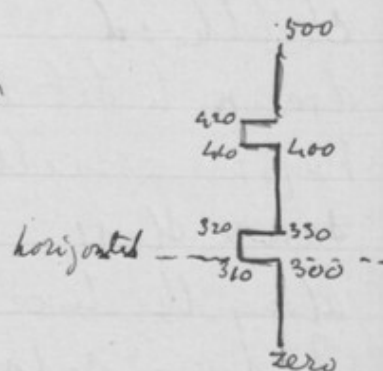


Fig 2



5)

f. 6v

George Darwin FRS (late Fellow Trin Coll Cambridge)

The numbers 1, 2, 3, &c are a straight row and I am standing a little on one side and they go away in the distance so that 100 is the furthest number I can see distinctly. It is dusky grey and paler near to me; up to 20 it occupies a disproportionate size. There are sorts of <sup>woolly</sup> lumps at the tens.

These pictures [also those of years & ~~weeks~~ not copied out here] are not of such frequent occurrence in my mind as formerly. The practice of working arithmetic has rather expelled them. All arithmetical processes performed mentally are exactly the processes I should perform on paper.

He authorized me to insert 'woolly' before lumps Dec 18. He said he could not make a picture that would much aid the description.

6)

f. 7v

Mr. Hankin

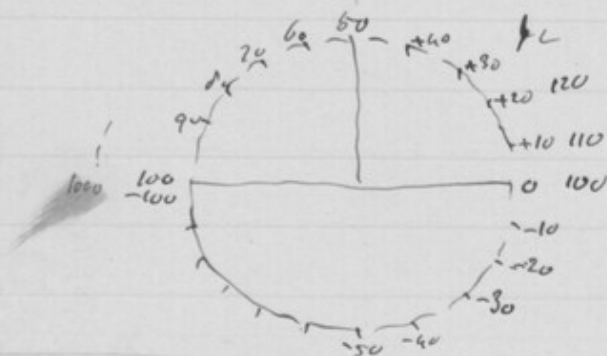
When a child I counted by means of  
imaginary cards from ace to 10. My  
little boy in the same way used an  
imaginary dominoe.

7/

Miss Margaret de Gaudrion Merrifield

I enclose a diagram showing the position some numerals appear to me to have. I think of the numbers between 100 and 1000 as situated on a circle like the one I have drawn for those between 0 and 100. After 1000 I can assign them no definite place.

No shape associated with 5h, but position vividly.  
In reply to request for explanation the circles:-



? in concentric circles

8)

f. 9v

George Stacey contin to Albright (1 & 3)

Numerals are always pictured in a straight line from left to right, becoming shady from 11 to 20 and from 1000 to 2000, clearest from 1 to 10, from 20 to 40. — [In ref to Enquiries for further information]

1 2 3 4 5 6 7 8 9 10 — — — — — 20 in horizontally

The numbers are black on a ground varying in illumination, bright up to 40 then getting very shady from 10 to 20, 20 to 40 bright, 40 to 60 moderate, 60 to 80 shady. Shadiest are 10 to 20, 60 to 80 & 90 & 1000 to 2000, Brightest — the numbers in a vague bright distance to the right.

1 2 3 4 5 6 7 8 9 10 20 30 40 50 60 70 80 90 100



9

p. 10v

Eleanor Stacey, sister L(S)

I see any mentioned numeral in ~~an~~ ordinary  
Arabic character

The hundreds  
then  
me

100	
40	
20	
10	
1	

10)

f. 11v

Jeannette Stacey (sister E.S. & G.)

I have 2 sisters and one brother and they will I know be happy to describe their manner of writing. Our parents are not living but Mrs Albright is my father's sister & I have asked Mrs Albright to find out if her mother & her mother's sisters resemble each other in their respect. I have also written to my mother's sisters to find out how they visualise [Her description of her own imagery is:-]

The figures present themselves in lines, <sup>etc etc.</sup>  

$$\begin{array}{r} 100 \\ 110 \\ 120 \\ 130 \\ 140 \\ 150 \\ 160 \\ 170 \\ 180 \\ 190 \\ 200 \end{array}$$

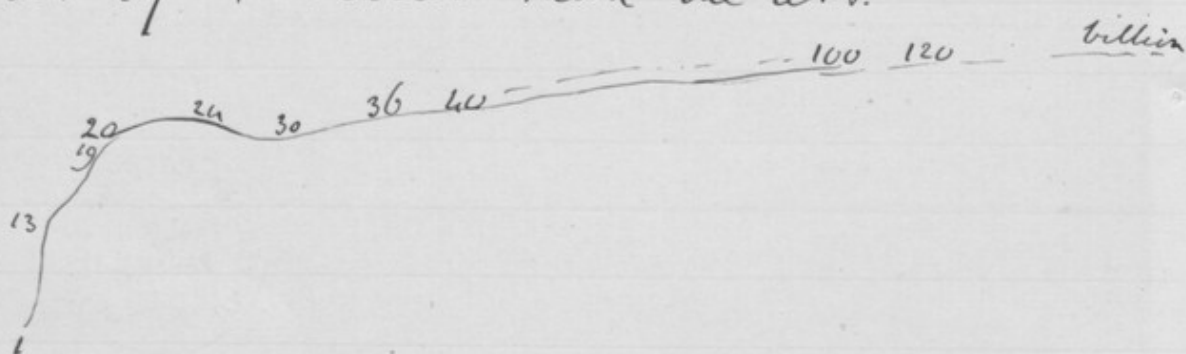
They are about  $\frac{1}{4}$  inch in length and in ordinary type. They are black on a white ground. 200 generally takes the place of 100 and obliterates it. There is no light or shade and the picture is unvariable.

11)

F. 12v

Anna Stacey [inter to 8, 9 x 10]

Figures always stand out distinctly in the Arabic character; they are black on a white ground, of this size "9" "40" &c but the numeral 19 is smaller than the rest.



J. Ward (Fellow of Trin Coll Camb)

The numerals 1, 2, 3, 4, 5 — from the part they play in the multiplication table, have been personified by me from childhood. 9 is a wonderful being of whom I felt almost afraid, & I took for his wife, and there used always to seem a fitness in  $9 \times 9$  being so much more than  $8 \times 8$ . 7 again is masculine; 6 of no particular sex but gentle and straightforward; 3 a feeble edition of 9 and generally mean; 2 young & sprightly, on good terms with everybody; 1 a commonplace drudge. In this style the whole multiplication table consisted of the actions of living persons, whom I liked or disliked, and who had though only vaguely, human forms.

Numbers I picture in groups; thus 5 is sometimes  $\begin{smallmatrix} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{smallmatrix}$ , sometimes  $\begin{smallmatrix} \cdot & \cdot \\ \cdot & \cdot & \cdot \end{smallmatrix}$ ; 8 is  $\begin{smallmatrix} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{smallmatrix}$ ; 7 is  $\begin{smallmatrix} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot \end{smallmatrix}$ ; 100 is ten rows of 10, 60 is 6 rows of 10, &c. When I think of the factors of a number I conceive them either as marked on a line or as groupings, as 32  $4 \begin{smallmatrix} \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \end{smallmatrix}$ . A prime number suggests a line; odd numbers angles; even smoothness, &c.

13)

f. 14v

Miss Alice Woods (Girton)

All numerals occupy a certain definite place in my mind and appear as written. They are not clearly written and I do not even always think of them as written. Very high numbers are quite confused and out of order. Some numbers suggest colour, thus 5 suggests blue. The lower numbers have spaces between them and they get closer and closer together as they are higher. They seem to be arranged in a long sloping line with irregularities now and then. When I think of 56 I instantly refer it to its place in the line of vision.

1 2 3 etc

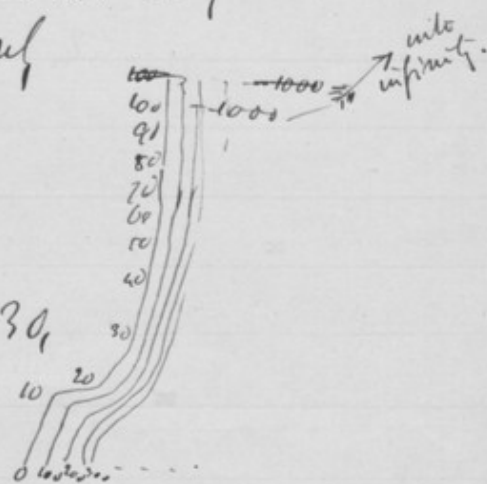


14)

Theodore Herz

Miss Dora Albright sent me a post card of your expressing a wish to hear more about the representation I carry in my mind of the numerical series. It is quite distinct to me; so much so that I cannot think of any number but at once see it (as it were) in its peculiar place in the diagram. My remembrance of dates is also nearly entirely dependant on a clear mental vision of their loci in the diagram. This is as nearly as I can draw it the following.

I have never taken much pains in drawing the figure on paper so that it is only approximately correct, if the term 'correct' is at all applicable. The numbers seem to approach more closely as I ascend from 10 to 20, 30, 40 &c. The lines embracing a hundred numbers also seem to approach as I go on to 400, 500, - - 1000. Beyond 1000 I have only the sense of an infinite line in the direction of the arrow, losing itself in darkness [by] the millions. Any special number of thousands



returns in my mind to its position in the parallel lines from 1 to 1000.

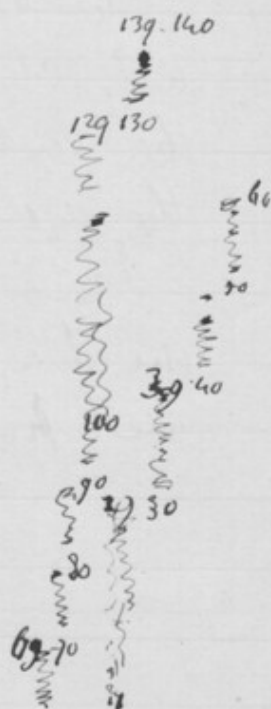
The diagram was present in my mind from early childhood. I remember that I learnt the multiplication table by reference to it, at the age of 7 or 8.

I need hardly say that the impression is not one of a perfectly straight line. I have therefore used no ruler in drawing it.



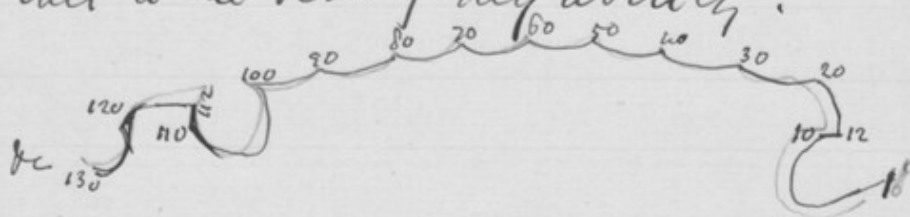
Mr<sup>s</sup> Browne (her 2 cousins who see colour & tell me)

The annexed two columns of put end & end represent how I see the numbers from 1 to 140. There is no break up to 30, & none from 90 to 130, but I think this is because the three figures at 100 make a sort of break for themselves. After 140 they go on regularly, but further off the figures are not one above the other as they appear here, but are beyond the other, stretching away into space, about  $\frac{1}{2}$  inch long, light grey on a darker brownish grey ground [After describing her various shortened operations in mental arithmetic she adds: -] If I see no way of simplifying the sum, I count one by one along my virtual line. Thus 7 to 28, I should at one time have worked them so, viz 29, 30, 31, 32, 33, 34, 35, changing the position of course at 30 (according to the drawing) and calling each of these numbers mentally by its own name, remembering how far I had got in the accomplishment of my task of counting 7 of them by a sheer effort of memory.



George Bidder. Q.C.

One of the most curious peculiarities in my own case is the arrangement of the arithmetical numerals. I have sketched this to the best of my ability.



Every member (at least within the first thousand and afterwards thousands take the place of units) is always thought of by me in its own definite place in the series, where it has if I may say so, a home and an individuality. I should however qualify this by saying that when I am multiplying together two large numbers my mind is engrossed in the operation and the idea of locality in the series for the moment sinks out of prominence.

You will observe that the first part of the figure diagram roughly follows the arrangement of figures in a clock face and I am inclined to think that may have been the unconscious source of it, but I have ~~been~~ always been utterly at a loss to account for the abrupt change at 10 and again at 12.

You are at liberty to use this letter and any part of it in any way you think fit.

17)

Maria Turrell

I do not virtualise the numerals at all up to 20. Above that number as far as 100, they represent themselves to me as vertical lines in a straight row, the tens being perceptibly darker and broader than the rest and casting a slight shadow to the right. I add by noting the position of the strokes with reference to the nearest ten.

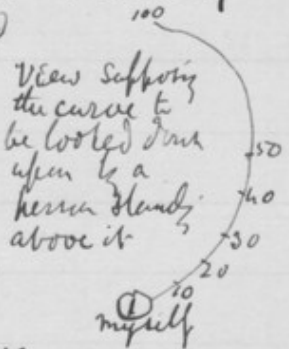
( See letter about coloured words )



Alice Woods

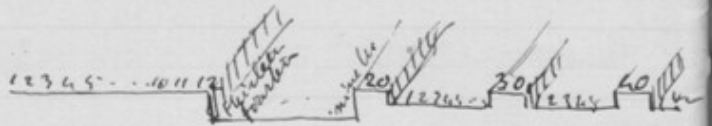
Oster (family.) Alice Eliza (Mr. H. F.) & Catherine (Mr. Alfred) are  
 Mrs Alice Oster Cousins see last par. of the letter of the latter. Jessie is daughter  
 of Mrs H. F.

I do not see the figures as written or printed, but as having relation to each other in value; for instance 50 is represented in my mind as just beyond the half of 100; a hundred goes off into space a certain distance, and as any figure is spoken I see it in its place, tho' I see none of the others as figures. They start at myself with 1 and are obliged to make a curve in order to be seen. I cannot mentally see any line of figures, so cannot do mental arithmetic. I put the numbers in the sketch to show their places, not that I permanently see them. I only see those that are named. The whole line very slightly slopes upwards and all the figures are in the same plane.



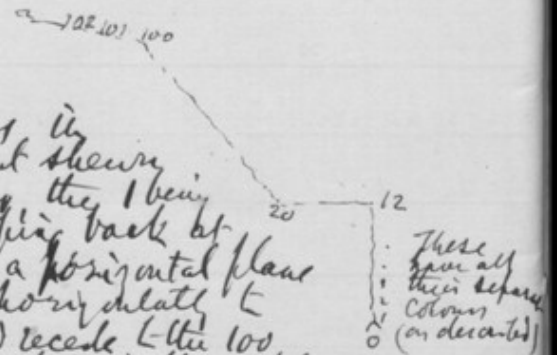
Mr. H. F. (Eliza) Oster

I see these figures in the air, not in paper. I can see them up to 120. The ~~thick~~ pencil lines are only put to show the difference of level. No colours are visible.



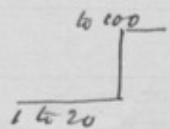
Jessie Oster at 10, dau: of above

The numerals appear as colored figures in the air and they always take the arrangement shown above. The units run up straight in front of her, the 1 being lowest & nearest & the others rising above but sloping back at an incline (described as amounting to about 60° from a horizontal plane) and so they continue up to the 12. Then they go off horizontally to the left up to 20, from whence they gradually rise and recede to the 100 which is rather a long way off. If by an effort she looks beyond the 100, they are indistinctly seen still receding but going off more horizontally. Single numerals when named are immediately seen in their right places according to the above arrangement.



Mr. Alfred (Catherine) Oster at 26.

Whether I multiply, or add or subtract the figures in my mind's eye run in the same form thus and beyond 100 recommence as before. But if an isolated figure be mentioned, the image is frequently in printed words; for instance if reminded or questioned as to my own age I invariably see twenty-six.



See also M<sup>r</sup> Henry Ball

Baum von Osten Sacken.

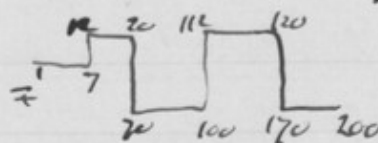
No diagram but many strong color specialities

Walter Larden

Curve in 3 dimension

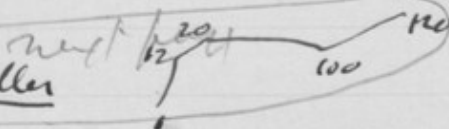
See next page

Wood Smith



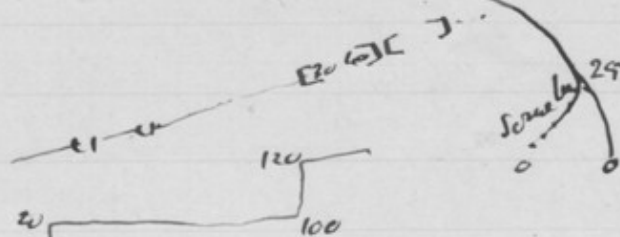
Emily Newkinnick (communicated G)

Neo T.H. Waller



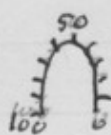
Gustao Marx

" his daughter



Col Yale

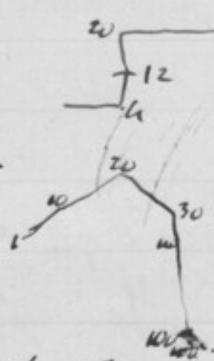
Schuster



Mr Bostock

Mr Du Case

no diagram but objects & names



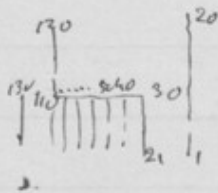
W. Henry Ball

Number in my mind appears as the divisions in a carpenter's two foot rule. The inch is 10 and the intermediate numbers units. The half is very distinct always.

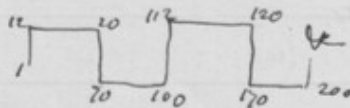
Edmund Hills (Hudson's Cove) ex. 51  
Don separate paper



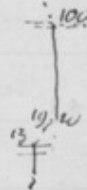
C. Armbrester



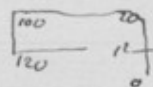
Wood Smith



William & Hart (description - thin effect)

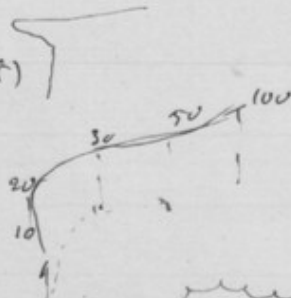


Miss Martineau (description)  
n. letter



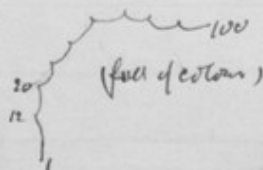
Thomas Leare

plan (no numerals in it)

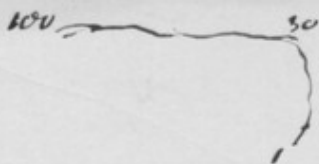


Walter Larden

Lane Smith



Mrs. Shoen



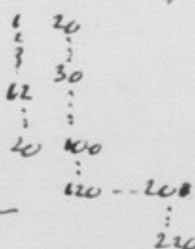
Doctor Gustave Plarr  
& daughter

last part

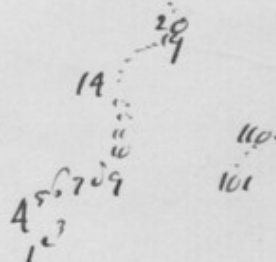


Mrs. C.A. Herschel  
Garten

Antonie d'Abbadie

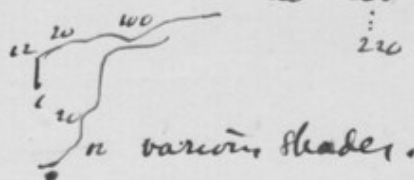


French lady  
Communicated  
by d'Abbadie



Resd - T.H. Waller

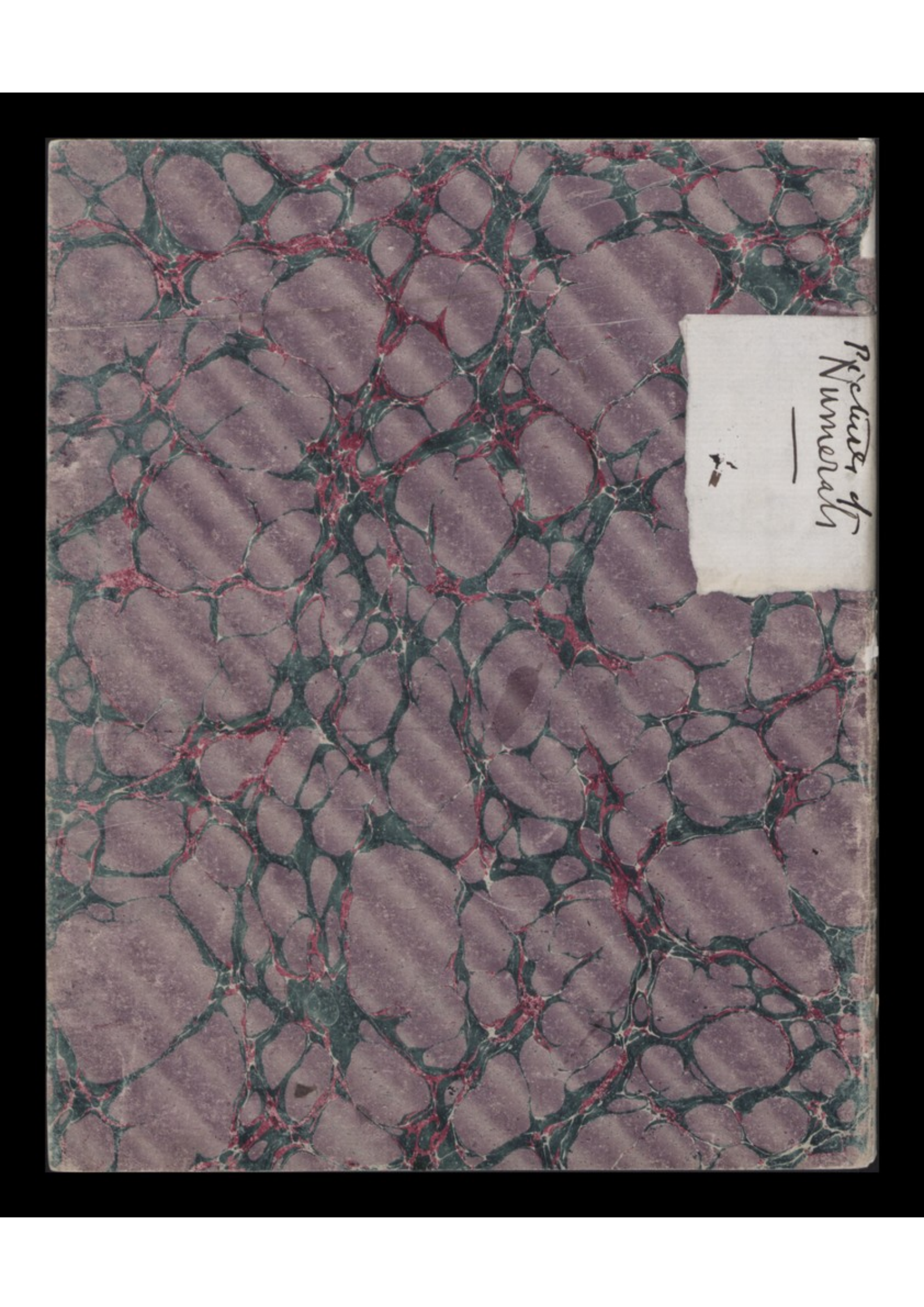
Mrs. Tanner



in various shades.

125  
12  
39 wall.





Picture of  
Numerals

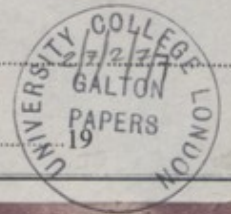


University of London, University College, W.C.1.

**THE GALTON LABORATORY**

*Presented by*.....

*Purchased*.....



Smells  
&  
Tastes

Small-Tails

These are the best marked  
cases out of about 150 returns

==

f. 1r





O. Airy

Q. Airy. (V. ~~clear~~, very sharply defined, complete, natural colours

Sounds Sound. Perfect power of realization of voices of a  
 vast number of persons, whether heard once or often

Smells Extremely vivid, far more so than objects

Tastes ditto

Millicent Lethbridge

V. Fairly clear, sharp, some points obtuse, colours distinct

Tones & voices Fairly well

Smells Very much more vivid than my distasteful powers

Tastes Yes.

Lady Frances Legge

V. Only fairly clear, some distinct some vague, near objects complete colours quite  
distinct  
& natural

Tones & voices Very strong

Smells More vivid than objects

Tastes - Less strong than smells



Sir Joseph Fayrer MD FRS

V. Fairly clear immediately in front, some not, are sharply defined, not at all equally clear, some are recalled with an effort. Fairly distinct but accurately <sup>described</sup> <sup>by</sup>

Tones of voices. Some I think I hear now though I have not heard them for years.

Smells. Very vivid, I sh<sup>d</sup> be <sup>various degrees of distinctness</sup> <sup>on say, 'chloroform'</sup> <sup>hindered</sup> if I allowed my memory to dwell

Tastes. I can imagine & recall them well. I could make my mouth water by thinking of lemon juice.

(Miss) F. Hudson

V. Fairly clear; all details are seen, but some after an effort while others <sup>colours, yes.</sup> <sup>obtrude</sup>

Tones of voices. I can remember those that are unusual

Smells. I can recall them vividly, (they both influence my imagination

Tastes. Strongly & suggest locality & circumstance)

(Miss) Swart

V. I can see in succession the breakfast tables of two familiar houses, pattern of china, shape of kettle, tea-pot &c. I see it all brightly.

Tones of voices. Some people's voices I remember clearly because they have arrested my attention.

Smells. Yes, as vivid both, as mental vision

Tastes

Frederick Pollock

V. Fairly clear. Well defined but attention has been directed to different parts in succession, & call up the whole, colors natural.

Tones of voices

Smells

Tastes

} All these vivid; quite as much so as sight (Peculiar power of calling up local associations as remarked by 2 or 3 writers, O.W. Holmes & others.

Wm Matthew

Tones of voices Details of breakfast table, when the scene is reflected on, are fairly defined & complete

Tones of voices

Smells

Tastes

} All about on a par with the sense of sight, except Music. I have difficulty in recalling airs.

D-Dece Duckworth MD

V. Quite clear, all objects are sharply defined, colors quite distinct & natural

Tones of voices Perfectly

Smells

Tastes

with the strongest distinctness

most accurate

} Can recall with minuteness scenes, faces, odors, flowers, & other special associations which impressed me first within my first decade & some within my third year.

Prof. Croom Robertson

V. Fairly clear and not incomparable with the actual scene, apt to become fainter when particularly attended to. Sharply enough defined at first. Not all equally distinct at once the eye passes over them in succession & each takes out of view more rapidly than in direct vision - Colours distinct

Tones of voices . very distinct representation

Smells } About equal power of representing the various tastes & smells & not  
Tastes } less than of colours in vividness

Mr Alfred Oster

V. clear, only slightly less vivid than reality, sharply defined complete colours <sup>distinct</sup>

Tones of voices very real & (more vivid) To think of scratching a slate pencil, or  
much as I heard between the teeth set, these  
on edge almost as painfully as the reality

Smells all equal in vividness to objects visualised

Tastes Distinct & vivid

Miss Ryland

V. I can distinctly recall actual scenes - I am 44 & I can recall the rooms their furniture the pattern of the carpets & paper of the walls in 5 different houses in which I never went from the time I was 8 years old - the objects are distinctly defined, the details are seen with equal clearness, & the colours are quite distinct and natural

Tones of voices . I can easily recall them.

Smells } I recall smells and tastes as readily as I can visualise  
Tastes } objects.

## Mr Frederick Pollock

V. The vision is decidedly dimmer than the actual scene, as if even in very light or slight fog. Mostly defined (so far as possible in a fog) - Complete as in a real scene (but as in a real scene only a small part of field of view is distinct at once. Colours distinct

Tones & voices very distinct

Smells as distinct as sight

Tastes not so distinct but pretty vivid

## Miss Annie Reay Barker

V. Fairly clear, well defined, some objects not visualised except by aid of memory. Colours natural

Tones & voices Can recognise them easily but cannot recall them so well.

Smells In most cases nearly as vivid as when the objects are present.

Tastes Tastes easily recalled.

## William Southall

V. Fairly clear, moderately well defined, pretty complete colours fairly natural

Tones & voices Ordinary notes; neither good nor bad

Smells Have lost my sense of smell for several years but retain most distinctly the odours of those you mention and a great many others.

Tastes. Taste somewhat impaired, but know very many; not perhaps quite so well as smells.

Rev<sup>d</sup> Chasler J. Young

V. Fairly clear, sharply defined, as much virtualised  
as was noticed, with completeness - Colours recalled

Tones & voices I can recall & imitate the tones of voices even  
without previous study

Smells Vivid recollection & reproduction of smells

Tastes Ditto - Ditto.

Mr R. Haselee

V. I can recall any single object or group of objects but  
not the whole breakfast table at once. Our table is a long one,  
I can in my mind pass my eyes all down the table and see the  
different things distinctly but not the whole table at once - Colours  
pretty distinctly but not perfectly

Tones & voices Fairly well

Smells } I hear little difficulty in recalling taste & smell, these organs  
Tastes } being pretty sensitive.

Miss Dora Albright

V. Any scene noticed previously is as bright and clear in the recollection  
as the actual - with regard to the breakfast room of the morning every detail is  
distinct

Tones & voices like faces, I can sometimes recall perfectly but sometimes not.  
Just now I can hear the natural tone of voice of everybody that I can think of as  
being acquainted with

Smells . Recollection of smell in cases mentioned and in similar ones is  
quite vivid

Tastes The same with regard to tastes.



## Mr Henry Ball

V. The illumination is not, partially diffused, it seems to be focused on whatever part I mentally turn to: all else is dim.  
 Colour distinct (the brightness almost always antipolises in the point)

Tones of voices I can recall tones of voices with great vividness

Smells I can recall all the smells you mention except ditch water which I think is too odorous to individualise

Tastes The same. I am weak in the point of Spices salts not having often indulged in them.

## Frau von Böckmann

V. I see all things on the breakfast table with equal clearness and very distinct; nothing appears to me as a blotch.

Tones of voices I can distinctly call them to mind. I can recall my father's voice, which I have not heard for 27 years, very distinctly

Smells It is the same with the sense of smelling. I distinctly distinguished

haz, tar, &c.  
Tastes (nothing said)

## Lady A Georgina Legge

V. Most distinct, well defined but none obtrude (as the urn)  
 colour very distinct.

Tones of voices very strong

Smells very vivid

Tastes very strong.

Laura Bullen-Smith

V. Almost as bright as actual scene & most of the objects are clearly defined - colours quite distinct & natural

Tones of voices can recall them pretty accurately

Smells, Representation of the smell in Coey case but verbeena <sup>is vivid</sup>

Tastes Very vivid representation in each case

Mary Robb

V. Quite clear, in some instances quite as bright as the actual scene the objects are sharply defined, but the centre of the table seems clearer than the extremities. Colours quite distinct.

Tones of voices In familiar cases

Smells. Verbeena not, but in the other cases quite distinctly

Tastes. In all the instances mentioned, I can.

Margaret Pope

V. A few objects at the nearer end are clear, the others are very dim (the table is long) - definition indistinct - image very unequal. - Colours are quite distinct but the table cloth appears grey.

Tones of voices Only distinct when associated with something spoken or read.

Smells. Six of those mentioned [verbeena is not one] are vivid, the rest indistinct.

Tastes Four of these are vivid, the rest unknown or indistinct.

### Francis Bidham

V. Image fairly ~~defined~~ clear, object sharply defined  
all details are seen clearly & the colours are distinct

Tunes of voices Can recall any voice when I think of the person

Smells Can recall every smell mentioned

Tastes are very distinct

### Miss Edith Denman

V. The brightness of the picture of the breakfast table is not comparable with the ~~actual~~ actual scene, the colours are distinct but slightly more subdued than natural

Tunes of voices I can <sup>always</sup> recall at will, generally faintly but sometimes very distinctly

Smells & Tastes distinctly recall at any time

### Edgar Todd

V. The images are different at different times - the images I shall describe is faint, clear & stands out against a black ground. - The blacker the ground the brighter the image. - Objects sharply defined & the colours distinct

Tunes of voices Soon recognise the tunes of a voice

Smells The smell of a fur coat & of seaweed very distinctly recalled

Tastes The representation of all the things named is vivid

Henry N. Tedder

V. Menting of the breakfast table this morning, all the objects are fairly clear & as bright as the actual scene! - They are sharply defined, quite complete & in proper perspective - the colors are distinct & natural.

Tones of voices My recollection of voices is better than that of faces. I think this arises from my being short-sighted.

Smells I can recall smells vividly when associated with the objects which cause them. In all cases I am obliged to think first of the object - e.g. for first thought, a tea-bucket - later, castings.

Tastes as above, except that tastes are much more vivid to me than smells.

Res J. Deane

V. The image is too faint as to be simple incomparably with the I can on reflection elicit a definition - but imagination aids.

Tones of voices I can realise them pretty well, at least of many of my friends.

Smells I can realise clearly all the instances given but see no standard of comparison between them & the sights.

Tastes

Miss Amy Leitch Smith

V. Fairly clear & distinct within my range of distinct vision which is short. & within that range they are keen & exact. Colors distinct.

Tones of voices I can recall precisely, voices

Smells can recall 5 of the 12 precisely, 2 more less precisely, the rest not at all.

Tastes 3 of them precisely, the other three not at all.

## Henry Ball

V. The image of the part under attention is fairly clear for a small space in the centre of the field of view. The brightness is equal to the real scene. My attention has to be directed to each part of the table in succession when the image of that part becomes clear & the surrounding objects indistinct. — I can see the whole table as a new scene. I think it is the memory of distinct & separate glances any one of which I can recall.

Tones of voices I can recall & imitate sounds well. (Footsteps)

Smells The smell of each of the things mentioned becomes perceptible as I think of them. I find this sense very strong in recalling ideas previously associated with certain smells.

Tastes I cannot recall taste until I visualize the substance e.g. I do not recall the taste of salt until I see the white crystal.

## T. W. Eole

V. I can see my breakfast table or any equally familiar thing with my mind's eye quite as well in all particulars as I can do of the reality in before me.

Tones of voices I can recall them completely — not only those of my friends but innumerable ones of barkeepers & others at the West Coast.

Smells I can recall them in imagination very completely.

Tastes I

## Adèle Knaburg

V. Fairly clear, objects are defined but not sharply so.

Smells Pleasant & unpleasant seem unusually to try me.

Tastes Tastes I remember but too well



## Erasmus Galtton

V. Fairly clear, sharply defined - quite natural - I feel that my brain sees the object, but not the optic nerve.

Tone of voice - quick, never forced

Smells - Vivid - Great disgust at the <sup>sight of</sup> unpleasant ones on seeing a person sick on board a steamer

Taste Vivid - A person talking of taking medicine creates disgust & stops the appetite instantly however hungry I may have been

## Miss B. Loy

V. Clear & defined. Some which were ~~first~~ noticed particularly at the time I am more prominent than others

Smells The ones which are quite familiar are as vivid as in reality

Taste Not vivid at all.

## Miss A. E. Loy

V. Perfect, clear, sharply defined & equally distinct

Tone of voice No very distinct recollection

Smells Fairly distinct, that of tobacco more so than any thing else

Taste Very distinct

Miss Ellen Porter

V. Image clear illumination bright as regards the object contemplated. Surrounding objects seem in shade sharply defined. The part I look at is clear as in the actual scene, whereas in actual vision I am conscious of the portions of the object not actually contemplated. Everything is a little smaller than life, but all is in exact proportion.

Tone of voice Remembers them very distinctly [? as representation]

Smells Can recall any smell, but not very vividly

Taste Taste is not very vivid but still I can recall with tolerable distinctness. I have no association with any taste like I have with smell.

Master G. E. Murray

V. Pretty clear some are sharply defined others not. The voice is generally smaller than the reality.

Tone of voice I recall tones very plainly

Smells very plainly

Tastes very plainly indeed.

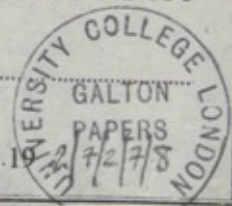
Women

University of London, University College, W.C.1.

**THE GALTON LABORATORY**

*Presented by*.....

*Purchased*.....





90  
Vicks June 1/80

F. Galton  
42 Rutland Gate

Selected Letters

Women

Mrs Fawcett

F. Forke

Alice Gardner

Miss Constance Herschel

Miss Herschel

Anna Lloyd

Charlotte O'Brien

Anonyma Cook Charleston

Charlotte Norrington

Sarah Anne Stowe (memory)

Marcia Turdall





# Scenery

mark	Recollection under the form of a mental picture	mark	Power of following descriptions of scenery, geographical position
a	Vivid (not necessarily accurate)	k	Vivid images always.
b	Good	l	Easy to follow descriptions
c	Usually good	m	Some authors <sup>few</sup> can be followed or use a good general idea is obtained
d	Rarely good, <sup>conspicuously</sup> faint	n	Description followed with difficulty
e	Always faint	o	Hardly any power or no power of following
f	Very faint or none		

## 99 women adults

	k	l	m	n	o	no return	Total	↓
a	17	4	6	7	1	1	36	36
b	3	15	9	6	3	2	38	74
c		2	9	4			15	89
d			2		1	1	4	93
e					3		3	96
f					2		2	98
no return	-	-	-	-	-	-	-	
Total	20	21	26	17	10	4	98	

→ 0 20 41 67 84 94 98

Subdivided

h 12 24 {49} 74 86 92 98

50

Middle 9 0 subo

low

Medial		
upper	quart	lower
a	oct	c-d
a	suboct	d-e

medial m		
upper	quart	lower
k	oct	n-o
k	suboct	o

## Persons

a	brilliant (not magnificent, correct)	w	Can be made to move any ways
b	Good	x	Can be put in any known position
c	Usually good	y	Can be viewed in 1 or 2 positions only
d	Rarely good	z	Cannot be viewed at all
e	Always faint		
f	Very faint or none		

99 women

	w	x	y	z	no return	Total	
a	29	8	2		5	44	44
b	6	1			3	10	54
c	1	7	3		4	15	69
d	3	1	2		12	18	87
e				1	2	3	90
f				5	1	6	96
no return					3	3	99
Total	39	17	7	6	30	99	99
	39	56	63	69	99	99	

1. 6 11 22 44  
 44 66 77 82 87

medial  
b

upper a-b	quart	lower c-d
a	oct	d
a	S.oct	e-f

medial  
x

upper		lower
w	quart	y
w	oct	z
w	S.oct	z

Peculiarities - Not those most liked; Anna Stacey; Lily Sturge; Adelaide Husby;  
 Miss Deuman;  
 Those she knows well; - Miss Henderson.  
 Can recognize faces but not recall Miss Duckworth

## Printed pages

a	Extraordinary power	h	whole MS		
b	Print clearly seen	k	a whole page or more	0	Place in page recollects well
c	Fairly well seen	l	several lines	0	" " imperfectly
d	Imperfectly seen	m	a few lines	4	" " not at all
e	a mere blur	n	a few words		
f	by faint or none	o	nothing		

	h	k	l	m	n	o	no return	Total	Corrected Total		median m-n	
a	2							2	2	2	upper	lower
b		6	5	10	2		5	28	25	30	l-m	quar n-o
c		2	2	5			3	12	12	42	k-l	oct o
d			1	4	3	1	3	12	12	54	k	S. oct. o
e		1			6	4	1	12	12	66		
f						13		13	13	79		
no return							3	3			median a-d	
Total	2	9	8	19	11	18	15	82	79		upper	lower
no returns in the new schedule								17			b	quar d-e
Corrected Total	2	9	8	19	11	18		67	67		b	oct e
	2	9	11	19	32	49	67				a-b	S. oct f

79 series 1 5; 10; 20; 40; 60; 70; 75; 79

67 series 1 4 8 17 34 51 59 63 67

Peculiarities

Maria Turbell; leading words only are seen  
M. Frode. F. Frode & others. poetry, not prose.

	Illumination	Definition	Colouring
a	natural	natural	natural
b	nearly as bright, or faint or variable	nearly well defined faint	nearly exact
c	decidedly less bright (faintly bright) or very variable	not well defined	not exact or dim
d	never other than faint	indistinct	faint
e	very faint or zero.	zero	none

Fixer 13 (Ch. A. Scott 1  
 in over, allow Mrs Boston  
 to all the marks Mrs Bettany  
 Smith Mrs Ryland  
 blind taking Eleanor Burk  
 the packet of Fran & Beechman  
 letters as yet Mrs C. Galt  
 into account Vera C. Galt  
 F. Fowler  
 Mrs Halkett 10  
 Ethel C. Galt  
 Evelyn Chapman  
 Hon Mrs Boyle



## Dora Albright

(Her mother's sister is a Miss Stacey - her mother's brother is father of the other Staceys)

Vis<sup>n</sup> (a) of all things <sup>attended to</sup> noticed, otherwise in passing thoughts they are vaguer & dimmer and smaller than reality.

Difficulty in following ~~scenery~~: descriptions of scenery, these images are always dim

✓ Number form: "I find that thinking about it so much as I have lately has lessened its distinctness altogether." — Compare with her phrase about it is only by catching myself unawares..."

## Rachel Albright

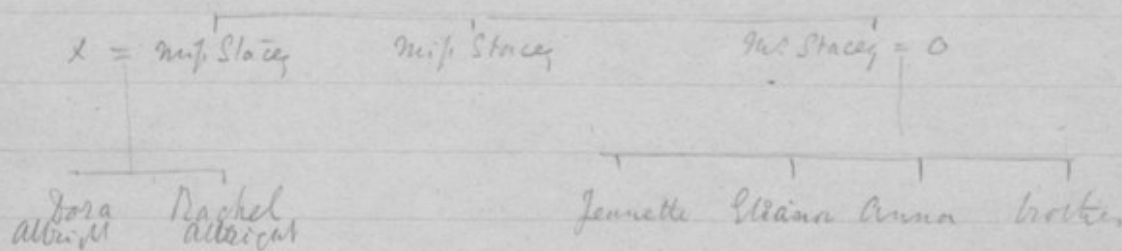
Vis<sup>n</sup> (b-c), but (a) as regards numerals and cards

Scenes I have witnessed in trouble are greatly more distinct than any in ordinary life.

✓ Number form ~~is perfect~~: a vertical line from 1 to 1000, then "I believe they turn to the left hand." (the thousand: > the thousand)



# Aldright - Stacey Family



~~Miss~~ Bevington Mary Allen

vis (a-d) u

Kate Andrews

com<sup>d</sup> of Miss Cooper

vis (b)

Anonymous (young)

com<sup>d</sup> of Writtle

(b-c)

'The greater effort I make the brighter the image becomes'

✓ Number form. Horizontal. from left to right; black figures on a white ground

Alice Balfour

com<sup>d</sup> (a-b)

"A scene arises in my mind so clear that I think I could draw it; but if I try to do so, I fail, which proves that the image in my mind is really less distinct than I imagine."

Mr. Henry Bull

(a)

"Some wide extent of landscape are visualized with much brighter illumination than others for what reason I cannot tell"

Cannot recall features except after immediate observation, but can recognize faces with extreme facility.

D. Annie Neag Barker

(a-d) say c.

"Cannot recall features except after immediate observation, but can recognize faces with extreme facility."

(a) but uncertain

Image occasionally brighter than it really is  
Can only see a few words of actual print at a time, 'unless  
I squint mentally"

When I have seen a person in any position I can recall him  
w. it, but not otherwise

Mr. Bettany.

(A) I judge by the assurances of her husband and herself,  
but my testing was a sad failure, perhaps she was  
thrown out by it.

"I have frequently read aloud quite correctly for an hour at a time  
and lived through another scene at the same time so vividly as  
to deprive me of all consciousness of what I was reading"



Miss Jex Blake (quite young)

(b-c) n.c.

, Number form Only 1 in the left upper corner, 1000 in the centre of the field of view and 100,000 in my pocket, are vitalised at all.

Frau o Böckman

corn<sup>2</sup> by Miss Cooper

(A)

Very complete all through, though not mention of descriptions of scenery, geography, etc.

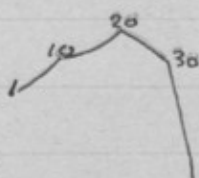
Mrs Bostock

A or nearly so

very complete except in scenery & from description,  
where there is some what deficient ("do not easily imagine...")

✓ Number form

Dale. King of England  
not according to way she learnt them.



at 55" during whole life... quite unvaried"

"I cannot at all tell why"

then all is indistinguishable.

Here Mrs Boyle

(A.1)

Can see ~~at~~ once all round the room and behind my chair

Mental images appear to be exact, where they are in reality, neither  
in the head nor eyeball

Focusing the mind's eye on something tends to make the image grow  
dim for the moment

✓ Colour associations with numbers.

Accounts of childish feelings & hallucinations in her letters. She  
finds these dwell in the memory far more than facts.

Miss Browne

A very complete - her only fault is inaccurate memory.

Images do not grow brighter by being retained - forcing the mind to keep  
 it there fatigues "like trying to think out a thing I cannot grasp."

In the image of a person his "action is not at all restricted

I see <sup>(mentally)</sup> no better in the dark or when shutting my eyes

Image is within the head but it comprises a view of herself, rather  
 fainter than the surroundings

✓ Number form. "There is no variation from a perfectly straight line"  
 she does not know that she has a codd eye. Her hand is not good

Days of the week

Adele Bunbury

(a)

nothing particular

## Ellen Bask

A. complete, except in some unreadiness, & follow descriptions

(Mrs)

Ellen Bask

a,

All vivid & defined, but has a look of being far off & somewhat smaller"  
 Perhaps owing to vivid presentation of <sup>which is very exact in her case</sup> ~~board~~ "the words" not the printed pages are images  
 Foresees "about 14 moves in-chef (without ? the word) an image of the board"

# Frances Bask

- (a) fairly a little with furniture & geography, though clear, following descriptions of scenery.

# Evelyn Chapman

- (a) objects clearly defined "and in due perspective"  
fairly a little with furniture scenery & geography



Mr. Chepwell

(b) - Facts in definition, furniture, description of scenery

---

Linia Churchill

(a) in what interests her.

Facts in recalling features - can recall experience

## Isabella J. Clemes

- (b) very defined on what interests, but want of breadth

Features are indistinct but the image changes position at will.

Can see the working part of a machine but not the frame work.

"Geometrical forms grow or move as thought adds conditions, each step of the change marked by a distinct addition to the picture. Non coincident points are kept distinct."

"Geometry is my greatest delight."

✓ Number form

## Miss Copper

Head mistress of High School for girls of Boston

- (a) <sup>facts only</sup> Facts in these :- In respect to extent of field of view "I am much more strongly  
"impaired with the lens of short sightedness than I am in real life". -

Images of what has never been seen but are drawn from descriptions "always

"produce the feeling that they are inadequate - Thinks her vic' images are high.

She reads answers from 8 out of her 9 English mistresses

2.9, including herself, 9 Statistical English returns

German	
Kate Anderson	Wm. H. Harker
C. Corfe	E. A. Oakes
x Miss Cooper	M. Pope
S. Green	M. Turrell
S. Green	Wm. V. Backman

Catherine Corpe.

(Com<sup>d</sup> by Miss Cooper)

- (5) rather dim ill defined, some objects much more prominent than others & colors indistinct

Miss Courtneay

(6)

- "I hold the image in my mind, not in my eye"
- "I have a singular inability to recall the exact features even of my most intimate friends & cannot draw well from memory though I have a correct eye for form"
- When recovering from nervous fever I distinctly saw, in light, images w<sup>h</sup> I could disperse by an effort of will.

Miss J. K. Davies.

(b-c)

Miss Day.

(a) (The Whirling being guarded & carefully moderate)

Image made like the reflection in a mirror or picture thrown  
by a magic lantern

A mental glance will take in the whole scene, but when a pause  
is made to observe more closely the whole becomes less clear & the  
mental vision has to be concentrated on a small space at a  
time, to obtain distinctness — It diminishes the field of view  
of a telescope

Image perhaps scarcely solid & fixed enough to sketch.

Edith Denman

(b-c) weak generally except as to general effects of scenery

Some persons I can recall; others not at all, especially those I wish to recall most

Dora Du Cane

(a) judging in large part from her oral answers & reports in her family.

Recalls Cabmen & such casual persons well, not others.

Number form a rather association (very funny) "Every thing I see appears to be in my throat."  
Letters & associations



Miss Duckworth

(b) good in part but very imperfect

I visualize numerals in words as well as in figures, I mean I see the words printed before me. - I have often asked people whether they do the same and nearly always had a smiling half contemptuous negative.

o Numerals (no form)

Miss Ewart

(A.) very high & complete. fails only in not following description in particular well & in not recalling faces & scenes in which she is not interested. Remembers cards but not by visualizing



Mr Fawcett

(app A) facts in vividness of images called up by will and  
 "descriptions of scenery are no good to me"

"Very vivid images of places I have seen, sometimes rise before  
 me quite independently of any conscious effort. These images which  
 come involuntarily, are beyond all comparison more vivid than those  
 raised by a conscious effort. They are vivid enough for me to draw  
 them if I could draw. Sometimes they are of places which I had no  
 conscious remembrance of & I have to think for some little time before  
 I can remember where they are but they always are real places  
 that I have seen, not imaginary pictures. They come suddenly  
 and are almost always quite out of connection with the current  
 of my thoughts at the time."

Mr. Field

(e) very low power

"though somewhat of an artist can never draw from  
"memory, although possessing a remarkably quick clear & long  
"sight for actual scenes.

---

Mr. A. E. Fleming

(a-b)

F. Fowke

(A)

From letter

Ever since childhood I have possessed the faculty of seeing different events which have happened to me in pictures, a kind of pictorial memory I find very interesting. . . . Usually small rooms. . . . Picture <sup>never</sup> always bounded to the left by wall of room - should be, but there is always a blank to the right when the figures are left distinct. If shaken to the mirror, I forget. — Once saw the characters of a story she was writing with startling vividness. [long & important <sup>involvement</sup> ~~latter~~]

NowM. Fowke

(A+A)

"At one time I had the power of recalling persons I seen only for a moment so distinctly as to note every article of their dress, though I was unconscious of having seen it when looking at them. I have not noticed whether I possess this power as strongly now"

Mr<sup>s</sup> Adele (Cameron) Galton

(A)

Speaks throughout as though possessing the faculty in a very high degree. (untested by me as yet)

Amy (Cameron) Galton

(a-b) or (a)

(fails a little in definition & furniture test)

o numerals

"I see all up to 1000 in figures & the rest in letters"



Ethel (Cameron) Galton  
(facts in print & in furniture)

(a)

Mrs. Louisa Galton

(b)

facts in illumination & dot completeness also in person's features

Vera (Cameron) Galton

(A) Sympathetic in all points (but as yet untested by me)

Numerals In thinking of any numbers, I see them mentally in print; mostly in figures, but some, as 'seventeen' and a 'thousand' are in letters; as also all numbers above a thousand.

Alice - Gardner

(1<sup>st</sup> chap in history) ←

(b) (accurate and ably worded, <sup>not too long</sup> one of the best I have)

The light is not strong, but the vision is not obscured by anything like physical haze. — Those objects obtrude themselves which I actually touched or to which my attention was especially directed at the time.

In recalling a passage the vision is only of a few words, the position of which on the page is marked and definite.

Impressions of light & colour are stronger than those of form.

Cannot call up images of landscape without a strong mental effort and then only a small part at a time. Cannot follow descriptions. <

(a) possibly (A). Amy W. Graham  
Fails perhaps in furniture.

(a) Edith Green (com? by Miss Cooper)  
Fails a little in furniture & perhaps in movement.

I very easily visualise both plane and solid figures. I found solid geometry much easier than others with whom I studied, in that aspect.

Susanna Green

com<sup>d</sup> by Miss Cooper

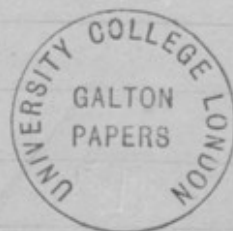
(a) facts in furniture, persons in movement - descriptions  
 but very good otherwise

numerals. "I can see several lines of 4 or 5 figures. I always  
 visualise algebraical formulæ"

Katherine Halkett

(A) very complete & well expressed

Peculiarities. Things appear to me as clear as in actual  
 vision, but every thing on a smaller scale, like looking  
 through the wrong end of a telescope



Mrs. Hankin

(communicated by  
Miss Cooper)

(b-c)

Rapid pictures but too transient for definition

Numerical Forms. When a child I counted by means of imaginary cards from five to 10. My little boy when under 5 in the same way used an imaginary domino. He is now 10. I questioned him to-day for the first time since he was 10 years old. "if he still counts by means of a domino"? He says he now does an imaginary card, only the pips have now no white beneath them, but stand in the air. He does not visualize, but knows very many pages of poetry by heart.

Miss Hawthorn

comm. by Miss Henderson.

(a+b)

(fair in illumination but otherwise quite good)



Miss Henslow

6

Sees all round the room. "Objects are at the real distance or further off."

"Cannot see mentally in the dark so well as in the light."  
 "The dark suppresses the images & makes them duller and  
 "they look smaller & without much colour"

✓ Numeral. forms - self a family.

Constance A. Herschel

(a)

Where any object is omitted its place is supplied by a block of light or shade.  
 Extent, larger than the real in lateral dimensions.. I can look round solid  
 figures more easily horizontally than ~~laterally~~ vertically.

The mention of any geographical name calls up a bird's eye view of  
 the globe. The detailed account of the geography of any place has the  
 effect of turning a microscope upon one spot of this imaginary globe.

✓ Number - Form compare schedule with letters. "like feelings" from left to  
 straight through

### Mrs Herschel

- (A) Though perhaps failing a little in Illumination & in Features  
(a very remarkable case fully described of simultaneous vision)  
connected with the motor or track-sense! ~~the thinker~~

"Of a very familiar room the impression is of all four sides at once;  
"it requires an effort to choose a point of view & exclude portions." [There is much more]

"Wood painted scenery makes an impression nearly as distinct as  
"the recollection of places I have seen" [There is more]  
"Strong power of constructing ideal scenery - the geography of the place is inseparable  
from the picture and seems to set it as a frame. - almost invariably a turning of  
the mental gaze N S E or W as the case may be."

### Number Form

### Mrs Huggins

- (A) Faint a little is completeness in Persons - but very good.

I invariably construct the country mentally & see it plainly as  
I read. I believe this construction is mainly founded on woodcuts, photos &  
drawings that I may have seen

In which & chess she plays well & calculates but not as regards  
count cards. She says to herself "King out" & the word recurs when wanted

(She asks whether some conditions might not be generally present which  
as in the Middle Ages would certainly favour the development of vis<sup>u</sup> powers)

Emma J. Keller

(a)

Marion Kennedy

(a)

Strongly as regards Pertains. Diagrams & Numerals.

"I always know & recall things more by eye than ear"

She compares the clearness of visual<sup>2</sup> with the clearness with which some people recall past pain when going to a dentist

Elizabeth Laird

(a)

Person: (after two "yes" she adds) I can draw and know  
I could not draw my image, but I think that a person who  
could not draw would think that they could draw my image.

---

Lady Frances Legge

(b-c)

Colouring is quite distinct & clear.

Lady Georgiana Legge

(a+b)

Most distinct in Illumination

---

Millicent Sethbridge

b

Perfectly useless, but infectious furniture numerals

"When I was a child I saw every word printed which  
"I spoke, but I never do now; --- as a child, books were my  
"chief companions"



Mrs Litchfield

b)

Illumination quite bright. but otherwise very imperfect

Anna Lloyd

(a-b)

not very good in any one thing, but yet decided  
however some marked peculiarities (color associations)

"I do not get on very fast with facts. The enquiry that elicits the clearest answer is whether on the name of a friend or acquaintance being mentioned their form is visualized. Many persons seem to have an unvarying distinct vision of their friends, others have an impression rather of their mental characteristics, of the spirit rather than the form"

Letters & some numerals - color associations

$a, n(a-b)$

B. Loy

(niece of Jane Mills)

not enough to be assured.

A. E. Loy

(niece of Jane Mills)

(a) at least. probly. A. not quite full enough to be assured.

Sarah Marks

(a) nearly A.

Margaret de Gaudion Merrifield.

(A-a)

facts in Furniture & says nothing about persons in motion.

✓ Number-form

Jane Mills

a,

fails generally in outline

My representations vary with my health & spirits, a <sup>headache</sup> ~~headache~~ will make them very unsteady

I visualize color much more distinctly than form

✓ Number form & color associations

Mary O'Brien

Oct 13<sup>1/2</sup>

(com<sup>2</sup> of Charlotte O'Brien)

a,

In trying to beat a person from a standing position, there is a gap between the postures

(b-c) n c Kelly O'Brien at 15½ com<sup>d</sup> of Charlotte O'Brien

numerals add small number of dots in definite positions : 3, ... 5.

Charlotte O'Brien

(a-b) under will control; (A) automatic. - uncertain.

"The visualizing power is so distinct in itself, so dependent on some rough the mind gets it does not get..."

[Valuable letters. worth quoting in full.]

"An imagined picture has a stronger more vivid hold in my memory than a thing I have actually seen. It holds its shape colour & proportion. I suddenly became aware the other night that I saw before me (my eyes being shut) sitting on a three legged stool crying in a human attitude its face buried in its hands, a great black gorilla. I could notice the set of the hair and can see it still. I was dreaming with that side of my mind. But I was awake with the other, thinking of your paper & taking notes of the process. I watched to see what vision would next appear & one after the other presented itself. I see 'thoughts of pookered faces' & 'a little square black window'. Her lately had an hallucination."



(a-b)

S. A. Onions (com<sup>d</sup> & Mrs Cooper)  
facts in description.

(a-A)

Mrs Alfred (Catherine) Oster

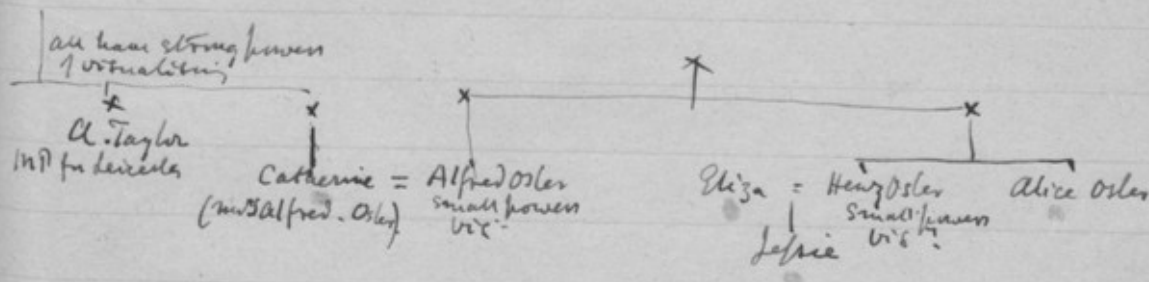
✓ Numerical form

160
10
1 to 20

(a-6) Alice Oster  
facts in Person & Description

Numerical forms <sup>100</sup> (looking down at the curve.  
self

### Oster Family



Numerical forms . Eliza <sup>first</sup> is described in Alice's letter then in one of her own  
colored week days  
Jessie colored numerals  
colored week days & strange forms - also mentions the  
Catherine see above  
Alice see above  
(no details about the Taylor Family.)

Mr Palgrave

(a-A)

I see mentally a wider range of a view than I could by  
a single glance of my eye

Mrs Frederick Pollock

(b-c)

facts in most, but

"I learn a piece of music by mentally picturing the music as  
printed, and used to learn words by heart in the same way"

(Anonyma) Poole (Charterhouse)

A. [A first class paper all through, & might well be printed just as it stands.]

Peculiarities The view is from the real position, the mental eye taking in simultaneously all sides but the back part, dinner, with image of self. Appears to be lying in the past for the time being viewing some object; In imaginary scenes brick & mortar are no hindrance. all rooms of a house can be seen simultaneously.

✓ Number-form & supposed origin [sent-typical]

Days of week & Months - [sent-good - colour in them - large & elastic]

Marquise Pohe(con<sup>2</sup> by Miss Cooper)

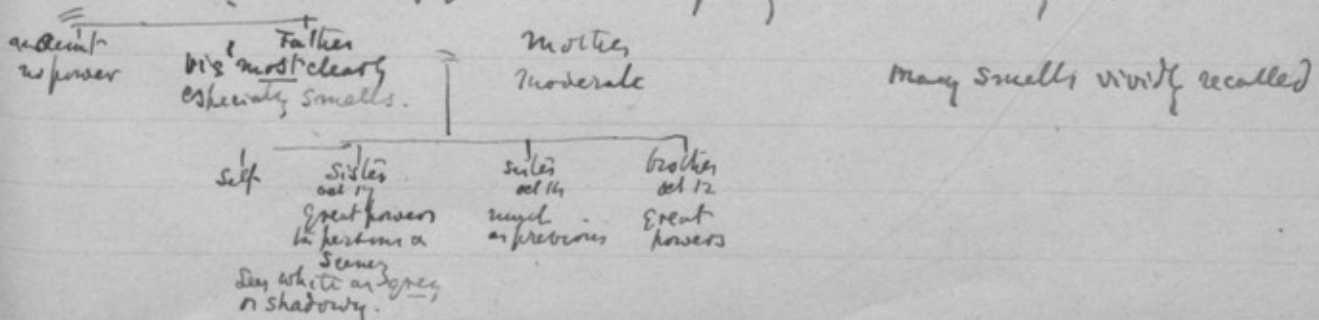
(b) facts in completeness & colour, <sup>table cloth is grey - (has noted herself)</sup> but good as follows

Print

(Penny) Until lately I could never recall anything but a person's hair, its color & arrangement being distinct but the features a blank. Now in some cases and at certain times features also are visible.

Sewing machine [in all its named particulars] ~~very distinct~~

Scenets. Plane figs with accompanying letters are very distinct



## Ellen Porter

(A) but rather uncertain.  
Sometimes almost hallucinations.

Also 2 horizontal belts of shade, one at the top of the picture, one at the bottom, somewhat as if the picture were lighted like a billiard room.

(picture is lightest at the right hand side)

Intense shadow on left of picture a vertical band of extreme darkness

Peculiar discomfort [described] in trying to recall print

When reading or listening to conversation, I form in my own mind an image of everything mentioned, be it of building, scenery, person, garment or what not. at times without thinking of anything particular. I see a constant succession of pictures of all kinds of things, and if I dwell at all in the feeling or whatever it may be, these images will change with the most distressing rapidity and will become more vivid than life.

Mrs. Vaughan Price

(a-A)

details wanted



47

(a)

details wanted



(are under command & appear <sup>cooperatively</sup> to Story,

 $a-A$ 

voluntarily imagine <sup>an</sup> like scenery by moonlight at back of stage of a theatre;  
Wonders like what one sees in the open street at broad day light are involuntarily  
booked in the head not with by hand. (Endless)

Distinguishing between voluntary recalling & visions. "which appear suddenly and startlingly, distinctness, vividness" - "there remain when I often with them very much to defect & no effort of the imagination can call them up. They come in greatest numbers when I am exhausted by fatigue & excitement & then they appear in rapid succession and in unlimited variety."

I have great pleasure in returning fancy scenes with fictitious persons and when these scenes are repeated several times they appear with more distinctness & better illumination than any thing else.

My chief satisfaction in looking at a fine view is the thought that I am adding to my stock of enjoyment for the next illness or sleepless night.

a third kind is a imagery of retention. - <sup>watched</sup> ~~Some~~ skaters for long & after was <sup>all day way</sup> ~~hard~~ <sup>tortured</sup> trying  
black figures darting in all directions and attitudes - even when looking at the wall  
paper. The images then seemed to be on the paper.

Mrs George (Ethel) Romanes

(A)

examples are wanted

---

Mrs Ryland Oct 69

(A)

Complete

Mrs Sandham

(a.) though <sup>some</sup> in details the description is that of (b) only

Charlotte Angus Scott

(A) (facts however in Furniture test. & very good sided)  
 imagery of printed paper best on right side.  
 Can see all round

✓ Numerical form a sort of: - no numbers are seen singly but the one thought of is in the centre of the field; & the smaller ones to the left & the larger to the right. They seem all written in a line & the one of which I am thinking is drawn forward.

Margaret J. Shaen

(a-b)

What little I know of geometry I owe to her with perfect ease.

✓ Numeral form

Janet P. Kay Shuttleworth

(A-T-a)

Faith in printed pages relies there on audible memory  
as in descriptions.

✓ Number-form

Colours associated with sounds of words - Personification

R. Simmons

(A-a)

describes an hallucination & says it is not the only one she has had.

Mr. Archibald Smith

(b) steadily good but nowhere up to (a).

Scenery as described is generally localized in some known place.

Images (other than number form) seem in a definite place & if I in imagination move my eyeballs the effect is the same as it would be in reality, another image comes before my eyes.

✓ Number form is in Dreamland has little reference to object actually before the eyes  
Personified numerals



E. M. Smith

(b)

Persons I can make my mental image more if I have seen the original model in the same way.

---

Laura Bullen Smith

(a) appears A in fact but fails in Description test.

(a) Amy Leigh Smith  
She is short sighted.

---

Gertrude E. Southall.

(A)

Peculiarities. The whole of a page

Can see clearly cubes, prisms & pyramids; plane  
figures not so distinct

Anna Stacey

(A)

Persons. I can recall the features of about half the number of persons I know, but not necessarily those I am the most nearly connected with.

✓ Number form

---

Jeanette Stacey.

(a-b)

✓ Number-form

Eleanr Stacey

(A)

✓ Number-form

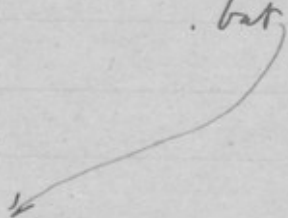
Miss Sarah Ann Stowe

(b)

Extraordinary memory but not by images.

Great arithmetic power not by images.

(b-c) Ellen Sturge  
bat



Can do some mental arithmetic, the lines appear  
in the air.

(b-c) Lilly Sturge



Mrs Tanner

(A)

Illumination not vivid as a rule; only so when the imagination is strongly excited or when the visualising is involuntary.

I always see all sides of a room at once and can place myself in the middle. I can see an entire sphere.

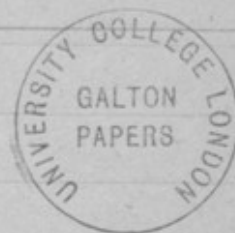
I have the greatest difficulty in retaining images

I visualise images loosely - thinking of possibility of my child falling out of window. I have seen him jump before my eyes as I sat at my window into the area below & have shrieked with horror. Power of recalling faces decreases as my interest in the person increases. I can never see my children.

✓ Number form

Agnes Temple

(a-b)



Can see four sides of a room at one instant of time almost certainly so; if not, the mental eye travels more quickly than it is possible to follow it consciously.

Images when retained grow dim. no fatigue is caused but they vanish.

## Miss Temple

(b-c)

Can see by apparently one glance, the whole of a globe  
 & the four sides of a room, but not more than 3 faces of a die  
 never tries to form mental pictures from the description of  
 scenery in books

(a-b)

## Maria Turrell

(com<sup>d</sup> by Miss Cooper)

Breakfast table

left side as if in twilight, the right in quite deep shadow. (her right eye is short-sighted)

Point 3 or 4 words at once. <sup>clay</sup> nouns, verbs & adjectives appear prominent. He auxiliary verbs, prepositions &c  
 needed and are in shade. Thus 'The stag at eve had drunk his fill' I can see either half, but  
 not both at once, the alternate words being in shade.

Tries to get statistics for me but surprised to find ..... irritated at such nonsense

✓ Number-forms

Colour of face? with words - depends whether they contain certain letters as a, e, i, o, n, l.

Her sister has colour of face with names; these depend on the initial letter - also the  
 An <sup>old known</sup> boy her imaginary companion. - He dresses a soldier on horseback beginning with the <sup>shape varies</sup> hoof.  
 Quotes Miss Henderson's article in the Atlantic Monthly.

Jane A. Winson

(a-b) Good in scenery & descriptions and (beside breakfast table)

Have the greatest difficulty in recalling faces. Might talk to some people (not all) for an hour or ten minutes after not know them.

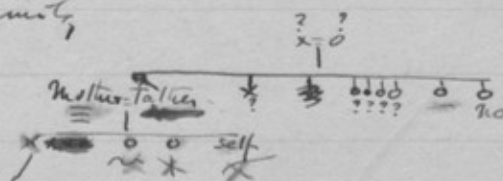
Alice Woods

(A-a) perfect as regards Persons - form figures

Ever since childhood I have been able at rare intervals when particularly in the humor for it to look fixedly at a person and to take as it were a mental photograph of him which I can easily call up years after whenever I choose. - I cannot take these images of every one

✓ Number form  
color's

family



In foregoing 103 cases

Number forms } 24-27 (accordg to opinion) number forms

A	A-a	a	a-b	b	b-c	c	c-d	d	below	variably included	Total
19	13	26	15	14	11	2	0	0	1	2	103

A cases. Bettany <sup>not English</sup> V. Bockman <sup>(Boslock)</sup> Boyle Browne Elmer Busk Ewart (M<sup>rs</sup> Fawcett) F. Fowler  
 Adele Galin Vera Galin (Amy Gossamer) Halkett Miss Herschel Higgins (Charlotte O'Brien) Poole (Porter)  
 Ryland Scott Southall Anna Stacey Eleanor Stacey Tanner 21

Highest among these. Bettany Browne Ewart Adele Galin Vera Galin Halkett  
 10 Higgins Poole Ryland Scott

Highest octave. perfect form in all tests in many cases

" quartile almost perfect in all tests in many cases

Middlemost. a lower a but better than a-b

Lowest quartile between a-b and b  
 between b and b-c

" octave. between b and b-c.

Automatic Hallucination. M<sup>rs</sup> Boyle Courtney M<sup>rs</sup> Fawcett, F. Fowler, Ch: O'Brien.  
 n nearly 20 (Miss Porter) Ch: Norman, R. Simmons M<sup>rs</sup> Tanner

21 - one of these ranks among the 10 highest (see above) a  
 only 4 among the first 21. Showing that the tendency to hallucinate  
 is different from that of voluntary calling up <sup>correct</sup> material associated in a way.

Number forms. Born Allright Rachel Allright. Anonymous. Jay Blake M<sup>rs</sup> Boslock (M<sup>rs</sup> Boyle) M<sup>rs</sup> Browne  
 Isabella Clemes (Dora Du Cane) Miss Duckworth (Amy Gossamer Galin) Vera C. Galin (S. Green) M<sup>rs</sup> Hankin.  
 Miss Handlow. Constance Herschel Miss Herschel (Anna Lloyd) M<sup>rs</sup> de G. Merrifield. Jane Mills  
 (Nelly O'Brien) Catherine Osler Alice Osler Anonymous Poole Charlotte A. Scott. M. Shaen Janet Muddleswell  
 M<sup>rs</sup> and Smith. Anna Stacey Jennette Stacey Eleanor Stacey M<sup>rs</sup> Tanner. Maria Turrell. Alice Wood

Pure Statistics.

Miss Cooper & <sup>unrelated</sup> English mistletoe

Number  
Total

Miss Lewis

52 Portland Road North Hill  
York School

Number forms &amp; colour

31 Neither

4 have number forms

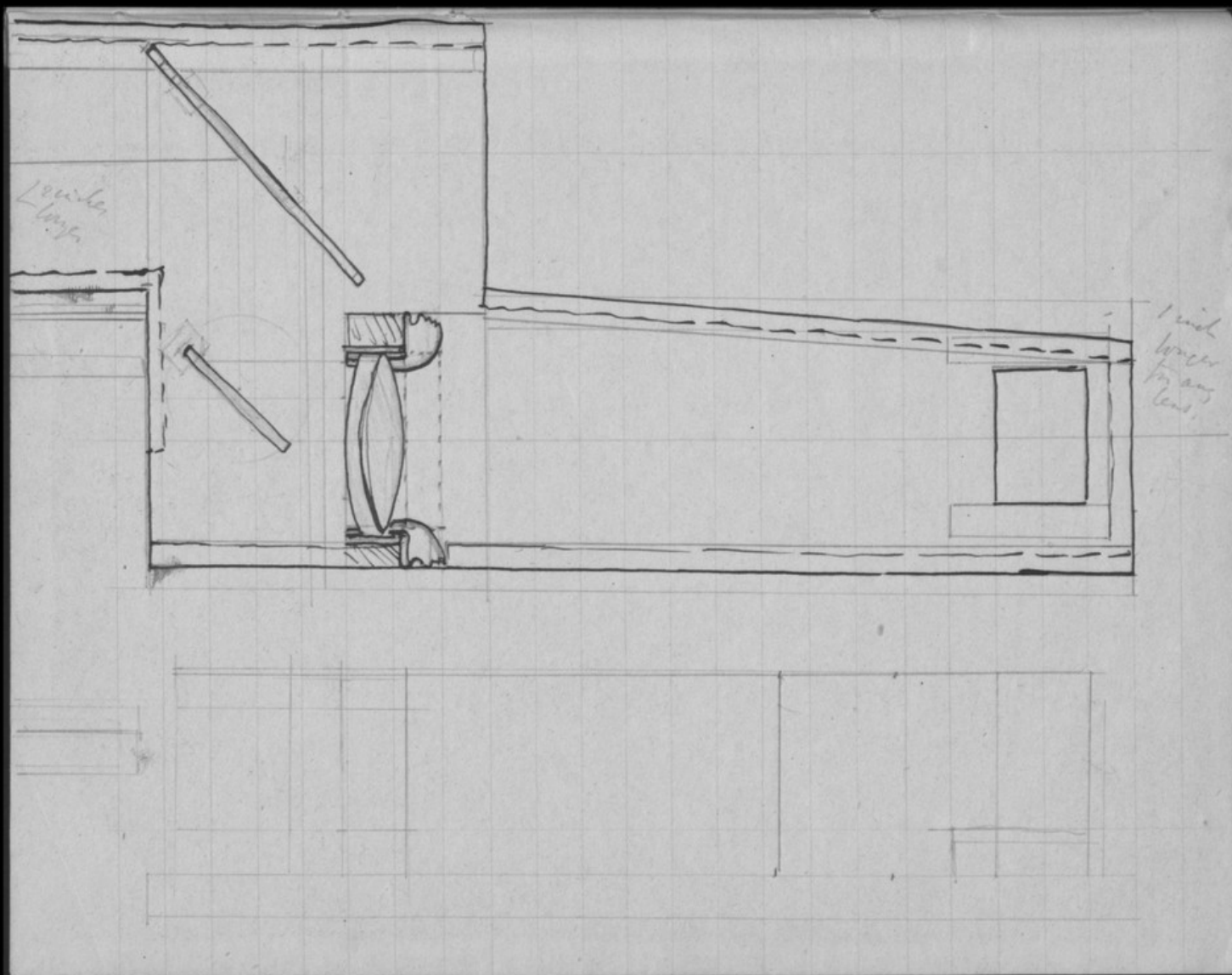
6 have colour &amp; other assoc ^


41

a	Miss Cooper	
b	Kate Andrews	
c	C. Corfe	
a	E. Green	
b-c	Mr. Harkin	✓
a-b	Onion	
b	Pope	
a-b	Turrell	✓
<del>b</del>	Louisa P.	
a-b	Miss Temple	
A	Mr. Nunn	



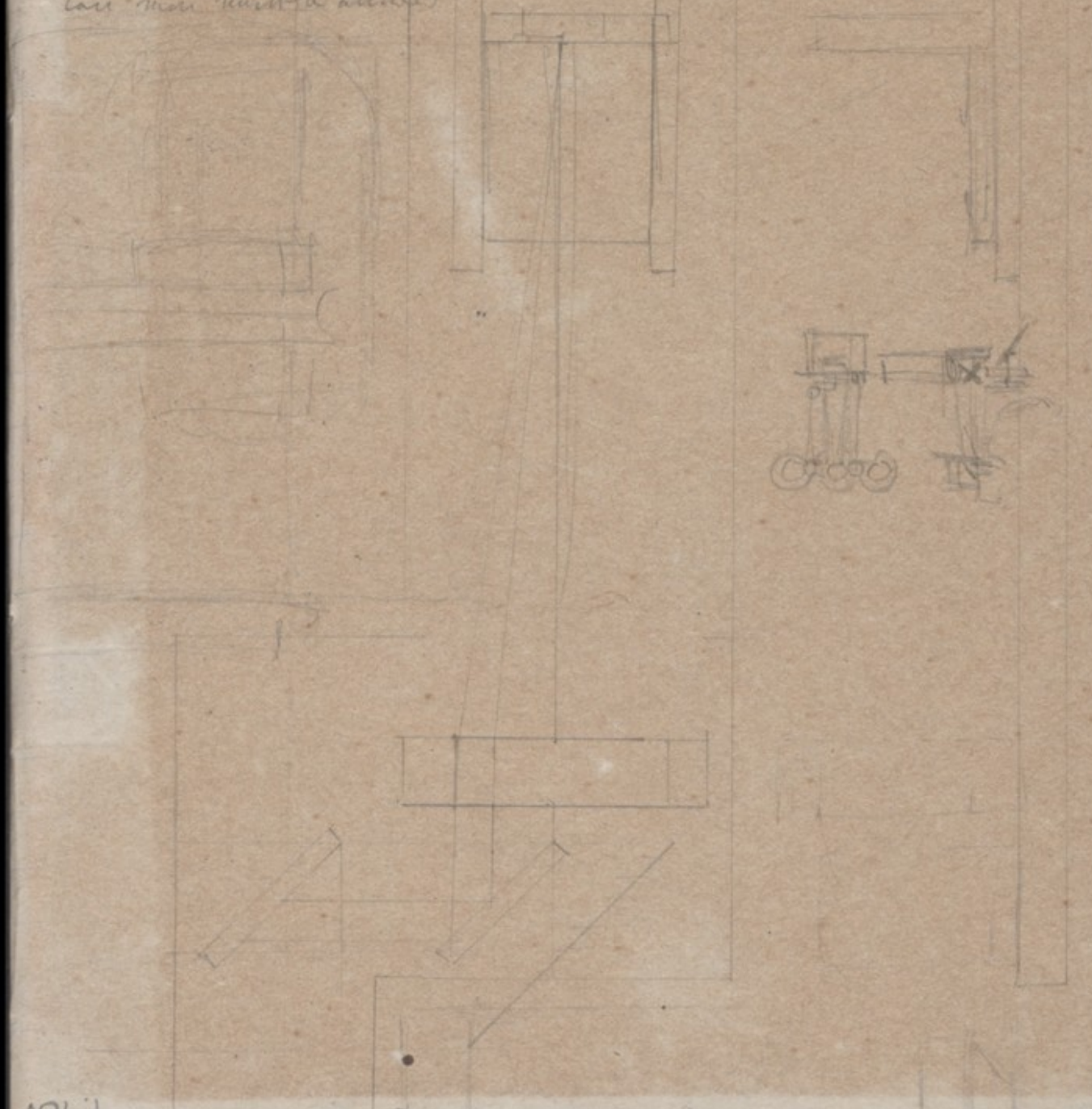




$n+m$  = area of lens (supposed rectangular) 

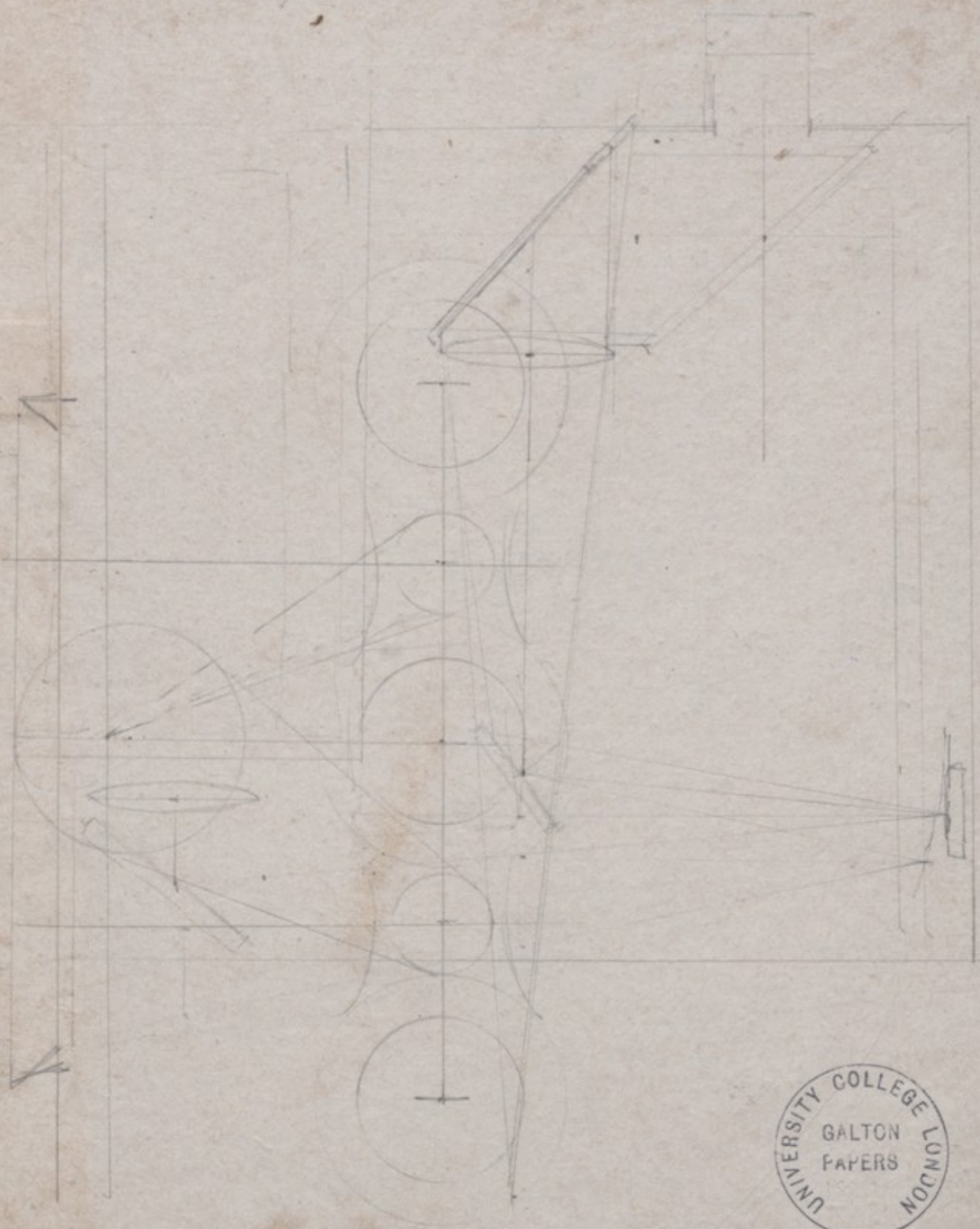
Quantity of light per unit of area of lens that falls from each radiant point on to screen  
 $P_m$  = illumination of image

$\frac{1}{Q}$  = proportion of light that reaches the eye after its refraction from through lens & subsequent reflection.  
 ... that reaches eye =  $\frac{P_m}{Q}$ . The ray ought to fall the perfect - say, allow  
 its movement,  $\frac{1}{Q}$  used for  $n$  & the rest for  $m$  gives the brightest images of  
 the eye were close to the lens & the lens had no thickness - but as there is and the  
 lens more must be allowed)





f. 71





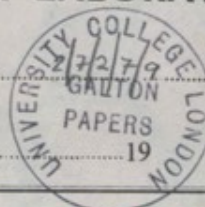
Shwarzheim.

University of London, University College, W.C.1.

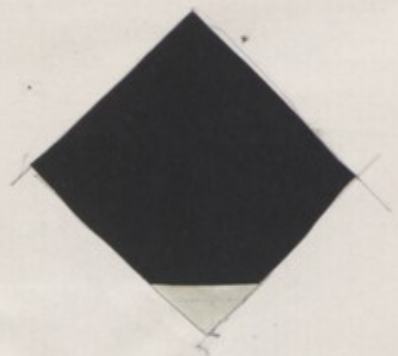
**THE GALTON LABORATORY**

Presented by.....

Purchased.....







Ideometry  
or the measurement of personal faculties.



Spurzheim Physiological System 1815 (Baldwin & Co)  
 he writes in English: a friend has removed Germanium & Gallium.

vi. Dr. Gall first began these inquiries - S. has been for many years associated with him & have not a little contributed to them.

Dr. Gall speaks of "cns" inquiries. The large work is Anatomie & Physiologie des Systems Nerveux L. - par Gall & Spurzheim Paris. - or a - eff. termination. Adhesiveness - like attachment

81. Even in mankind there is no proportion between the manifestations of the faculties & the perfection of the external instruments. If man were his arts to the hand why do not idlers invent. (He has been speaking of birds &c. "what diversity of structure in the nests of birds whose bills are similar! &c")

82. Some individuals have rough hands & an obtuse feeling, & yet produce surprising works. No artist has ever indeed of the capacity of his describes according to the acuteness of their sense of feeling

83. Then the ancient doctrine of Anaxagoras, that the hand of man is the cause of his understanding, falls to the ground.
252. Some faculties are more energetic in men, others in women & differ at different ages & in each individual. Every child manifests its own manner of thinking & feeling.
255. Many persons have a melancholy look who are not at all melancholy (doctrine of the superabundance of the faculties - has nothing to do with faculties).
257. The commencement of Colli's enquiry was observing that his schoolfellows who had good memories had prominent eyes.
263. Gail & Spurzheim Enquired very widely - educational establishments people they met, all sorts of places - 265 He made a collection of casts.
270. The number of facts we have collected, is immense.
306. Many instances of the propensity to destroy but with the want of sensitivity & indifference pain of others - criminals.
- 315 The propensity to kill & destroy is innate - all history confirms this assertion.
- 320 Savarin pastor of Geneva was overcome continually by the harshness of heart - many other cases are cited.
324. Sentiment of property in animals.
328. Gail admits that many certain invertebrate criminals do not feel any repentance or good conscience - when the inclinations are energetic all the actions are in harmony with them - they are his principal characters he rarely feels any natural repentance. A good tree <sup>and</sup> - but from it no vice grows.

349. Cardinal de Polignac (Anti-Increase tom 1. p 164) says why sh<sup>d</sup>  
 a criminal who does not consider himself wicked, repent? - Follows great  
<sup>originally</sup> ~~then~~ to the scaffold their confident ~~and cheer~~ <sup>gaze</sup> - making <sup>policy</sup> of most  
 outrageous actions - break out into laughter

442. Instinctive actions subjected to seasons temperature food & laws  
 of organization. Animals at different periods sing, build, gather provisions  
 live solitary or in society, migrate, &c (hibernate sleep,  
 food. temp: of body.

445. Cartesian by their doctrine of the tracks which they admit is  
 the brain. . . .

453 ... It is daily observed that revolutions produce great men. . . .

The same circumstances are often presented to many millions  
 and perhaps one single individual alone makes use of them.

.... revolutions offer the Opportunities. . .

455. Love of society - the social animals - the social faculty is innate

457. External wants only excite the activity of the internal faculties,  
 but do not produce them.

460. Constancy of animals & men. Why does not the bee learn to coo  
 when she is brought up with pigeons? . . . Education must be  
 conformable to nature.

Young children pass most of their time  
 with their mothers & nurses & consequently with women, yet boys  
 & girls show from their earliest infancy their distinctive characters  
 & this difference between the sexes continues for life

461. Seniors among men & animals. (among little later)

497. All faculties are given - Who for example has called himself Life? Does it depend on the will of any one to be born in this or in that country? From these or those parents? Under this or that system of government... or of religion? Who has determined his sex? Who can say I am the eldest is youngest because it has been my choice?

527 Very few characters & talents are simple

528. The world is different to every species of animals & even to every individual of the same species

530. Certain Stomachs do not digest some things...

532. What a difference between the Gods of different nations!!

533. Music is different in every nation - even of every composer  
It is the same with painting

534. I even admit it as a principle, that according to the spirit of any language we may judge of the faculties of a nation

The French Institute does not admit analogies as proofs. which the Germans are fond of them - [much analysis taken of Fr: & German]

537. <sup>(various differences)</sup> These circumstances explain the different systems of virtue & morality... Hence philosophers as well as all other persons think differently... his plan seems to him the best because his consciousness tells him so, but I think he is wrong in considering himself as the measure of the absolute nature of man.



|| 520. God is always at all times anthropomorphised.

523. Man wants & cultivate tenderness in the same way that the beaver builds & the nightingale sings.

525. I will never choose for my intimate friend person in whom the inferior organs are very large & the superior very small.

Indulgence to others - no friendship can be permanent without it.

526. Sympathy & antipathy.

529. The greater number of the faculties are antisocial. Proud persons do not like the proud - etc.

532. Education. After immaturity hygiene is the most important - the laws of nutrition must be regarded. The part that concerns exercise is still very defective. Is it conceivable that the feelings are not to be learned as the intellectual faculties are, by putting them in action.

536. Excessive love of exhibition cannot be annihilated it must be directed.

|| 572. At these periods ... women deserve more indulgence in account of their irritability. - Periods of irritability are common to both sexes. - 573 Complexion changes ... sometimes hands & feet seem benumbed -

574 They torment those around them in various ways & about  
inconsiderable things, they are displeased with everything, they  
see nothing but wickedness & misfortune ... The greatest  
number of these patients feel a permanent pain above the root  
of the nose & in the midst of the inferior part of the forehead  
& sometimes at the top of the head. - Sometimes all these  
symptoms disappear suddenly ... - catarrhes, vitæis,  
... most deserving of pity.

---

Height	Half Ocular A	Total ocular B	Abcise A+B	Difference	Height ocular	range ocular



TV 87-98. a striking account of the natural cruelty of many men  
but compare with V. 260 which puts another view on the matter.  
People go to executions & tragedies because they need the  
exercise of their ~~cap.~~ faculty of pity.





Persons



University of London, University College, W.C.1.

**THE GALTON LABORATORY**

*Presented by* .....

*Purchased* ..... 19



Dora Albright

Sometimes I can recall features vividly, but sometimes fail with the same person. I can at this moment recall several people with whose aspect and specialities of ~~manner~~ movement I can follow as they sit, rise, walk or turn round.

Mr. Henry Ball

I can recall the features of any one I know well and see them in any attitude; in repose or motion. When I <sup>was young I drew caricatures from memory which were recognizable to others, but have not cultivated the art.</sup>

Dr. Annie Reay Barker

Cannot recall features except after immediate observation, but recognize faces once seen with extreme facility.

Mr. A. M. Beneke

Some days I can recall features perfectly; on other days the same person is indistinct. When I have seen the original of the mental image in any position, I can recall it; not otherwise.

$$\left( \begin{array}{c} P' \\ \equiv \end{array} S \begin{array}{c} V' \\ \equiv \end{array} \right)$$

$$\underline{M}$$

$$\left( \begin{array}{c} P' \\ \equiv \end{array} S' \begin{array}{c} V' \\ \equiv \end{array} \right)$$

$$\underline{M}$$

$$\left( \begin{array}{c} P' \\ \equiv \end{array} S \begin{array}{c} V' \\ \equiv \end{array} \right)$$

$$\underline{M'}$$



J. O. Bevan

It requires an effort, more a ~~left~~ <sup>strong</sup> to enable me to recall faces. I could picture them in motion by a demonstrable effort

Fran von Boeckmann

I can recall the features of dear persons, see them clearly before me, moving or sitting, & could sketch them.

F. W. Burton

(Who says 'yes' to my questions, add) Amateurs often draw very correctly from recollection but fail when they draw from the object itself.

Rev<sup>d</sup> Arthur Butler

I can see ideal better than known faces ordinarily [In his note he says,] I can <sup>not</sup> produce these images in the day, even if I close my eyes and shut myself in an almost sound proof room

Mr<sup>r</sup> Chapmell

I can recall the features, gestures & dress, but could not get a sufficiently distinct image to copy, supposing I could draw.

M'

P S VMP S V



Miss Lina Churchill

I can recall expression distinctly, but not always features.

Miss J. J. Clemes

The features are indistinct, but the image can [be made to] change position at will

St. George Coles

The features often come with great distinctness, but if I wish to call up a face it often only comes in a vague, indistinct way and there seems an effort of memory & so. If I have seen a person I know well in a particular chair I can visualize him there; otherwise not. Even then not distinctly enough to try to sketch.

Edward Collins

[Yes to all my questions]. It frequently happens when I meet a man whom I have seen but once before, that I worry myself for a considerable time with the question 'where have I seen him?' at last the picture bursts upon me and I see him and his surroundings as upon the first occasion.

$\underline{M}$  $\int \underline{P}' \underline{S}' \underline{V}'$  $\underline{M}'$  $\underline{P} \quad \underline{S} \quad \underline{V}$

Miss Cooper

General effects very clear, details sometimes more shadowy. I can make the image change position.

Miss C Corpe

I have a tolerably clear recollection of persons I know well, but not of every feature; I recollect the gestures and movements clearly.

Charles Darwin

I remember the faces of persons formerly well-known, vividly, and can make them do anything I like.

George Darwin

Yes [to my question] but if I know them too well it is more difficult. When the representation comes with extreme vividness & flashes but refuses to stay. I rather have general impressions of such people (e.g. father, mother, etc.) & can picture them in various attitudes. I can make my mother sit on a bench which

$\underline{M}^{\circ}$  $\underline{M}$  $\underline{P} \underline{S} \underline{V}$  $\underline{M}$  $\underline{P} \underline{S} \underline{V}$  $\underline{M}'$

She sits in at rare intervals, but can't then see the details. But any one who had never sat there I can't manipulate so. (E.g. I can't make you sit in a bench in our "Sand walk") I do not think I can picture people moving from one attitude to another continuously; I think they disappear and reappear again in the new position. I cannot recall people as they were when young, or without beards &c.

I think I could draw very fairly well [from memory] if I were a better artist. The enclosed I did in 2 minutes representing my father as he sits before the fire after dinner. It is drawn from the position in which I often see him. The drawing is correct in the position of the lamp on the table and the shape of both chairs. I especially had to think if the top of his head came over the ~~top~~ of his chair; I am sure it does, & corrected my first attempt. I could do this immensely better if I were to spend 2 or 3 hours over it and try & try various effects.

Horace Darwin

Indistinct. Cannot make them move.





W. L. Distant

I cannot recall with great distinctness the features of persons I know intimately. My children seem somewhat an exception. I cannot make my mental image change position at will but believe by practice I could do so.

Sir Joseph Fayrer

Yes especially some. One or two far more than others.

Miss Swart

This depends entirely on the persons & whether I am sufficiently interested or know them well. It is the same with scenery. I am generally interested and therefore generally recall both easily and clearly.

Miss F. Forke - No - the figures move their limbs only & come towards me  
(See her long & interesting letter)

Miss M. Forke

Can recall persons in any position in wh. I have seen them

mo

$$\overline{P' \underline{S} V}$$

$$\overline{P' \underline{S'} V}$$

$$\overline{P \underline{S} V}$$

M'

$$\overline{P \underline{S} V}$$

M'

Louisa Galton

I cannot call up the features at all, but [only] the general form, attitude, and shape of hands

Alice Gardner

I seem to recognise the mental images of persons chiefly by the general expression of the countenance. I cannot make them move naturally.

Edith Green

The Images are more distinct in Stillness than in motion <sup>than</sup> I do not see it distinctly enough in detail to make a good likeness

Miss Susanna Green

I can see the figure in any position but I do not see it actually in motion, ~~and I do not see it distinctly enough in detail to make a good likeness.~~

R. Haselee

Sometimes it requires a considerable effort on my part to recall the features of persons, even of persons whom I know well. At other times they present themselves very distinctly & that especially when

$m_0$ ? ~~MS~~ $\overline{P' S \underline{V}}$  $\overline{P' S V}$



they play a part in any scene that I call to mind. As a rule, persons having no connection with present train of thought are difficult to recall to mind. I can, however easily recall features of very intimate friends, but could not describe the details of their features very accurately. Any remarkable face I can recall without difficulty.

Edmund Hills

I can make the mental image of a person I know well, change position.

Mrs Litchfield

I can recall bits of faces with great minuteness, - texture & colour of skin, marks of injuries, colour of hair, but no image stays. I cannot make the images change their positions and I could not draw them from what I see, even if I could draw, though I can remember them bit by bit, exactly, as it seems to me.

Anna Lloyd

I do not see persons very clearly. The vision of them is a kind of <sup>abstract</sup> conglomeration of all that I know & think about them, as well as their general air.

f. 9r

M

Donald McAlister

Faces even of my own family become indistinct after a few months absence.

J. S. Manton

I can recall the image of persons long since dead in various positions, distinctly

Sarah Markes

I can think of each feature but not the whole face, if I try to. I often for one second <sup>[is objectively]</sup> see a person quite distinctly, whom I have been seeing in my mind unconsciously before.

W. Mathews

My power of recollecting the features of persons mainly depends upon whether the features are pronounced or not. As a rule, I recollect the features of those I know well, but could not draw them in any case

Miss McG Merrifield

Yes, I see persons distinctly enough to draw them. I always recall absent persons by vivid mental pictures.

P S V

M' C



vision

P' S V

P S V

Jane Mills

Not with precision. The colour & the expression  
are the most distinct

D. Norman Moore, M.D.

I cannot to my mind picture the face, but I can  
remember exactly the position. I have a long  
recognising memory for faces improved by almost  
daily attempt to remember patients so that out of  
several hundreds only a very few are forgotten, but  
even of people I have known ~~well~~ most intimately I  
find I cannot reproduce the lineaments to myself  
when I wish to do so, even if I [can] describe them  
verbally with accuracy

Prof. Max Müller

Only a few features and a vague general ~~type~~ type.  
Now & then I have been able to have a vision of a  
face, but very rarely and generally under <sup>some</sup> excitement

Mrs. Owens

Features of persons seen daily can be recalled  
with ease.



P S V

Miss Alice Osler

I cannot recall the features of persons with clearness. I can clearly see some of the features, but as a whole they are dim. I can at will cause the mental view to change into any position I choose, but it is not very clear, not quite clear enough to draw.

Mrs Frederick Pollock

I can only recall positions actually observed

Miss Margaret Pope

Until lately, I could never recall anything but a person's hair; its colour & arrangement being distinct. [but] the features a blank. Now in some cases and at certain times, the features also are visible

Sir Norman Dawson

Yes, but not of ordinary acquaintances

Prof. Crown Robertson

I was not trained to draw otherwise I think I might have sketched from the images as I represent them.

M

M'

P'SV
------

P	S	V
=	=	=

John L. Noget

I can recall distinctly some faces that I know well, but as to others which I might reasonably be expected to know, I find it difficult to do so, and I sometimes make ridiculous mistakes of identity. I can at will cause the mental image to change position as described [viz to sit, stand or turn slowly round], but can rarely retain the image of a given person long or distinctly enough to sketch it, except very imperfectly; though I can draw the living figure tolerably when it is placed before me. I believe however that I could to some extent acquire the power in question by cultivation. Had I been altogether unacquainted with the practical difficulties of drawing as an art, I might perhaps have answered this interrogatory in the affirmative.

Miss Romanae

I can recall faces with great distinctness & can make the image move any way, but could not retain it nearly long enough to draw it. My mind would wander away to a thousand other things! I have great pleasure in picturing fancy scenes with fictitious persons and when these scenes are repeated several times they appear with more distinctness and better illumination than any they else! the same applies to scenes from well written novels. [See also her letter about visions]

P S V

M

P S V

M



Miss <sup>Susan</sup> Ryland

I can recall with distinctness the features of persons either still or in motion.

Rev<sup>d</sup> G. St Clair

Can recall features fairly well and find no difficulty in making them change position. I do not draw, else I could retain the image [long enough to do so], but I should feel uncertain about details of feature and dress.

Arthur O Saunders

Yes, to all questions, but there are one or two persons with whom I am very familiar (my own sister is one of them) whose features I cannot carry off, try how I will for several years. But most faces if once clearly seen are distinctly visualised, even though strangers.

Richard Shute

Even the faces of persons I know best, I cannot reproduce in imagination.

$$\begin{array}{ccc} \underline{P} & \underline{S} & \underline{V} \end{array}$$

$$\underline{M}$$

$$P \phi$$

$$\underline{M}$$

$$\begin{array}{|c|c|c|} \hline \underline{P} & \underline{S} & \underline{V} \\ \hline \end{array}$$

(? Mr.) R. Simmons

Yes. Sometimes I see every detail, at others I cannot recall the most familiar features (Has had more than one vision see her letter)

Amy Leigh Smith

I can remember three faces, one of them more distinctly than the others

Mr. R. M. Smith

Some people with great clearness; others known equally well, not at all. I can make my mental image move if I have seen the original move in the same way.

Eleanor Stacey

I recall easily a person's figure, though generally only one or two marked features <sup>of the face</sup> at a time. I can easily make my mental image of a person stand or sit and could imagine myself able to sketch a person's figure

George Stacey

Can remember very well if only seen a few times; well known faces can recall in general effect but never features in detail

P S V bitum

P S V

M'



P S V

M

+

Ellen Sturge

I can recollect fairly and see them, but in beginning to draw them they become fainter. I do not see outlines but light defined by background.

Lilly Sturge

I cannot recall distinctly the features of any one I know well.

Marin Turrell

I cannot recall the features of even my most intimate friends.

J. Ward

Can image people I know, at rest but not moving, except they have some trick of manner or gait which has impressed me. The attempt to project the image on paper is a hopeless failure, perhaps because I cannot draw faces.

Lane A Winsom

Have the greatest difficulty in recalling faces. Might talk to some persons (not all) for an hour, and ten minutes after not know them.



$\overline{P|S|V}$  strong 'nachbilde'

$\overline{P|S'|V}$   $m_{1/2}$

Miss Alice Woods

I recall features with great distinctness; can make my mental image of them take any position I like. Ever since childhood I have been able at rare intervals, when particularly in the humor for it to look fixedly at a person and take as it were a mental photograph of them which I can call up at will years after and whenever I choose. Some of these images are so clear that if I could draw faces I could draw them with ease. Others are more indistinct, the peculiarities of feature not being there but the expression being indelibly impressed. I cannot take these images of every one long after repeated trials, but on one or two occasions they have been unprinted in my mind involuntarily.

Dr. G. F. Geo

I can easily recall any expression or position of any person I know well and see them so vividly as to draw them.

John Ball

I am and always have been singularly deficient in the memory of faces, except those frequently seen and well known. Of these I often retain very long a vivid impression, but even as to these a change of details, arrangement of hair or the like, makes me uncertain as to identity.

64)

P S V


P S V

	no of cases	number approved with $S = V$	not to
<u>P</u>	15	14	1
P1	14		

medy with perfect case	M	14	
subject to condition	M'	8	
can move	m <sub>0</sub>	4	

"When I have seen the original in any position I can recall it and otherwise."  
 Bencher, Coates, 3 Darnley, 4 Finkle, 5 T. Pollock, 6 San Smilla





*Peterson*



Notes from letters



University of London, University College, W.C.1.

**THE GALTON LABORATORY**

*Presented by* .....

*Purchased* ..... 19



- 2 }  
 3 } Colored letters  
 4 } and  
 5 } numerals  
 6 }  
 7 } number forms - comparison  
 8 } of this direction  
 9 } half go in  
 10 } this direction  
 11 } also decimal & denary numeral systems  
 12 } & reverse & direct  
 13 }  
 14 } notes from letters of  
 15 } the more important facts  
 16 } attempt to see if directions of form tend  
 17 } to be logarithmic  
 18 } notes from letters continued  
 19 } names of persons whose forms  
 20 } I have drawn for lithography N 13 14 15  
 21 }  
 22 } Heredity  
 23 }  
 24 } Classification - the contents are  
 25 } the put in black copy book  
 26 }  
 27 } Personification (also under  
 28 } loose  
 29 } &c  
 30 } denary numeral

25 Preferences

26 } Some enlargement of data n. 22-3  
 27 }28 } Personification of 6 persons  
 29 }

30 Year - Dates



2)	G. T. Butler	Nov. S. Hamilton	Fair	unoff. (used) Stated	Anna (Loy)	before color	new turrel	Her Sorts	O. Conner
a	yellow	yellow			pink		light	blue	white
b	dark blue <del>near black</del>	<del>near black</del> blue			gray				light brown
c	yellow	white			cream white			dark yellow brown	yellow
d	black	brown			gray				dk brown
e	blue gray	green			stone white		light	white in emerald green	pink
f	green	lake			gray				crimson
g	orange	green			gray				flush color
h	pink	gray			gray				gray
i	white	black	red		gray		dark		black
j	orange	black			gray				yellowish brown
k	dun	no color			gray				white
l	black	no color			gray		blue	blue	yellowish green
m	crimson	blue			gray				dark green
n	black	no color			gray		yellow	yellow	light green
o	white	white	white	white	blue		new tool	new tool	scarlet
p	blue	purple			gray				amber
q	yellow	no color			gray				dk brown
r	reddish brown	red			black				violet
s	white	green			white				white
t	black	no color			gray				dark brown
u	dun	gray			gray				light brown
v	green	scarlet			gray				light light brown
w	orange	no color			blue				blue

	E. S. Butler	New S. Henderson	James (and) Stan- dard	Agnes Lore	J. Lee Hills Leprie Oker	John Turnell	Her- sicles	Miss Shirley	O'Connor (3)
2	gilt	no colors		gray					white
4	gilt	no colors		gray					light brown
2	gilt.	red		gray					white
	The colors not appear when I think of the letters found, and in an idle mood	letters seem sometimes to have become apocryphal (through some) e.g. green, etc.		Harper Wood Eggs for Colors (Duckin)					positively misleading and account for not the colors
0									scarlet
1					<del>black</del> <del>very pale</del> <del>yellow</del> <del>black</del>				brunze
2					light blue				blue
3					dark blue				pink
4					yellow				pinkish brown
5					dull red				blue flesh color
6					chocolate				rose green
7					white, yellow blue, grey (S. or mixed) corolla, orange, black				drab, yellowish green
8									orange white
9									green
10					pink yellow				
11					like 10 but darker				
12					very dark green				



	Common English lady	John Maxwell lady	Miss Janel Thistlewood boy	Achard Sweet (fresh)	Hawkey young English childhood
a	black	red	as in father, Crimston fate yellow that pink or red	red e in friend (white)	red
b					
c					
d					
e	sand	brown yellow	e is in wee, white	i in friend black (white)	white
f					
g					
h					
i	white	blue	as in this color like white as in bright pink or red with		black
j					
k					
l					
m					
n					
o	red	white	black as in soft brown or another shade of brown dark blue in German light blue found	dark brown dark grayish blue iron gray sulfur yellow	green yellow
p					
q					
r					
s					
t					
u	light green	black			blue
v					
w					

Hm  
 Boy  
 Oslon  
 Sack  
 Crop  
 fire  
 Gustav  
 and  
 Shettle  
 work  
 Sully  
 Chute

f. 4r

5

2

9

2

0

1

2

3

4

5

6

7

8

9

10

colorless

black

white

black

yellow

whitish

dark

pale  
brassy  
red

white

red

brassy orange

dark

blackish  
grey

pink

reddish  
brown

?

green bluish

?

bluish

red

?

reddish  
brown

black

purplish  
dark

red  
brown

Chondropat  
 event of blue  
 colored  
 accented  
 by dominant  
 figure

black

?

he  
 a few  
 others

This is different to the  
 column of the numbers - curve.

I do not oppositely color with numbers as numbers, but with this sound of their names, I do  
 merely because of opposite color with vowels - (see corresponding column on opposite page)

6

decimal or  
subdecimalmore or  
less  
dividedL = lines  
along  
N = numerals  
along  
LN = lines on  
numerals  
L = lines  
N = numerals

f. 4v

Sagitt

Parr

M<sup>r</sup> C. Herschel 12 & 20 (both)M<sup>r</sup> Thawers both 20 to 20M<sup>r</sup> Allen Otter neither

... Robinson (youngest son)

M<sup>r</sup> Shaen

G. Biddle

A. Schuster I neither

M<sup>r</sup> M. Merrifield decimal

R. E. Baigent

W. Poole

T. Searle

Colonel Gule

M<sup>r</sup> T. WallerM<sup>r</sup> StaceyM<sup>r</sup> BostockM<sup>r</sup> Tanner

Larden

decimal

both 12 &amp; 20

both 12 & 20  
100 & 120

both 12 &amp; 20

both 12 &amp; 20

decimal

both 6, 12, 20, 30 &amp; 40

both 12 & 20  
both 12 & 20

↖

T

Z

M

L

Z

O

Z

Z

N

P

L

LN

LN

LN

LN

N

	decimal duodecimal			
A. Schuster II	decimal		✓	LN
Edmund Hills	decimal but not 10			N
M. Turrell	12-20			LN
Mrs H. Osler (St. Elizabeth)	12-20			N
Mrs G. Hendon	10, 12, decimal			N
W. B. Lewis	12-20		✓	NL
Mrs Jeannette Hacey	20 decimal + 120		✓	N
Antoine d'Abbadie	20 decimal			N
H. Woodd Smith	7, 12, 20, 112, 120		✓	N
Mrs Clever	decimal			LN
E. O'Connor	dec: a duode		✓	N
Swift Lady	both (squares)			N
C. Armbruster	20 decimal			N musical
Mrs Martineau	20 decimal + 120			N
F. F. Fairer	10, 12, decimal 112, 112		✓	N
Theodore Mertz	12, 20 decimal		✓	LN
Mrs. Hearsh	10, 12 decimal with some duode			N
James Dimmock	12-20 decimal			N
R. B. B. B.				
- Dimmock (2 <sup>nd</sup> Son)	decimal			N
Mrs Alfred Osler	20 decimal - 120		✓	N
Mrs H. H. Hudson	decimal (in a way)		✓	N
Ernest Truett (G. d'Abbadie)	duodecimal		✓	N

bottom left  
of page  
assigned to Mrs  
on page

Continued

f. 5v

A. S. Barnard

12-20 with  
peculiarities in  
the small figures  
12-20 very queer



N

French Lady

12-20 very queer

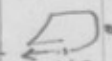


✓

N

Mrs Anne Barnard

12-20 decimal - the



N

French Zoologist. (E. de Abbadie)

12-20 decimal - the



✓

N

Jephie Oster

12-20



✓

N

Mrs M B (E. New) (Henderson) 12-20



✓

N

Mrs Alice Woods

12-20 decimal  
very irregular



✓

NL

Mrs Tom Albright

12-20 decimal



✓

NL

Fane Mills

12-20 decimal



✓

NL

521  
daughter of E. Marx

some what decimal



✓

N

12  
fig 9 in 52  
are not decimal  
at any time, all  
the not have  
or 3 out of 4 have it  
12

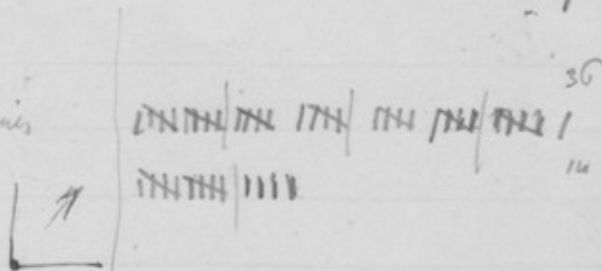
12  
turn in  $\frac{1}{3}$   
reverses  $\frac{1}{3}$   
discrepancy

near  
half  
are  
more  
in top

As seen when  
at 3 o'clock  
near  $\frac{1}{2}$  upward  
from the center of the  
the hour marks X & III.



Total  
direct ↘ this includes many straight lines  
reverse ↗  
within upper right hand quadrant  
Consist of lines alone  
of numerals alone  
of both lines & numerals



## Conclusions

- 1 About one third are reverse - two thirds direct
- 3 About one quarter are not duodecimal at all - three quarters are
- 2 Nearly half lie within the upper right hand quadrant  
proceeding from self forwards or to the right



Statistics


From Schedules

I don't  
 find there  
 74. April/82

Anonymous<sup>A</sup> - carpenter's rule

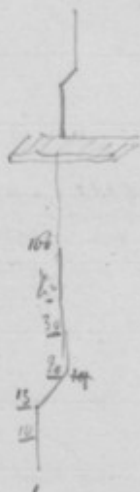
Mr. Henry Ball - ditto

Mr. Jex Blake - 100.000 in my pocket - copy

Barrow 

Mr. Herschel - numeral form series of 10's - no names

Mr. Constance Herschel (compare with letters)



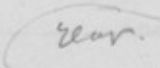
(w. L. Hart)


(w. L. Hawkins)

Refer to an article in Pop Science Review or Science Review.

Abbadie - 3 mathematicians & have no <sup>who have no diff. in their</sup> norma in their mind's eye for any habitual arrangement of figures - another eminent for applied mathematics sees every figure singly at a convenient distance before him like a person's head in a small window.


Baird - Analysis of men of French Academy. - Ghosts become more rare as we travel south.

Mrs. Bevington  24 in the month

Bodder  clouds always below December. (2 charts for history)


Brodie always sees Kings of England in same letter as that in which Governor first touched him history. but adds great bumps & had in the laboratory acquired inform.


Mrs. Browne (days of the week)


E. B. Butler  measures years in a coat of rings. not standard


J. Darwin describes his numerals well in a letter

Sageist - History curve similar to numeral - Keiser as a cause of way of learning { occupation in after life, natural mental mechanism

Brown. Eldest son of Chapman   
Mrs. Dawson - Personified numerals.  
On Came Mrs. Dora Vermilion or a 2<sup>nd</sup> letter

Edgeworth days of week  Days of week stored at 11 months - Dales -


W. S. Hart  Heredity & diet - Children & imaginary companions - Child count now by

W. S. Hart  numeral scheme - personified numerals  
Mrs. Hawes changing pictures - months & dates & years so small.


F. V. Hawthorn - frequent association between shape of word & thing represented

Henslow - changing pictures - has mistaken fantasy for facts sight & sound. Dales

Bournemouth boarding school.

Mrs. K  months (10 numerals too)

Anne Barnard (nie Henslow) a full account of her family.

Mrs. Henslow notices the 10-12 twist & account for it by clock - difference between scheme for ages - year  her mother's other way alphabet as learnt when a child.

Mrs. C. A. Herschel - Dales similar but not the same (see descriptions)

Hewlett. Colours & sound - is offended unless the spectroscopic diagrams run with the lions forte - quivered vibrations & highest notes

Musky - very faint

Musky, the 50 is in large bold characters with two lines = under the

O'Connor the figures are colored

Alice Oster the numeral is not seen but only its position (compare with letters)

Oster Sochen color

In Newton Newton sees not only the figures but what they represent

Noset, numerals located in rooms of a house

Prof. Scott, numerals in a line & the one thought of is brought forward

From Letters

f. 8r 13

Lorden, Vismahier Coeythor O year & week (see description)

Cannot hear a word without seeing its printed image: excels in very quick conversation when he is conversant with the matter

Mrs Anna Lloyd colour  
 Louisa Neve His views on the order of numeral schemes are excellent: she is (said) at length  
 Mrs Maphelm These all her children do

Mrs Martineau - Dates arranged rather differently  
 Her mother has a numeral scheme

Genl. Maxwell - French <sup>the</sup> <sup>year</sup> <sup>year</sup> <sup>year</sup> colour

Mrs Merrifield

Mrs Jane Mills Chromo word - thinks power may be strengthened by  
 Ninkumish, has a friend in whom every sound takes the form of waves


Esther Cathern

Levee days of week year

O'Connor 2 editions, alphabet too.


Oster Sacken Colour association - Small size of object visualized


Plarr, about his daughter's seizure - - - - - rendered the upper boxes  
 very awkward with small boxes -




" His own Calendar - 

Petrie Phadon - his sliding rule.

Mr F. Pollock recollects his Kings & Queens from a defective ~~memory~~

Schmidt map that he learnt from when a child  
 Months of the year  - thinks in images

Seake - Belief & low prayers  the latter ran upwards  
 a beam perhaps much like some half written numbers

Mrs Archibald Smith year   permuted numerals.  
 Wood with -  Always diminishes & scale.

Stewart number cards Can never get over first impression  
 Tanner a plan described them

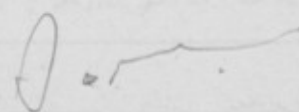
D



16

f. 8v

From Schedule

Walter beautiful little drawing 

From Letters Continued

f. 9r 15-

Turrell. talker of difficulty of getting people to take a real interest - I seem  
nonsense - Know a person who visualizes numbers while playing  
colored letters with colour & words

Med. T. H. Waller

Yule. month even colored but can't recollect (from his weekly)

Lunden, <sup>letter</sup> all language is instantly mixed to me as printed or written  
words (Mrs Strachey - boy etc?) said at North Devon

I am convinced that the indistinctness & difficulty of fixing images in the result of overwork  
... exactly analogous to what I find in my greatest attention & power of thought

[Mem. A number form is <sup>appearing</sup> often like the edge of a solid object that can be viewed  
in many aspects. <sup>imagination</sup> ~~at other times~~ it is fixed with reference to a horizon

Commemorated by Rev. H. H. Winkler  
3 Dr Bonazzi & their <sup>Italian</sup> ~~correspondence~~ <sup>flowers</sup> have color of flower - the  
corner sees printed letters

Quote: Habzidi at French Academies - the type I may  
Armbruster heavily mixed

Barrett sees figures as in clock dial

Bacon great grief because I had recall features of dead son

Sir S. Barrett his best intentions made at church

Brodrick many good points

Byron. quotation from Childe Harold

De Candolle Poets associate words not by their sense but by their final letters  
as poets have existed in all times it shows that such has a sensible & reliable  
tendency to false association

Stimmo Clock face fairly & son's

[Hearing him is a picture of the things which the eye follows with the greatest ease]

Foster number form

Garnett. Every word letters appears before my eyes in print



From letters &c continued

f. 10r

17

Vaughan Hawkins - dog

Fred. Harris. Hardly can dream but notations well

T.H. = Thomas Hadkri

Rev F. Hewlett. - Spectra & arrangement of keys in spectrum table

H. McLeod. of Cooper, N.Y. excellent diagram

Martin draws of a forgotten entry in his book of balance that prove correct  
O'Connor complicated color diagram, - letter too

Prece had been practicing visual & by accident succeeded & found great pleasure.  
He gives the story of the musical band-master at our own.  
Croon. Robertina 're-perception' used by a friend this

Schuster has a second diagram

Aug Schiller has objected to his drawing in which a 10 paper

James Smith H'm, H'm

Herbert Spencer, Quotation from.

J.A. Stewart <sup>father of</sup> Christchurch - (may give his name)

ward. permits numerical & thinks he understands why - must read the letters

Warner American number form

San David Loderer, good description brief. the whole course is dimly visible whenever numerical is thought of  
the letters may be either in letters or numbers. it is their place that are fixed.

18

F. 10v

1	G. H. w	New George Hendlow	21	E. O. v	Elizal F. O. v	41	N. 19	
2	L. M. H. v	Hendlow	22	J. O. v	Jefie O. v above above	42	F. 31	
3	A. B. d	M. Anne Barnard nie Hendlow	23	J. O. v	near from	43	G. B. v	George B. v
4	S. B. d	Sidgwick Barnard son of Anne Barnard	24	W. L. n	W. L. n Challenier	44	A. S. v	Prof. Schuchle 1 of his former out
5	G. P. e	Pease	25	P. k	P. k name	45	H. Y. e	Cornel Yule
6	R. P. e	Pease	26	E. D. P. e	Pool	46	W. S. t	Wood Smith
7	D. P. e	Pease	27	C. C. H. s	Hutchings	47	J. R. t	Noel
8	O. P. e	Pease	28	S. H. s	Sewell	48	W. B. L. s	W. Brown Lewis
12	C. M. u	Martineau	29	G. g. h	Goodenough	49	C. A. v	C. Army Grant near Loring
13	M. u	Martineau	30	E. M. E. s	Ellis	50	O. C. G.	Omitted name of a school it is G. 2, Charlotte
10	J. M. u	Martineau	31	C. L. d	Lloyd	51		
11	V. M. u	Orl. Martineau	32	W. H. P. e	Pool	52	C. D	Miss Crofield 4 born about
13	G. Y. E. h	G. Y. Edgeworth	33	C. 14		53	E. N. s	Noyes
5	G. Y. E. h	G. Y. Edgeworth	34	B. 19		54	T. H. W. v	Waller
6	G. Y. E. h	G. Y. Edgeworth	35	B. 6		55	G. B. h	Capt. Gore Booth
7	J. B. n	J. B. n	36	C. 1		56	C. D. Ad	4 bonds arrived
6	M. B. v	M. B. v	37	C. 6		57	F. P. e	Flinder Petrie
8	Chm. m	Challenier Marks	38	N. 16		58	J. O. v	James O. v
9	Sister		39	A. 11		59	G. E. n	Gustav Eisen
16	A. F. O. v	Faded O. v	40	B. 5		60	H. M. d	McLean
21	E. O. v	Elizal F. O. v						
22	J. O. v	Jefie O. v daughter of 15						
22	"	near from						
14	C. N. e	Northogel						
15	M. N. l	Northogel						



61	E.O.C-r O'Connor	x Armbruster 49	Petrie Flinders 57	x
62	J.A.S-t Stewart later Christendom	x d'Abbadie 66	Pease 9	5 x
63	LK-f Laura Knapp 12-13 Woods Smith	x Archibald Doyle 56	7	6 0
64	MT-r M. Tanner	o Barnard A-3	8	3 0
65	S.R-S Shively Roberts	x " 13. 4	Pyote E.D.	26 0
66	A.d'a-e Antoine d'Abbadie	o Butler May 17	Loole W.H.	32 x
67	Z Gabon Zoologist Gabon	x Bidder Reg. 43	Pydocks 25	Roberts Shively 65 x
68	E.S.I-b Edith Jacob	x Booth Cap. 55	Nogel J.	47 x
69	R.G.L-g Miss Knapp	x Cheltenham 18	Sanderson 27	0
70	G.F.S-e George F. Smythe	o Criswell 32	Schuster 44	x
71	E.S-A Edith Stokes	x Bismarck 58	Semell 28	Smith Wood 46 x
72	N.M-e Mr. Norman Morse	x Edgeworth 13.14	Stewart J.C.	62 x
73	M.K.W-h Miss Knapp, Welch ed. - 9 Miss Bevington	o Ellis 30	Smythe J.F.	70 x
74	D. Jamerkey	x Isaac 59	Stokes Edith	71 0
75	Prof. Sege Henderson	o Kenyon 29	Tanner Mary	64 0
76	" "	x Hendon 17	Welch W. Knapp	73 0
		o Knapp Laura 63	Waller R.T.H.	54 x
		o Knapp Miss 69	Gale Col	45 x
		x Garden W. 24	Loyle 67	x
		x Lewis W. Boone 48		
		x Lewis Neece 50		
		x M. Leod H. 60		
		o Moore 2d Norman 72		
		x Masterson 9.10.11		
		o " Violet 12.3		
		o Nothnagel 14.15		
		x Noz E 53		
		x O'Connor E 61		
		o Omiter 51		
		o Oster A. 20		
		o " E 21		
		o " Jephre 22.23		

(27 names)  
17 schoolboys  
32 males adults  
21 females

total  
number forms

32 x males  
21 0 females  
15 schoolboys

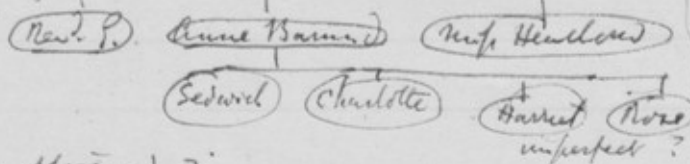
70  
5 double  
75

5-3  
5  
17  
65  
75

20 Hered. 4

Admiral Stacey  
Henderson. 5

$x = 0$  Probab

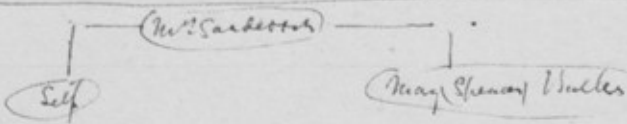


Admiral Stacey f. Hav  
North coast bro: 5th  
Miss Henderson & Harriet  
Add  
Mr. Turrell's table  
colours.

1  
brother = 2 sisters strong - 3  
1 sister strong  
3 dau apparently  
mother probably  
Total certain  
probab.

2

2 Edgeworth



3

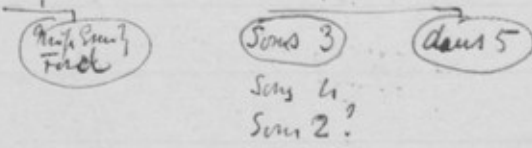
Ford - Pearce

$x = 0$

$x = 0$

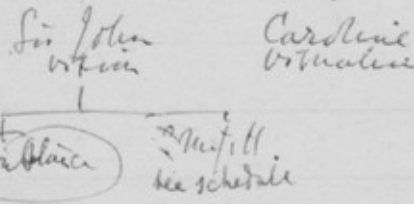
Pearce

3



total certain 0  
probably 2  
prob 10  
+ Mr. Ford  
himself.  
12

Herschel family



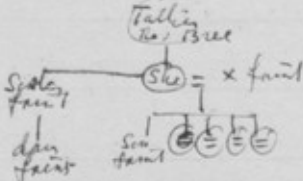
4

Mr. Liebreich & Mr. Koch her dau both her colours & letters

2

Mr. Mapleton

P. Crum



Excellent case

7 strong  
3 + husband faint  
10 +

7 from country print

f. 11 br

Colored sheets

Numerals Map Knapp  
defroz  
Smythe

Letters Slower  
Key

V. Fern Hawes  
Henslow

Colonel Gale colored week day

~~Gore Boock~~  
Flinders Petrie  
Archibald  
Knapp  
Larkin

Simple diagrams  
with heredity



Complex  
with or

Knapp Knapp  
Smythe Jacob  
Smythe Knapp

Knapp  
M. dead of Cooper Hill  
O'Connor - letter to

Smythe has a second  
diagram

J. A. Stewart  
name my to Knapp

(?) Warner

(?) Knapp Wedderburn

Knapp Knapp  
Gore Boock  
(Marville name Knapp, Knapp)  
V. Abbe & French lady

Chandos Knapp  
Knapp

f. 11bv

man <sup>land</sup> t k y  $\frac{1}{2}z$   
mother t k y z  $\frac{1}{2}s$   
small



	Disinterested Scale	Permitted	Alphabet	Year	Month	Week	Colors	History	Other things
Baigent									
Miss Beeding				✓					
Bidden				✓				✓	
Broderick								✓	
Miss Brown						✓			
Miss Butler				✓					
Common School for				✓					✓
Miss Dorton		✓							
Dora Du Cane							✓		
Edgewood						✓			
Eden Enslin					✓	✓		✓	✓
Miss Hankin		✓							
Hart		✓							
Miss Hardee					✓			✓	✓
Henderson								✓	
Bourneville School Miss K					✓				
Miss Henderson (a mother)			✓	✓					
Miss C Herrick								✓	
Hewlett							✓		
Lander				✓		✓			
Anna Lloyd									
Miss Martin							✓		✓
Miss Maxwell French Lady									✓
Miss Merrifield				✓					
Miss Jane Smith							✓		
Catherine Oster				✓					
Felix Oster		✓		✓		✓			
Miss O'Brien		✓	✓					✓	✓
Miss Parr								✓	✓
Miss F Pollock								✓	✓
Schuster									
Searle				✓					
Miss Arch Smith		✓							
Wood Smith	✓			✓					
Miss T. H. Waller				✓					
	2	5	2	15	6	5	5	10	



Albright - Stacey

7

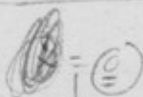
Clames Alice Wood

8

9 Martineau

? more

John  
Fidel



Sister  
dear mother  
but not numerals

4 2 other Corn

Grav total

have 55 cases  
in 10 families

Mrs Charlotte O'Nair

10

Hon Frederica Henry Rice

11 Mrs Hance & her visiting father

12 Mrs Arch. Smith & her nephew Capt. Gore Booth

13 Other family Alice, Eliza, Catherine & their son of Catherine

14 Gustav Plarr & his daughter

15 3 de Boulay (son, 1. their cousin Isabel Flores)

16 Chatterkum master & sister

17 Motticard brother & sister

18 Mrs Brevington sister Mrs Kempe Welch

19 Mrs Herschel & Mrs C. Herschel (see below)

20 Better in a way.

Introductory (have begun) 26

have taken up & gone on with 26

1. Interest of the inquiry 26
2. Facts. Personifications 28
3. Shaker of numeral, 27
4. Reference, 25
5. General Printed & written numbers (& words.)
6. Number forms
7. Alphabet forms
8. Months & years
9. weeks
10. 11. 12.

Colour associations with sound & numbers  
Way in which children are taught numbers & letters

Survival of childish fancies (Miss Martineau)

Why some things stick in the memory

Artistic temperament, mysticism

How to teach. { topical memories & }

Why some things are not remembered by the memory

Statistics

Heredity influences (see last pages 18 20 21 22)

Evidence of growth change & teaching

Way in which those who see account for them





Preferences

f. 14r

25

Jewish book about numerals then 7-40  
I have instances of 3, 4, 7 besides 12 & 10 in the forms

don't shape of figure

Written & printed numerals.

And preference <sup>is shown</sup> for 12 by history of a duodecimal system  
might find unexpected favor



Bidder i account (snot-)

followed it up found out much more & following sheet  
quote a color letter

Interest of inquiry lies in its being analyzing mental operations. Numbers are the most abstract class of ideas & yet become grasped more or less firmly by most adults. To children who live on concrete ideas the process of acquiring must be slow & difficult. The first steps of doing so are soon forgotten. It leaves behind traces, survivals of the earliest mental efforts; of their difficulties & how they were surmounted. Shows influence of language - of memory - of heredity - of natural aptitudes - of ~~habitual~~ <sup>constant</sup> repetition. ~~Shows how to teach number~~ why some learn faster than others - ~~shows how to teach number~~ why some do not fit even otherwise vacant heads.

### Treatment of the data

General collected - friends - crop mentioned - after lapse of time.  
 Schools - adults - hereditary - color  
 of those who have forms only a few draw them - they are too faint or dead usually  
 also they fade when try to copy them

Numbers much more important than dates - Alphabet months or days of week which  
 have a later & more obvious artificial origin.

### Methods of teaching children to count

Finger - clock counters or dominoes cards  
 measure of length & weight - ~~two~~

dozel verses  
 coins,  
 straggs  
 shuttlesworth

Evidence of <sup>all</sup> talk in the forms

### Children's numerical fancies

28 Mrs. Brown

Mr. Hankin

W. E. Hart

W. E. Hart

He 1 2 3

was 12 of 2 a three  
type number  
but it is the small  
-high

2 pleasant & other  
closer other numbers  
were connected with  
it the more I liked them

masculine & likes

3 did not like

prophetic  
& sneaky

4 second pleasant

masculine & likes

a good little thing  
particular of all others  
to write

5 disliked - self-  
important

lively cheerful fellow  
and resembling a  
chief knight

6 not much liked  
had a 3 in it

feminine & faery  
gentle & straight forward

7 disliked much, un-  
congenial

malicious

a selfish creature

8 kind pleasant

masculine, a good  
natured helpful person

a cheerful fellow - ready  
to help the little ones

9 disliked a fair bit  
acquainted known  
and by her name

malicious

lyrical, generous  
in a hurry

10

11

12 important & influential

the higher numbers  
20 a family of types  
liked or not according to  
the person

prefer the ones not

prime numbers  
harsh self-absorbed

max number 10  
number 10 - in other  
words it is a key relating  
to many small  
numbers  
a more beautiful  
than 10 from it

Miss Kate  
Shuttleworth

Miss E Ford

Charlton House  
F. 19

I found Tue. Coll. 29

(see p. 24)

indefinite - 20 cards  
with indifference of the  
rest

a young

a common place friend

indefinite but seems  
to be well meaning

young lady

young & slightly in  
good terms with Countess

Good old friend

delightful & amusing  
because I always try  
to make conversation  
of 3 or 4 but not  
odious from rest

female companion  
E. 2

a feeble edition of 9

Good old friend

kind but stupid

elderly lady

always meaning to  
be better

a sort of governess

no particular help  
but gentle & straight forward

so pleasant & un-  
conventional

young man at 21

masculine

Hypocritically good  
not really concerned

middle aged lady

wife of 9  
~~wife of 9~~

Good old friend

rather a powerful  
man, a magnificent

a wonderful being  
of whom I felt almost  
afraid

The Decimus Plinius  
received the treasure  
against their mother  
12.

had a rough love &  
and a rough way of  
multiplying himself  
that it takes his time

a great love in a  
face headed by the  
heart because of its  
little of its mother  
all over in a  
dull & indifferent  
15 & 13 have a  
fascinating

very excellent  
her own  
services

grave & cautious  
so good as to  
be almost noble

from the fact  
played by them in the  
on later - which could  
of the action of their persons





<p>W's paper increased 4 years (# = much)</p> <p>Schmidt by much practice</p>	<p>W's power diminished 4 years</p> <p>Prof Alcott #</p> <p>Anonymous C #</p> <p>(Scientific)</p> <p>Barwin #</p> <p>Letters (copies)</p> <p>Borden gotten perhaps</p> <p>Or the Sackman</p> <p>due to greater knowledge</p> <p>not of nature</p> <p>Peace - thanks to</p> <p>Notamely, very strong</p> <p>and all, to them</p> <p>formerly very much</p> <p>occupied.</p> <p>Gule</p>	<p>W's power unaltered 4 years</p> <p>Albany's</p> <p>Frankly</p> <p>Anonymous D</p> <p>Anonymous C</p> <p>Murphy</p> <p>Wood Smith</p>
---	--	---



~~Illogical but universal fancies (jingles of poetry - poems)~~

f. 18r 33

The minute differences of men's minds (heredity) - right & left handed

~~The unconsciousness of their peculiarities~~  
The approximate character of personal peculiarities

~~The approximate character of personal peculiarities~~  
~~The unconsciousness of their peculiarities~~

Origin of them Hereditary  
Immediate prehistorical, growth of peculiarities or need is  
accident

~~Illogical but universal fancies (jingles of verse - poems)~~

2. The far fetched analogies - then <sup>pick up</sup> ~~the~~ <sup>offer that are by traces</sup> ~~of their~~ <sup>of their</sup> ~~many~~ <sup>from</sup>

3. ~~Illogical but universal fancies (jingles of poetry - poems)~~

Captions of <sup>subsequent</sup> memory - to laws of memory.

4. The self-cultivation of children & well made persons with abstract ideas

5. The familiar experiences that serve as proofs

6. Should be nomenclature & ciphers - right & left handed what is to be best?

### Great differences in the minds of men

In the factory, factory & school. That persons' tools differ more than their ~~tools~~  
Quality as well as quantity

My prescriptive elements.

Metaphysics must be built up a posteriori (d'Albade)

The anti-dreams of consciousness

Capt Gore, North & the Cadets

Artistic: drawing - music - music always floating in the mind

Religious experiences

Love - sex (not engaged)

Conscience

Chefs - lawyers - mathematics

Secret of cards

~~Some cannot~~

Twilight of England even compared to Tropics

Mad house - Solomon folk & madref.

### Men are usually unconscious of their peculiarities

Biddis: father thought very one of us as he

Mr. R. Ames: & others disbelieve in heredity - a thinking success due to their experience.

Spottenwood recommending me

Colonel G. G. G.

at the top (Lg. ways)

highland of England after the tropics

Instinctive ~~London~~ <sup>from the air</sup> <sup>16cm</sup> <sup>unipersonal</sup>  
Personal peculiarities seem axiomatic truths

Misleading instincts.

The church founded on instinctive feelings, anti-scientific

Hereditary character of many of them

see note book p. 18 for







Associations that are accidental & special & fanciful  
 remote - silly - childish & half written people

Shakes

Personification

Preferences

Miss Lewis school girls full of fancy  
 Miss Mathewson auto driver really  
 Humphreys I am the eldest of them all (maud)

word especially complicated

d Abbades Zoologists in en videt

Friday, 11th March - uprattly the salt cellar Angeris ancient & modern  
 Religion & deaf mutes

Memory seems capricious - Mnemonics

Tenacity of some early notions - death bed child's memories

John Ball recollects distinctly tens of thousands of individual specimens but not the words of the

Bacon could recall features of dead men

Putty thought is a geographical form [2 or 3 dimensions] - In statistics a third ]

Difficult to hold an image still

use of a blank board in placing club by means of memory Hawley Schindler

Leaves de Montaigne

S. M. de la Harpe finds power to vary - has not hindered the condition

D. M. de la Harpe - Col. M. de la Harpe in the same point

Compass, bearings, Words, Miss Herschel

Short way the other

Attention not all - Ball's letter - Shute - Sally does not see but great power of recognition

Can see interior of a house much better when looking at the outside

Words the same sound & colour may be connected by having the same emotional relations.

My sudden flashes

## Abstract ideas, difficulties of children

Some can never comprehend numbers. W. H. Holland, d'Abbadie & latter just lady find rule necessary & see note book p. 31 A.  
 Perceptual souls Peace - Jean Harvier Brodhol heart, yellow; soul, blue. Anonymous A. abstract ideas in colors.

## Familiar props

Anonymous bywordish - certain numbers become adjectives when applied to human life <sup>previous</sup> see p. 21 Note A

Decimal & nomenclature & notation

# For Swanton Lecture

f. 22

Transparencies of  
Mice Albino wood  
Mice M. Leproz  
Mice D. Albrecht.

Number forms,  
typical specimens

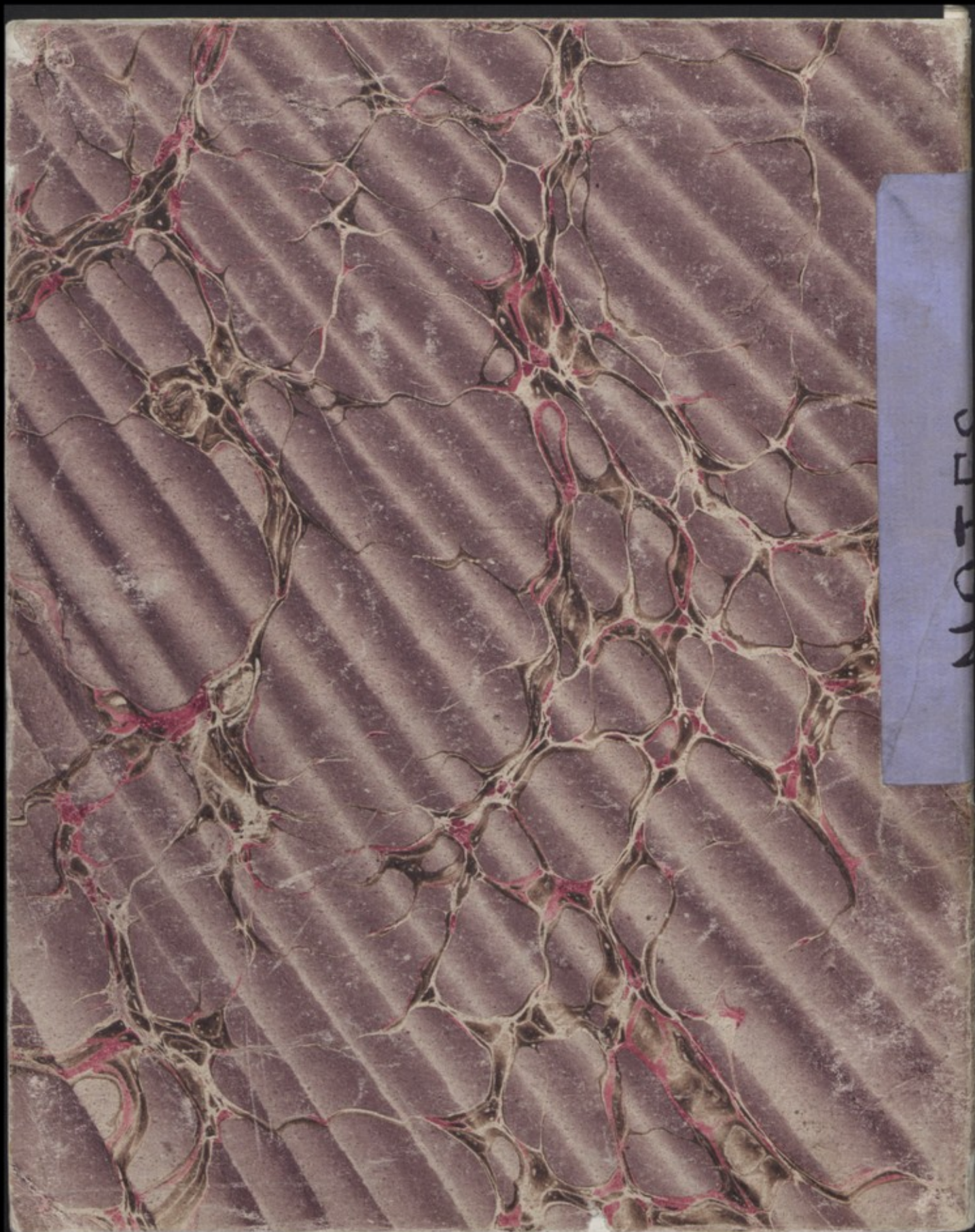
show the 12 different.

Henslow changing forms

Illusions

Hallucinations







Address Book  
of correspondents Vis

University of London, University College, W.C.1.

THE GALTON LABORATORY

Presented by.....

Purchased.....



The names of those who have sent  
Schedules are written close  
up to the margin.

Those who sent letters only are  
written one inch from margin

Those of whom I have scraps of  
information are <sup>scattered</sup> ~~in~~ middle of page

& those to whom I have sent { V. & Numerals in Anthology sent  
Mentat Images for Mind  
sent 178 men

men

f. 2v

- J. d'Abbadie x  
achard x  
• Oswald Airy 257. Hagley N<sup>o</sup> Birmingham  
E. Anthony  
• Doctor Archibald (with Endorse) x

Anonymous A

B

C

D

• Armbruster x

Prof Ayton

• R. C. Baileat x

M<sup>r</sup> Bacon

F. M. Balfour

H. Ball

• J. Ball (4) x

Sir E. Beckett

G. Bentham

G. F. Betting

~~G. Bidd~~  
H. G. Brodick

• J. C. Bevan (4)

G. Bidder x

J. Brown x

• D. Criddle Brune (4) x

G. Brown x

a schoolmaster

• D. Lauder Bruntom x

J. W. Buck x

(Schoolmaster)



women

f. 3r

Mrs Dora Albright x

Anna Albright

Mary Allen

Alice Balfour

Mrs. F. Annie Neag Barker

Mrs Bethany x

Mrs Bostock x

Mrs N. Boyle x

Mrs Browne x

Adele Bunbury

Ellen Bask

Ellen Bask

Frances Bask



Men

f. 3v

F. W. Burton

George Bask (L)

New-Arthur Butler (L)

G. Grey Butler x

Byron

Spencer Butler

J. S. Carter

Charterhouse A.B.

D. Bruce Clarke

J. W. Causar

D. G. Coates (L) x

E. Collins

(see back)

women

f. 4r

Mrs Chepmell

Mrs Lena Churchill

Mrs J. J. Clemes

Mrs Cooper x

Mrs C. Corfe

Mrs Courtney x

men

f. 4v

Darwinist x

Charles Darwin (L) ✓

George Darwin (L)

Horace Darwin (L)

• de Candolle x

Proctor Deeping

• J. S. Dronow (L) x  
(x 4ms)

W. L. Distant (L)

E. Dore

SS. Dawson (with enclosure) x

Drummond (see May Jenkins)

• Sir L. Du Cane (L) x

• J. Dyce Duckworth

• F. G. Edgeworth x

• Gustav Eisen x

• Rev J. C. W. Ellis x

T. W. Eole (L)

Mrs J. K. Davies

Mrs Day

Mrs Denman x

Mrs Dora Du Cane

Mrs Duckworth x

Lady Mary Egerton x

Mrs Ewart x

<sup>men</sup>  
F. E. Fairley  
J. E. Falk  
F. W. Farrer

Federick Harrison

f. 5v

J. Ferguson

St Joseph Fayer

Capt Douglas Galtin (fact)

Erasmus Galtin

N. Earnett (4) x

G. Gore

George Grooe

W. B. Grooe x  
Schoolmaster

Justice L. W. Grooe

~~George Grooe~~



women

f. 6r

Mrs Fawcett &  
Mrs Field

Mrs A. Fleming

Mrs F. Forke &  
Mrs F. Forke

Adele Cameron Galtin

Amy Cam Galtin

Ellet Cam Galtin

Louisa Galtin

Vera Cameron Galtin

Alice Gardner

Amy W Graham

Mrs Edith Green

Mrs Sasanna Green

Men

f. 6v

u. Harker  
W. E. Hart x  
N. Haslees

Ernest Hart

Harvey (see Douglas Archibald)

G. Hawtrey

F. Vaughan Hawkins

x Rev G. Hewson (L) x

• Major Herschel

Rev<sup>d</sup> A. D. Hill x

Edmund Hills (L)

T. Hodgkin x

Brian Horner

• Rev F. Howlett (L) x

J. Hullak

F. Hudson

Prof Huxley

• W. Huggins x

N. W. Humphreys x

women

f. 7r

Mrs Halkett

Mrs Harkin x

Mrs Hawthorn

Mrs Heustlow x

Mrs Constance Herschel

Mrs Herschel x

Mrs Higgins



Men

f. 7v

Levors (L) x

Key (Cable)

Kelly

Jamaica Key (Cable) x

F. W. Lauce

• W. Larden (L) x

C. A. Lee

Lecy  
Lecy de Brimbandum x

• Charles G. Leland x

• Sir H. Lefroy x

Prof. Légers ✓

Sir F. Leighton (see 9th Nov)

Levett. x

Bevan Lewis x

Leland.

Rev. J. Logan x

Rev. Loring x

Miss Jacob x

Emma Keller

Miss Marion Kennedy

Elizabeth Laird

x

Lady Frances Legge

Lady Georgina Legge

Molliecent Lethbridge

Miss Letitia Field x

Miss Anna Lloyd x

Miss B. Loy

Miss A. E. Loy



men

f. 8v

\* M<sup>r</sup> Alister (L) x

G. Macdonell (L)  
H. M<sup>r</sup> Leod x

in H. S. Maine

J. S. Manton (L)

Clement Martham

John Marshall

W. Mathews (L)  
G. S. Matthews.  
Gen. Maxwell (w/ enclosure) x  
Theodore Merz x  
Major Mitford x

M. W. Moggridge x

\* J. Norman Moore x  
(warden of J. B. & A. Moore)

Prof. & Morgan

Max Müller (L)

Munro (the engineer)

\* J. J. Murphy (L) x

G. C. Murray (4 fr: mother)

T. R. Noyes. x

women

f. 9r

Sarah Marks

Mrs M de G. Merrifield

Mrs Jane Mills &

Men

f. 9v

v. Osten Sacken L x

O'Connor (L) x

~~McCook (the Red Lighter)~~ x  
H. F. Osborn (American) x

li James Paget (L)

Stephen Paget  
Flinders Petrie

G. Plarr (L) x

Fredrick Pollock x

li F. Pollock

W. H. Poole x  
W. H. Preece <sup>Charltonhouse</sup> (x facts) x

R. Vaughan Price x

Pullen (the Earlswood Idiot)

women

£ 10/-

Mrs M O'Brien

M. O'Brien

Charlotte O'Brien x

Mrs Alfred (Catherine) Osler x

Mrs Alice Osler x

Mrs Orr (in F. Leighton) x

Mrs Palgrave

Mrs Frederick Pollock

Mrs Margaret Pope x

Mrs Ellen Porter

Mrs Vaughan Price

Frances Pridham

men

f. 10v

Sci Nawron Nawron (L)

George Richmond — (notes)

Herbert Rix (with endowment) &

Montagu Noble

Shingoby Roberts &

R. G. Roberts.

Prof G. C. Robertson (L) ✓

• J. L. Noget (L) &

• G. J. Romanes (L) &

L<sup>d</sup> Arthur Russell



women

f. 11r

Mrp Romanes

Mrs Romanes

Mrp Ryland

men

f. 14v

Rev<sup>d</sup> G. S<sup>r</sup> Clair (L) x

A. Saunders

Airy Schetter

• D. A. Schatter (L) x

Thomas Seare x

R. Shute (L)

C. Siemens

C. T. Simpson

Rev<sup>d</sup> D. Simm (L) x

W. Anderson Smith x

James Smith

• B. Wood<sup>d</sup> Smith (L) x

Piazza Smyth

George Smythe x

W. Southall

Herbert Spencer

G. Stacey

W. Spottiswoode

J. A. Stewart (L)

Prof Stokes

• James Sully (L) x

Mrs Sandham

Charlotte Angus Scott

Mrs Margaret Shaen

Mrs Janet Shuttleworth

Mrs R. H. Simmons

Mrs Archibald Smith

Mrs E. M. Smith

Laura Bullen Smith

Mrs Amy Leith Smith

Mrs G. Southall

Anna Stacey

Jeannette Stacey x

Eleanor Stacey

Mrs Stowe

Mrs Ellen Sturge

Mrs Lily Sturge



men

f. 12v

• H. R. Tedder (L) α  
W. G. Thompson  
Edgar Todd

Σ. Tanks (L) α

• L. B. Tylor α

Ned J. Venn (L) α

M<sup>r</sup> Tanner &  
 Miss Agnes Temple  
 Miss Temple

M<sup>r</sup> Maria Turrell ✖



Rev<sup>d</sup> T. H. Waller (L.) &

J. Ward (L.)

A. J. Warner (US)

L. W. Watson

Sir David Wedderburn (L.)

• Rev<sup>d</sup> B<sup>s. West</sup> Whitford (L.)

• H. G. Willinck (L.) &

W. C. Willoughby

Rev<sup>d</sup> H. W. Winston & <sup>Winston</sup>  
(Principal x for Palace Coll Eng.)

F. F. Yandrell

• D. G. F. Yeo (L.) &

Charles Young

Julian Young  
Col Gule &

~~Miss Jane Winston~~

Miss Jane Winston  
Miss Alice Woods.

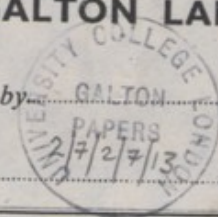
List of Names

University of London, University College, W.C.1.

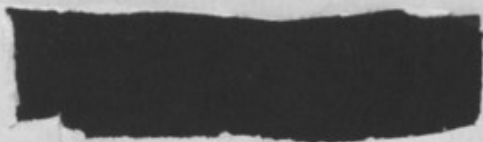
**THE GALTON LABORATORY**

Presented by.....

Purchased..... 19







' = variable

0 = no

$\frac{1}{2}$  = partial

	fairly strong	strong	very strong
Vitalities, generally	v	V	<u>V</u>
Persons	p	P	<u>P</u>
Scenes	c	C	<u>C</u>
Numerals	n	N	<u>N</u>
Auditor	a	A	<u>A</u>
Smells	s	S	<u>S</u>
Tastes	t	T	<u>T</u>

Dec 9/29

f. Br

# List of Names



Total 84

$N$	$tr$	$V$	$U$	Small	$V$	$S=T$	$S$ aged floor	$S$ left	$S$	$T$
$14 = 126$		0-23	23	1}	85	44	22	4	6	4
		x 14	16	8}	45					



o Dora Albright	$V' \overline{R'} c$	$\underline{\underline{N}}$	$A' s t$
o Nichola Albright	$v P c$	$\underline{\underline{N}}$	$a s'$
o O. Avery	$V P c$		$\underline{\underline{A}} \underline{\underline{s'}} \underline{\underline{t}}$
o Kali Andrews	$v P c$	$\underline{\underline{N}}$	$A s' t'$
o Mary Allen	$V p c$	$n$	$\overset{?}{a} s_{\frac{1}{2}} t_{\frac{1}{2}}$

Mr. Bacon (Mr. R. Holland told me)

Sir Edmund Beckett

George Beatham

o. Mr. Bevington  
George Bidder

Mr. G. Brodick

o. Mr. Browne

G. Greg Butler

Spencer Butler

F. M. Balfour

 $v h_0 c \mid$ 

o Mrs H. Ball

 $v' \underline{P} \underline{C} n \mid A s t$ 

o Annie Barker

 $v h_0 c n \mid S T$ 

o Mrs A. M. Bencke

 $\underline{V} h' \mid S t_0$ 

J. Beckman

 $v h_0 c n \mid a_0 t_0$ 

o Frau v. Böckmann

 $\underline{V} \underline{P} \underline{C} n \mid \underline{A} \underline{S} \underline{T}$ 

F. Burton

 $\underline{V} \underline{P} \underline{C} N \mid A s t$ 

New Arthur Butler

 $V' h \mid A s T$

o Mr<sup>r</sup> Chepmell  $v p s n | a s_{\frac{1}{2}} t_o$

o Mr<sup>r</sup> L Churchill  $\underline{V'} P S n | a s_{\frac{1}{2}} t_o$

L. W. Causer  $\underline{V} P s_{\frac{1}{2}} n_o | a_{\frac{1}{2}} s' t'$

o Mr<sup>r</sup> I Clemes  $v p' s' \underline{N} | \text{nd given}$

S. George Coates  $\underline{V} P' s \underline{n} \quad s t$

S Collins  $v \underline{P} C n | a_o s_{\frac{1}{2}} t_{\frac{1}{2}}$

o Mr<sup>r</sup> Cooper  $\underline{V} p C n | A s t_{\frac{1}{2}}$

o Mr<sup>r</sup> C. Corfe  $v \underline{h}_{\frac{1}{2}} c_{\frac{1}{2}} \underline{n} | a$

Charles Darwin  $V'PCn | a_h s_o t_o$   
 George Darwin  $V\overline{P}'C'N | a_h s_{1/2} t_{1/2}$   
 Horace Darwin  $\overline{V} \cdot | a_o s_o t_o$   
 o. Hub. J. Dacres  $\overline{V} p_o c_{1/2} n | a s_o t_o$

W. L. Distant  $\overline{V} P'CN | A s_o t'$

S. Dyer Duckworth  $VPCn | A \underline{S} \underline{T}$



Σ

f. 6v

o Muf Ewart T N | S.T.

Sir Joseph Fagor  $v P' C n | A \underline{s} T$

o Miss Fleming  $v P C n_0 | a_0 s_0 t_0$

o Miss F. Fowke  $\overline{v P' C' N} | A s t_0$   
 o Miss M. Fowke  $\underline{V'}$  almost kallaconia  $| A$   
 & another sister too  $\underline{v P C n} | a s' t'$   
 o Miss Rose Field  $v_{1/2}$

James Ferguson

o Louisa Salton  $v \text{ } p_{\frac{1}{2}} c_{\frac{1}{2}} \mid a_{\frac{1}{2}} s'_{\frac{1}{2}} t_o$

o Miss A Gardner  $V' p c'_{\frac{1}{2}} n \mid A s' t'_{\frac{1}{2}}$

Eva Gore  $v - P C n_{\frac{1}{2}} \mid A s_o t_o$

o Miss Amy Graham  $V P C n \mid a_{\frac{1}{2}} s_o t$

o Miss Edith Green  $V P C' n \mid a_o s t'$

o Miss Sabanna Green

Capt Douglas Gallin

Letter to Wm Groce



o Mrs Hankin

v c  $\frac{N}{\neq}$  |

R. Haselee

v p' c' n | a s t

Edward Hells

v P C' N | a s t

? F. Hudson

v P c ? | a' s t

o Mrs Huggins

v p C n | A s t

W. Huggins

v p C n | a $\frac{1}{2}$  s $\frac{1}{2}$  t $\frac{1}{4}$

Ernest Hart R.A.

F. Vaughan Hawkins

o Mrs Hittle (née Groce)

o Mrs Holland

Prof: Huxley

Prof. Leons

 $u_{1/2} h_0 c'_{1/2} n' | a s_{1/2} t_{1/2}$

- o Mrs Ewyn Jeffries
- o Miss Ewyn Jeffries

- o Miss Jenkinson

o. Kup Keller

u P' C n | A S t<sub>o</sub>

w. Kelly

V P C | A S t.





• Lady A. G. Legge

V P C' | A S T

• Lady F. E. Legge

v P C  $n_{1/2}$  | A S T

• Millicent Lethbridge

v  $p_0$  C'  $n_0$  | a S t

• Mrs. Lethbridge

V P C' | A' S  $t_0$

• Miss Anna Lloyd

V <sup>superior</sup> p' C' [Colonial letters]

D. McAlister <sup>small extent</sup>  $v_{1/2} h_{1/2} c_{1/2} | a_{1/2} s_{1/2} t_{1/2}$

J. S. Manton  $v P C' n | a s t_{1/2}$

o Sarah Marks  $v P' c_{1/2} n_0 | a s t$

John Marshall FRS  $\therefore$  obsolete.

W. Mathews  $v h' C n_0 | a s t$

o Miss Merrifield  $v P C' \overset{? \text{ "impartial"}}{N} | a s t_{1/2}$

o Miss Jane Mills  $v \quad \quad \quad \overset{?}{N} \text{ of } a s t$

G. N. Moore  $v h' C n | A s t_{1/2}$

Major Mitford  $v P C N | A s_{1/2} t_{1/2}$

Prof: Max Müller  $v h_{1/2} c_{1/2} n_0 | a s_{1/2} t_{1/2}$

◦ Mrs Macdonald (née Grove)  
 to H. Marie

◦ Mrs Meinertshagen (née Bevington)  
 Meinertshagen

Theodore Merg x X

2

f. 14v

o Prof. Marianne North



o With E.A. Osler  $VP C' \underline{n} | AST$

o With Alice Osler  $T \quad \underline{N} \quad | a_{1/2} ST$

o With Jesse Osler  $\underline{\underline{N}} \quad |$

o With H.F. Osler (Eliza)  $\underline{\underline{N}} \quad |$

T<sub>2</sub> 121

T

121 121

1

Paget Sir James P. H. V<sub>1/2</sub>

o Miss M. Pohe <sup>anyone</sup> v. h. d <sub>h</sub> | a, s' t'

o Miss Pridham v. P C' a | A S T

Frederick Pollock V | A S T

o Mr Frederick Pollock V N | A S t

Sir F. Pollock  
o Miss Potter (see Beowulf)

Sir Norman Dawson  $Vhs N | ST$

Montague Robb  $\overline{V} \quad laS T$   
 Prof Croom Robertson  $\overline{V} P S n | A S T$   
 Roset  $V \quad N | A S T$   
 G. Romanes  $v_o \overline{P}$

o Miss Rylands  $V h.c$



George Richmond R.H.

Lord Arthur Russell

Rev<sup>d</sup> G. S<sup>t</sup> Clair  $v \mid c_0 n \mid a s t$

W. Saunders  $V P' \mid \overset{2}{2} \mid s_0 t_0$

- |                         |  |
|-------------------------|--|
| N. Shute                | $v_{1/4} \mid n_0 \mid s_0 t_0$                      |
| Rev J. Simon            | $v_0$  |
| o R. Simmons            | $V P C N \mid A S T$                                 |
| W. Siemens              | $v \mid \text{but ? } V \text{ see mechanism}$       |
| o Miss A. Leigh Smith   | $v \mid N \mid A s' t'$                              |
| W. Southall             | $v \mid c \mid n_0 \mid a s t$                       |
| o Miss G. Southall      | $V P' c \mid n \mid a s t$                           |
| o Miss E. M. Smith      | $V$  |
| o Miss Anna Stacey      | $V P C \mid \underline{N} \mid A s_{1/2} t_{1/2}$    |
| George Stacey           | $v \mid c \mid \underline{N} \mid A s_{1/2} t_0$     |
| o Miss Eliza Stacey     | $V P' C' \mid \underline{N} \mid A' s_0 t_0$         |
| o Miss Jeannette Stacey | $V P' c' \mid \underline{N} \mid A' s_{1/2} t_{1/2}$ |
| o Miss Lilly Sturge     | $v \mid p_{1/2} c \mid n \mid a_{1/2} s_0 t_0$       |
| o Miss Ellen Sturge     | $V \mid N \mid \Delta s' t$                          |

Amy Scheffer

Geo Smith  
Laura Smith


V



o Miss Scroggs

o Miss Shedding

Herbert Spencer

T 12 

Σ Todd  $\underline{V}' P C n_o | S' T$

Σ Torker  $v_{1/2} h_{1/2} c_{1/2} | a s t$

o Muf Turrell  $\underline{v}' h_o^* c' N |$

Σ B Tylor  $v$

Rev<sup>d</sup> John Venn  $v_{1/4} \text{ } h_{1/2} \text{ } c \text{ } n \text{ } | \text{ } a \text{ } s \text{ } t$



J. Ward  $v P' C' \underline{N} | A s_{\frac{1}{2}} t_{\frac{1}{2}}$

S. W. Watson  $v_{\frac{1}{2}} h_{\frac{1}{2}} c_{\frac{1}{2}} n_0 | a_0 s_0 t_0.$

W. C. Willoughby  $v h_0 c n | a s_0 t_0$

o Miss Jane Winsom  $V h_0 c n_0 | A s t_0$

o Miss Alice Woods  $V \underline{P} C \underline{N} | a' s t_{\frac{1}{2}}$

7. Yandrell v PC no | A s $\frac{1}{2}$  t $\frac{1}{2}$

Prof: Geo v PC no | A s $\frac{1}{2}$  t $\frac{1}{2}$

✓ = schedule  
✗ = letter

Visualized numerals  
Color associations & etc. like.

F. 23v

✓ Abadie Antoine - & communication; ab

✗ Albright Anna

✗ Albright Dora

✓ Anonymous

✓ Armbruster

✓ Ball Henry

✓ ~~Ball~~ ~~Mrs~~ ~~Henry~~  
Bevington Mrs

✓ Blake Mrs Jex

✓ Bidder

✓ Bortack Mrs?

✓ Bradock Henry

✓ Browne Mrs

✓ Butler E. S. Mrs

✗ Clemer

✓ Cobden Mrs

✗ Darwin E.

✓ Dismoor J. 2 Sons

✓ Du Cane Mrs Dora

✓ Forobe Mrs F

✓ Gurnett R

x Hawkin Mr?

- Hart W. F.  
- Hawkin F. Vaughan  
x Hendon Neo f

x Herschel Mrs. Constance  
Mrs. Caroline

- Hilli Ground  
- Holton Mrs.  
✓ Hupner W.

x Larden W

✓ Lewis W. Benson

x Lloyd Mrs. Anna

✓ McArthur

- Martineau Mrs.

✓ Matthews W.

x Merrifield Mrs. G

- Mery Theodore

x Muller Mrs. Jane

- Munkinick Mrs. E

x Murray Mrs.

✓ Oster Miss Alice  
 = " <sup>Eliza</sup>  
       <sup>Levie</sup>

✓ Oster Mrs. Alfred  
 - Oster Sackel Baron V.

x Plarr G

x " daughter

- Potlock Sir F

- Pooge W.H

x Mr. Norman Norman

x Rogel

✓ Romaner Mrs?

✓ St-Clair Neo? G

x Scott. Miss Ch: Angus

x Shaen Miss

- Schuster

- Seare-Thos

✓ Simmons Mrs? N

- Smith N. Wood



x Stacey Miss Anna  
x .. Jeannelle  
✓ George  
✓ Eleanor

✓ Sturge Miss Ellen

✓ Sully James

x Turrell Maria

x Waller Neo T.H.

x Ward J

✓ Woods Miss Alice

✓ Yale Colonel

by mail Feb 13/10





Popular notions of heredity are behind hand - hence a popular <sup>it must</sup>

1. Search for a theory, like that of consecutive exp<sup>n</sup> to a peak - sign post -
2. Place of sign post - germ theories
3. What a germ is
4. Generally what mutual influences of germs are
5. Germs must be distinct - expect Heracleum <sup>coordinate</sup> but not absolutely coordinate
6. Generally true - so many 1000 organs in body - <sup>subdivided</sup> besides
7. all this is packed into ovum - size of pin's head
8. microscopical observation tells nothing about them - limits of post office.
9. Strip meaning of <sup>Bermelshment</sup>
10. Germs must be irregular <sup>mixed together</sup> in the strip. <sup>brothers & sisters being unlike.</sup>
11. Some from election
12. argument from similarity & dissimilarity of living
13. Influence of one germ on another aided by vicinity - hence <sup>inference</sup> of the same of heredity
14. Allotropy
15. <sup>limitation of space</sup> Half possible inheritance of strip, fulfilled, as - struggle to <sup>be</sup> <sup>in</sup> <sup>the</sup> <sup>line</sup>
16. Why sexes are necessary - marriage analogy to breeding race
17. also from limitation of space, limit to germs of each line <sup>hence simple fecundation are transmitted wholly or not at all.</sup>
- 18-19 2<sup>d</sup> germs - many must be fulfilled - statistical (variety)
20. Sterility of germinal elements - what are the domains of the strip
21. Reminds not resemblance of develop to record of strip & <sup>analogy</sup> of child to parent in some occasions - churchwarden.
22. Also theory tendency to deterioration of race
23. Also alternate govt. &c.
24. Relation of child to parents

Summary

Gen. hypothesis of heredity

Jarvis doctrine on its elaboration, went one step to far

My direct is to stop the short of that step & draw

Gen. hypothesis of heredity

My own

Post office  
Shirk

Latent & developed

election

Local position

capriciousness, statistics

Limitation of space

lack of power of body  
deceit w/ly  
few gradation

Local position

capriciousness, statistics  
a meeting of the sides  
between the

✓ Scarcity of developed

capriciousness, statistics

Reasons non inheritance of habits & consequences - habit the parent - want, ... desire

✓ Relation of child to parent

Seat of Genus

Jarvis view - objection

Xavier  
mother & child  
family & child

Anger view - the whole is not

Intermediate view - think how much cover in a

A search for a theory is like that of consecutive exploration  
towards a peak - Signposts

Place of our sign post, - towards the region of germ theories  
What is meant by a 'germ'

Mutual influences must be ascribed to germs

Grounds for believing in germs is the distinct trans-  
-mission of qualities - Allotropism

Qualities may be coordinate yet distinct, if coordinate  
be weak & force obstinate, so long as not absolute

Ex pede Heracleum

Above is generally true for the ... thousand organs working  
by antagonists

All this is packed into room size of a pin's head  
Microscopic little world of them - simile of post office  
Stirps, meaning of

~~Local points~~ Latent and developed - simile about elections  
~~mutual influence of germs~~  
~~germs must be loosely mixed together because~~  
1) brothers & sisters sometimes very unlike.  
2) twins very much alike - given cases.  
3) twins very much unlike - given cases.  
Allotropism



influence of one germ on another, aided by vicinity  
which itself is due to many small causes; hence  
superficial appearance of particular cases

Limitation of space

Germes of 2 ancestors; the many must be suppressed;  
statistical treatment advantageous

Half possible inheritance suppressed; struggle  
among the germes

Hence sexes are necessary - Extinction of plants &  
that one, bred by grafting - Extinction of *Sarmanus*

Limitation of number of germes of each kind; hence  
*peculiarities* are transmitted in few gradations

Stirility of germes

Reasons, from non inheritance of acquired peculiarities,  
consequences, person <sup>cannot</sup> be a true representation of  
his transmission power.

— deterioration of race

— alternate cont. in

Relation of child to parent.

The object of this memoir is conveniently illustrated by the resemblance that the search for the true theory of heredity, may have to ~~a succession of expeditions~~ <sup>the</sup> search of a way across a very difficult country, to some mountain peak, whence a panoramic view of the whole district will be obtained, ~~to illustrate my object in this memoir~~. Each <sup>succeeding</sup> expedition learns something more of the possibilities of the way, than was previously known; so that long before the peak itself has been conquered, it ~~is~~ <sup>has become</sup> ~~or is~~ <sup>supervenable</sup> to put marks on the way side to ~~mark~~ <sup>warn</sup> succeeding travellers against openings, which have been found to lead to no result, and to point out <sup>openings</sup> others, by one or more of which the most direct path will ~~most~~ probably be found to lie, and through which <sup>extensive large views of the surrounding country may be obtained</sup> ~~the~~ <sup>might be had</sup> ~~the~~ <sup>beginning</sup>

My first object is to ~~point out~~ <sup>show where two principal routes</sup> of these two ~~paths~~ <sup>might be had</sup> ~~beginning~~ at the first place where two principal routes diverge, and I shall then show how rapidly we ascend by taking the right one, and how a large part of the adjacent district comes into sight <sup>to</sup> ~~if we~~ ~~that and~~ but <sup>the way had previously not been</sup> ~~do not~~ <sup>there is omitted here</sup> profess to have explored the way much further; certainly I do not know it is

the <sup>right</sup> way to the peak itself, whence every feature of the landscape ought to appear as distinct as in a map.

The first divergence of two routes is at the <sup>turn</sup> point, ~~road~~ which leads to all possible hypotheses <sup>that are</sup> based on the theory of germs, and the <sup>typical</sup> hypothesis ~~to make up~~ is to ~~declare~~ that ~~it is~~ <sup>that one will be placed there, it is</sup> that route that is the true way to the peak ~~will~~ almost certainly <sup>pass through that turn</sup> ~~be found~~. In other words, that the true theory of Herodotus <sup>whatever the details of that theory may be, must at all events</sup> ~~whatever its merits~~ be based on the idea of germs.

By germs are <sup>the earliest stage of</sup> now meant ~~small~~ <sup>in many respects</sup> objects of the nature of seeds, <sup>although very numerous, must nevertheless</sup> which have the ordinary properties of matter; so that each germ occupies a <sup>definite</sup> portion of space, to the exclusion of other germs, and that its influence upon its <sup>several</sup> neighbours must be in some degree dependant on the <sup>distances</sup> ~~difference~~ which <sup>separates</sup> ~~separates~~ <sup>happy</sup> it from them. ~~Therefore~~ The affirmation that all animals & plants were derived from germs, <sup>will therefore be found to</sup> ~~carries~~ <sup>by</sup> implication, a great deal along with it.

As regards the influence of one germ upon another,

it is sufficient for the present, to recognize the fact that they <sup>reasonably be expected to</sup> may exist. Their effect is shown in the tendency to coordinate development, of which I shall very shortly have to speak.

The primary ~~argument~~ <sup>evidence of</sup> to show that every separate organ having a separate origin, <sup>in fact</sup> is ~~that the overwhelming~~ <sup>derived from</sup> evidence that organs peculiarities, the enormous number of cases in which some trifling peculiarity <sup>of structure</sup> has been hereditarily transmitted, to all appearance independently of any other peculiarity. That the absolute independence ~~way~~ cannot in any instance be proved; neither are there records ~~exhaustive~~ <sup>enough</sup> to prove the truth of this assertion for the various organs exhaustively, but the instances are so common, so varied, and are often so marked, that <sup>it is</sup> only prejudice <sup>that</sup> can withhold assent to the general proposition. It is quite another thing to say, that



The evidence that every organ has a separate origin  
~~has been placed in a clear light by M. Darwin, and I have little doubt if you can follow up~~  
 is both direct and secondary; The direct evidence being  
~~is given by~~ the facts of separate inheritance, and the secondary  
 evidence lies in the <sup>ready explanation</sup> ~~solution~~ which this idea of a separate  
 origin <sup>alone supplies</sup> ~~affords~~ of the more important problems of  
 heredity; ~~There is separate inheritance~~ <sup>(must be separate)</sup> ~~in all cases~~  
 all these cases which are as numerous ~~as~~ those extremes,  
 numerous cases ~~in~~ where the features or other  
 characteristics of <sup>the two</sup> parents are variously distributed  
 among the children, ~~Thus if the father has two~~  
 and it is still more marked in those rarer cases  
 in which one characteristic alone to all appearance,  
 has been derived from a particular ancestor.  
 No doubt, qualities have a tendency <sup>to be inherited</sup> ~~to run~~ in groups  
 but that tendency <sup>(by no means</sup> ~~is~~ <sup>absolute, it is decidedly</sup> ~~is~~ <sup>moderately strong in others</sup> ~~is~~ <sup>and though</sup>  
~~however~~ <sup>very</sup> obstinate in <sup>many</sup> ~~others~~, it ~~nevertheless~~ <sup>is</sup> found  
 in every case where <sup>(although apparent)</sup> ~~causing it~~ <sup>made</sup> ~~liable to~~ <sup>be</sup>  
 on rare occasions, to be overcome by casual circumstances;

The various distribution of characteristics may be seen  
 in most <sup>the members of many even</sup> ~~part~~ <sup>of</sup> all families; ~~can~~ <sup>however</sup> extreme  
 but <sup>by no means</sup> ~~is~~ <sup>of occur</sup> ~~unusual cases~~, where ~~the~~ one child has  
 the father's disposition & the mother's features, and



another child has exactly the converse. It is  
 clearly ~~impossible~~ <sup>in the</sup> evidence even of a single case  
 of this kind to ~~say~~ <sup>prove</sup> that the particular ~~physiognomy~~ <sup>physiognomy</sup>  
~~frame~~ and mental character, which either the  
 father ~~or~~ the mother <sup>respected</sup> ~~possessed~~, <sup>cannot not be</sup> ~~was~~ strictly  
 coordinate; in other words they must have been  
~~intrinsically~~ <sup>separately</sup> ~~sep~~ essentially distinct, though <sup>they may have</sup> ~~the~~  
<sup>a general</sup> ~~there is~~ <sup>the may appear</sup> ~~but~~ <sup>nevertheless</sup> ~~they were~~  
 in those occasions associated and might be found  
<sup>much more often in association, than not</sup> ~~much more often in association, than not~~ <sup>For example,</sup>  
 cattle in a herd <sup>on a hill side</sup> ~~seldom separate~~, <sup>that</sup> ~~nevertheless~~ <sup>whenever a hill side</sup> ~~are~~  
 held together by their gregarious tendencies, and a ~~single~~  
 observer of them to whom they appeared like a single  
 white object on the hill side might at first think  
 they <sup>usually graze</sup> ~~are~~ <sup>so</sup> ~~close~~ <sup>together</sup> ~~that~~  
 matters might at first <sup>be excused</sup> ~~imagined~~ <sup>they were</sup> ~~actual~~ <sup>tethered</sup>  
 together; <sup>however, if he watched</sup> ~~but after a while~~ <sup>he would observe</sup> ~~the~~  
 herd ~~to~~ subdivided & <sup>again</sup> ~~then~~, after coalescing, <sup>that it would</sup> ~~subdivide~~  
 in another direction; also he would occasionally  
 notice stragglers from different sides of the main  
 mass; from all this, he would surely conclude  
 that they <sup>could not be</sup> ~~were~~ ~~not~~ a single object, ~~not distinct~~

The object of this memoir is to show that a large  
 part of Mr. Darwin's elaborate theory of Pangenesis admits  
 of being ~~quite~~ <sup>detached</sup> accepted apart from the remainder, to which  
~~may~~ <sup>we may freely accept</sup> forcible objections have been urged & that the portion  
 in question is sufficient to explain many of the <sup>great difficulties</sup> facts of  
 heredity, and that new explanations of other  
~~important~~ <sup>difficult</sup> facts may be made on the same basis.  
 It appears to me that the part which Mr. Darwin

strictly tethered to one another, but ~~that they were~~ <sup>separate, though</sup> ~~that they were~~ <sup>that they were</sup> ~~separate~~ <sup>separate</sup>  
~~objects firmly tied together~~ <sup>but, merely as</sup>  
~~temporary associations~~ <sup>and in association</sup> ~~owing to their gregarious~~  
~~tendencies~~ <sup>subject to gregarious tendencies</sup> ~~in that~~  
 that they were essentially ~~distinct~~ <sup>separate</sup> ~~objects~~ <sup>though</sup> with a strong  
 tendency ~~to be found in association~~. We have no means  
 of asserting that any objects, whatever, <sup>essentially</sup> ~~are~~ <sup>distinct</sup> from one another,  
 except on such evidence as this, and it <sup>is powerfully corroborated by</sup> ~~is~~ <sup>the independent arguments upon which</sup> ~~force on the constitution of living beings, on account of the quasi-~~  
 independent existence of cell <sup>the</sup> ~~separate~~ <sup>some</sup> cells, ~~as~~ <sup>is</sup> already believed.  
 Mr. Darwin ~~has argued this point so weightily that I need not~~  
~~say more here about it.~~ The alternative view <sup>supposes</sup> ~~is~~ <sup>that if</sup>  
 the origin of plants and animal <sup>is</sup> ~~in~~ a more or less homogeneous  
 material, which is shaped by some "vital force" into the  
 protean forms <sup>in which it</sup> ~~becomes~~ <sup>finally</sup> developed. These mystical  
 views of this kind have characterized the infancy of most sciences,  
 and have invariably been discredited by further research.  
 Mr. Justice Grove has a very remarkable passage on this  
 subject in his "Correlation of Forces".

the organization of <sup>early</sup> plants & animal to be primarily due to the multitude of germs which severally breed true to their kind, which circulate <sup>then & preponderantly</sup> freely & have the power under favorable conditions of developing themselves into cells. He <sup>then</sup> supposes the order of development to be the organization to be developed in an orderly manner, solely governed by the order of development to consist in the development first of one germ, then of another, which has the closest affinities to it, and so on, consecutively. ~~Lastly in these in their boldness the points of this hypothesis have~~ Mr. Darwin's hypothesis has failed in meeting with acceptance <sup>chiefly</sup> ~~primarily~~ owing to difficulties connected with his views of free circulation of the germs, which would involve <sup>more striking</sup> results <sup>of grafting & breeding</sup> that are ~~not~~ found to occur.

The object of this memoir is to shew that ~~the~~ <sup>a</sup> large part of Mr. Darwin's elaborate theory of Pangenesis <sup>ought to be considered apart, &</sup> ~~is~~ <sup>is</sup> free from ~~the~~ <sup>the</sup> objections <sup>that have been successful</sup> ~~admitted~~ <sup>of being</sup> urged against the remainder <sup>1877</sup> ~~of the~~ <sup>that the former part</sup> ~~accepted~~ <sup>accepted</sup> ~~apart from the rest~~ <sup>of being considered</sup> ~~apart from the remainder~~ <sup>and</sup> ~~is~~ <sup>is</sup> of sterling value in explaining <sup>many</sup> the more striking facts of heredity. It is a great step in the I shall venture to suggest upon <sup>an</sup> ~~last~~ <sup>that simple</sup> ~~basis~~ a few new explanations of <sup>important</sup> ~~other~~ facts, which ~~should have thus far been unsolved~~, may be founded upon the same basis.



See last page

One of Mr Darwin's ~~views~~ <sup>theories</sup> ~~hypothesis~~, in his elaborate theory of Pangenesis, <sup>the power of an individual to be independent which</sup> supposes a multitude of germs, <sup>then 2 other views, therefore</sup> circulate freely through the body, ready at any moment to attach themselves where they have affinities, and then to develop into cells. <sup>of a perfectly free conglomeration and of affinities as the sole governing power</sup> These views seem to be so intimately connected with the rest of the theory, that if they be discredited (as <sup>the formation of them</sup> ~~it~~ has been in many grounds to which allusion will hereafter be made,) the value of the whole <sup>theory of Pangenesis has been held to</sup> disappears.

The object of this memoir is <sup>to show</sup> in the contrary, to show that the theory is of <sup>both consistent with observation</sup> ~~value~~ <sup>value</sup> of sterling ~~value~~ <sup>value</sup> and that by slight and reasonable <sup>assumptions</sup> ~~hypotheses~~ <sup>additional</sup> ~~to those mentioned by Mr Darwin~~ <sup>results</sup> may be made to flow from it and <sup>therefore</sup> ~~that~~ that the questions of the localisation of the germs <sup>(and the sufficiency of the affinities to build up an organised form)</sup> ~~is still undecided, but further ground on this line, already explored, is a~~ <sup>for the present of been left undecided within very wide limits</sup> notwithstanding their high importance, admit for the present of being left undecided.

Thus, the part that Mr Darwin's <sup>(in his)</sup> Pangenesis has fulfilled appears to me to resemble that of a first expedition to some distant peak, which has <sup>been thwarted in the attempt to</sup> ~~failed in~~ <sup>attaining</sup> it but has nevertheless explored a large part of the country on the way thither. Marks <sup>may therefore</sup> ~~can~~ be put, to show for a certain distance what will, <sup>in all probability,</sup> ~~in all probability,~~



other & points out opening, whence wide valley of the F. 12 19  
advised district may be obtained again. (then)

become the regular <sup>at a small distance</sup>  
from <sup>by the bridge</sup> the correct route; these ~~errors~~ <sup>faults</sup> turns,  
which future explorers must avoid. The first & most  
these ~~sign~~ The most valuable of these <sup>signs</sup> first is the  
first: it lies at the ~~turn~~ divergence of the way <sup>that</sup> ~~which~~  
leads <sup>in the direction of</sup> ~~to the~~ <sup>generally</sup> ~~the~~ <sup>one</sup> ~~first~~ <sup>that</sup>  
and directs us to follow it.

Bridge Grove

Prove of germes

To prove that some sort of germ theory is necessary, we have first to show that every <sup>perhaps every part of</sup> organ ~~at least~~, has a separate origin. The direct evidence of this, is given seen in the facts of separate inheritance, ~~in~~ when the characteristics of the two parents are divided between the children; still more, when they are variously distributed among the children, and, most of all, when one child <sup>appears to</sup> inherit from some one ancestor just one peculiarity, and no more, ~~and all appearance~~. Evidence of this kind is precisely that which enables us to affirm the distinctness of any objects ~~whatsoever~~ generally. Thus a townsman for the first time in his life sees cattle grazing closely together on a distant hill side and wonders what keeps them together, whether they are tied to each other or not; after a while, he notices that the herd divides in one direction, then again if he ~~is~~ sees it re-unite, then to divide in another direction, so on, also he occasionally observes a few stragglers, Hence he concludes that the cattle cannot be tied together but are essentially distinct, though <sup>tending</sup> ~~caused~~ to associate <sup>on the</sup> ~~by~~ <sup>the effects of the herdsman</sup> ~~by~~ <sup>the effects of</sup> their own gregarious instinct, ~~in the external causes.~~

The distinction is clear, between an absolute union and

the well known <sup>supra</sup>expression of a Latin author "ex  
 pede Herculeum", or by a glimpse merely of the foot  
 of the statue, you may know that it is of Hercules. <sup>is as</sup>  
<sup>good as any</sup> ~~their~~ <sup>however</sup> ~~assertion~~ <sup>is</sup> ~~is~~ <sup>inexact</sup>; the inference <sup>he would make, is</sup> ~~is~~ <sup>probable</sup>,  
<sup>undoubtedly</sup> not certain, only probable. A large and powerful foot  
 is a usual accompaniment of large stature and powerful  
 build, but it does not invariably <sup>associated</sup> ~~go~~ with it or  
 with any other bodily or mental characteristic. Many  
 of us have looked with curiosity at the boots and shoes, ranged  
 in the early morning before the bedroom doors of the great  
 continental hotel & speculated on the what their owners were  
 like and have discovered afterwards that we had ~~blundered~~  
 often made absurd blunders. Nay further, the coordination  
 of the parts of the body is so far from strict, that a knowledge  
 of one foot ~~indicates~~ <sup>affords</sup> no certain assurance of what the other  
 foot would be like. The symmetry is never exact, on  
 some occasions the size of the feet differs considerably,  
 on rare occasions one foot may be so deformed as  
 hardly to be called a foot at all. And it must be  
 remembered that we can select cases of all this in which  
 the peculiarity cannot possibly be ascribed to accident or  
 disease, because we can confine ourselves to those in which

and a strict union. The former  
 a mere tendency. ~~The~~ latter may be faint, strong, or exceedingly  
 obstinate, but in all cases it admits of being thwarted or  
 overcome, <sup>but</sup> the ~~former~~ <sup>latter</sup> cannot be severed, <sup>It must be clearly understood that</sup> without injury. The  
 idea of separateness, in the origin of the different organs of the  
 body, ~~does~~ in no way, excludes that of a tendency to coordination,  
 it only excludes that of absolute coordination.

Objections to germ theories.

It seems no doubt, strange, that the various organs of  
 the ~~living~~ frame could be derived from separate origins,  
 seeing how beautifully they are coordinated into a symmetrical  
 whole. We ~~should~~ <sup>ought</sup> therefore to fix our attention upon some  
 definite characteristic, and consider the character of its  
 coordination, and <sup>we</sup> how far they are <sup>really</sup> constant. Any <sup>characteristic</sup> will  
 serve our turn; <sup>for my text</sup> ~~suppose we~~ take for a text the well  
 known phrase "Judge Hercules" that is to say, "by a  
 glimpse of the foot of the statue, it is known to be Hercules."  
~~Here the latter foot has taken a poet's licence, in this case~~  
~~an emphatic assertion; if what is the inference being not~~  
~~certain but only probable. A large and powerful foot~~

f. 6a x 6b x 7apart.





it had been hereditarily derived. The <sup>occasionally</sup> separate transmission of a single peculiarity, is proof that ~~the organ affected by it~~ had a separate origin; the actual transmission of ~~several~~ <sup>the peculiarity</sup> ~~in association~~ with others proves that <sup>it is coordinate with them</sup> ~~the qualities~~ are coordinate; the fact that the ~~transmission~~ <sup>transmission</sup> is ~~not~~ but not invariable proves that the coordination is not strict but <sup>the</sup> result of tendencies, which casual circumstances may combine to weaken or overbear. <sup>There exists a collection of this kind</sup> Experience cannot be affected to in confirmation <sup>exhaustive in its range</sup> of regard to every organ for the scale of such experiences would have to be immensely vast, and the study of heredity is a recent one followed by only a few observers in a serious manner; However, <sup>as</sup> the instances that <sup>may be</sup> ~~have been~~ noticed collected are <sup>so</sup> ~~too~~ numerous & varied, and the ~~experience of one family~~ <sup>may be</sup> ~~for another~~ <sup>noticed</sup> new ones that we have every right to make the broad generalization that every organ has a separate origin.

To return to the subject of the feet. All that <sup>has just been</sup> ~~has been~~ said about their separate origin and imperfect coordination <sup>of the feet</sup> is equally applicable to every bone, ligament, muscle, vessel, nerve, &c. of the feet, or elsewhere in the body; nay it is applicable to subdivisions of these, but to what extent it is impossible ~~not~~ to say. Now written in anatomy enumerate different organs in the human body and therefore there must be at least that number <sup>though imperfectly coordinated</sup> of separate centres of development.





[illegible]

Affinities of germs

The third of Mr. Darwin's hypotheses <sup>perhaps</sup> ~~concerns~~ <sup>which includes 1 positive & 1 negative affinity or repulsion</sup> of function. It is whether <sup>that</sup> the mutual affinities between the germs are the sole causes which determine <sup>their selection and</sup> the order and place of their development. For any complete theory of heredity, we ought ~~not~~ <sup>to</sup> be able to specify with precision what the causes are, but ~~for~~ <sup>in</sup> an incomplete theory, which shall nevertheless be right so far as it goes, we may avoid ignorance of those causes, confining ourselves to the ascertaining that mutual affinities are in all probability, one of them. <sup>we mapped</sup> ~~we~~ <sup>that</sup>, arguing from the general tendency to family resemblance, many of the causes <sup>must be</sup> ~~are~~ constant, and that arguing from ~~among~~ <sup>the</sup> variety of extremes, close family resemblance & the frequency of anomalies, these ~~must~~ effect of the constant causes must be interfered with by a large number of variable ones. A single instance of <sup>variable</sup> ~~variable~~ <sup>causes</sup> may be given, in illustration, that of the effect of relative positions on the action of affinities. Thus, if a germ A is any other object A have affinities with other objects in the same group, strongest with B next strongest with C, then with D & so on, it follows that the effect of those affinities will depend much upon the relative positions of A to B, C, D & so on respectively. If the nearer object

<sup>theoretical</sup>  
~~Not itself as a result from the~~  
<sup>intrinsic</sup>  
The <sup>of these affinities</sup> practical affinity of the germ may be constant and yet  
itself may be exceedingly variable, owing to the interference of ~~accidental~~  
variable external causes. ~~One of the effects of these~~  
~~may be for example, such as~~ <sup>for example, must not</sup>  
consequently influence on the relative position of the germ, & this upon the result  
because ~~of the~~ <sup>of the</sup> affinities that must be stronger for what is when the objects between  
nearness results which they are exerted on



The parts of the theory of Pangenesis that I propose to leave aside, are  
~~that the development~~ the consecutive development of  
cells, ~~in which each germ~~ each new cell being formed by  
a germ which has attached itself by virtue of its superior  
affinity to a preexisting cell. For this idea I will  
to substitute another a more general notion which includes  
~~as will be seen~~ as will be seen, as much on an affinity  
as affinity & leading to successive segregations. The other  
<sup>the theory of Pangenesis</sup> part that I would almost wholly lay aside, is the idea of  
the free circulation of the germ in the ~~adult body~~ organised  
body.

Given pages 76 & 89

The vast multitude of <sup>different</sup> ingredients, which is implied  
 by <sup>the Darwinian & perhaps the early</sup> ~~every~~ <sup>germ</sup> ~~molecular~~ hypothesis, must be all contained  
 in the newly fertilised ovum, which is the starting  
 point of individual life. Its size is much the  
 same in all mammalia, whether in the elephant  
 or man or in the field mouse, and is about that  
 of the head of a small pin. A considerable part  
 even of this minute object, appears to consist of mere  
 nutriment, into the rest of it there is somewhere



packed not only the above mentioned ingredients  
at the far larger store of representatives of those  
ancestral peculiarities, which are not destined  
to be developed in the individual that is <sup>about</sup> to proceed  
from the ovum, but which he will transmit, or  
would be capable under favorable circumstances,  
of transmitting, to one or more of his posterity.

~~these germ~~ Direct observation can tell us nothing as to  
the form in which this material exists, for  
its details are so minute as to be beyond the ken  
of vision, even if their separate actions upon light  
were such as to render them distinguishable by  
the eye. Cells and their contents are, to  
biologists looking <sup>at them</sup> through their microscopes,  
much as mail bags and the heaps of letters which  
are poured out of them, are to <sup>inquiring</sup> persons <sup>gazing</sup> ~~looking~~ through  
the ~~closed~~ <sup>glass</sup> windows of a post office. They <sup>may</sup> draw  
ingenious and important conclusions as to the  
general character of the postal communication,  
and the places from which the letters have

As an end-vivacious being transmits its <sup>immediate</sup> feature which he does not himself keep, ~~it follows~~ that the germ must be protoplasmic, while the latter retains its latent form. Where these germs may reside ~~in the adult form~~ has yet to be determined, viz Mr. Darwin elaborates the provisional hypothesis of "Pangenesis" they are supposed to circulate freely through the body (not by the blood alone, as was afterwards explained) & each to be the probable parent of a cell, which cells are almost distinct animals living promiscuously in the proper places, <sup>from both sides</sup> or rather what we proceed to the older theories such as for which has some peculiar merits of each fragment of the body contained in a latent form (the germs of the white body) and ~~in the circulation of the~~ and not supposed to circulate not asserted. Both of these extreme views have advantages & disadvantages into which it is unnecessary here to enter probably the truth lies somewhere between them. The Mr. Darwin's statement of Pangenesis will be found an almost excellent summary of the <sup>very numerous</sup> ~~various~~ <sup>views</sup> ~~theories~~ which are held.

come, but they cannot read a word of what those letters contain. All that we can ~~for the~~ <sup>present</sup> learn concerning the ingredients of the ovum must for the present be through inference, and not by direct observation. ~~Certainly the germs that are latent in the ovum, or that are transmitted to the young by the mother, are not the same as the germs that are latent in the ovum, or that are transmitted to the young by the mother.~~

In order to save circumlocution, we had better employ some short word to express the sum total of the ingredients, other than mere nutriment, of the newly fertilized ovum, and as the Latin word stirpes, which means root or stem, has not yet been appropriated by biologists, we may use its English equivalent "stirp", for that purpose. It will be understood <sup>that</sup> as the stirp is <sup>the whole of</sup> ~~all~~ what was possessed at the first moment of independent existence, it must contain the germs of all that will go to the making of <sup>an</sup> ~~one~~ individual, <sup>together</sup> with all those other germs that will not be developed in him, but will remain dormant <sup>in his person</sup>, though not extinct, as <sup>is</sup> proved by his retaining the power of transmitting them to his descendants.

Let There can be little doubt that the stirps of brothers and sisters are always <sup>more</sup> alike, for they consist of simple organisms severally derived from those of their parents, and simple organisms breed true to their kind, yet the brothers and sisters often are very much unlike, and ~~for~~ of them take; for instance after the father and mother after the Mother. Upon the sperm









form of selection, so that we can illustrate what we may expect to find in heredity by the well known results of ordinary political party struggles. There, the merits

analogy

The fact that the <sup>germ</sup> molecule A is capable of uniting with either B or C, though its affinities may not be the same for both of them, enables us to import a chemical word into biological phraseology. Chemists are familiar with the existence of sets of compounds which they name "Allotropic". These are identical in plan, but only analogous in material; thus, Iodine & Bromine having analogous qualities, every chemical combination in which the one takes a part <sup>speaking broadly</sup> can be matched by an exactly similar combination in <sup>other</sup> respects ~~except that its part is replaced by the other~~ <sup>in which the other takes the same part.</sup>

This non-identity, but analogy of material, combined with identity of plan is precisely that which characterizes different individuals of the same race; we may therefore employ the nomenclature of chemistry <sup>in biology</sup> and say that different individuals are <sup>different</sup> allotropic forms <sup>capable of being</sup> derived out of the same large medley of materials, of which ~~the~~ <sup>its</sup> constituents.

and every other form of selection, such as <sup>which may well be illustrated</sup> ~~the~~ <sup>what are the results</sup> ~~candidate~~ <sup>those of</sup> ~~the~~ <sup>by the result of</sup> ~~any~~ <sup>struggle</sup> political ~~struggle~~. The ~~superior~~ <sup>inferior</sup> merits of some candidates may be so far superior, that they will be sure of selection ~~under~~ <sup>under almost any circumstances</sup>, and between these and others who have but the faintest chance, we may expect to find <sup>any number of</sup> intermediate grades. ~~On the whole~~, <sup>competitors who are</sup> those ~~theoretically~~ <sup>theoretically</sup> ~~dominate~~ <sup>the</sup> most suitable will have the greatest chance, but all kinds of external ~~circumstances~~ <sup>interfere with the action of any</sup> ~~accidents~~ <sup>which</sup> give an air of capriciousness to individual results. Hence it is, that the statistical methods of treatment are the best adapted to heredity. By them the <sup>effects of the</sup> ~~variable~~ <sup>variable</sup> accidental causes are made to neutralize one another & those of the constant causes clearly assert themselves.

### Limitation of space <sup>Atropism 146, 15a</sup> ~~in the~~ <sup>suppression of half possible inheritance</sup>

The <sup>effects of</sup> ~~effects of~~ limitation of space, ~~are~~ <sup>are</sup> to be ~~studied~~ <sup>studied</sup> of great moment have an important bearing on the theory of heredity. As the <sup>number of germ</sup> ~~total~~ <sup>can</sup> whence the child springs is of the ~~same~~ <sup>must</sup> be only half of that of the germ of its two parents combined, it follows that exactly one half of their possible heritage has been suppressed. This implies a sharp struggle

The more incongruous the ingredients of the strip, 196  
the more diverse are the possibilities, as regards  
the individual who may be developed out of them,

therefore the descendants of a mixed ancestry must <sup>200</sup>  
show great varieties of mongrel character, while  
those of a pure breed will always <sup>bear a near</sup> resemblance to  
one another, and to their parents.

universal law in biology that two sexes are necessary for  
the indefinite maintenance of a race. There are <sup>many unisexual</sup> procrees, as  
by fission in the lower forms of life, <sup>on most plants,</sup>  
of budding & grafting, by which new individuals ~~are~~  
~~the case~~ of the lower animals can be formed, but if  
the process cannot be ~~carried on~~ carried on for many stages in succession,  
appears that these are quite incapable of maintaining  
the race for ~~more~~ any length of time, the individuals  
~~produced~~ <sup>successively</sup> ~~deteriorate~~ <sup>begin</sup> and finally  
disappear, unless it certainly ends in decay. But  
if at any time, the bisexual



Sterility of undeveloped groups

f. 24

20fe

That part of the stirp which has become segregated  
for development, is nearly sterile. The degree  
of its sterility is to be measured by the almost  
complete non-transmission of acquired habits,  
and of such modifications of structure as were  
induced by accident or disease. If follows,  
that as fertility resides somewhere, it must  
be vested in the non-developed residue of the stirp  
or rather, in its representatives (whatever ~~they~~<sup>it</sup> may  
be) ~~in the adult <sup>at the time</sup> ~~parent~~ life.~~ when the individual  
has reached adult life // ~~child and the parents~~ It has already been  
shown that the dominant character of the stirp  
is on the whole indicated by the individual who  
is developed out of it and thence of course the general  
resemblance of <sup>the</sup> child to its parents must ensue. But



there is an opposing condition which must not be overlooked; it is generally insignificant but may under some chance combination of circumstances be so great as ~~be otherwise~~ and actually overbear the conditions upon which <sup>the resemblance of the child to its parents</sup> ~~it~~ depends. It is this; if the segregated elements be a fair representation of the stirp, they cannot possibly be an equally fair representation of the residue of the stirp. Whenever the best <sup>parts</sup> ~~portions~~ bits of any mixture medley are picked out, the average quality of what remains, cannot be so good as it was before. It is <sup>even</sup> possible that every <sup>sort</sup> of the best may <sup>have</sup> been picked out and ~~that~~ nothing of value may be left behind. <sup>Even where there had been no selection there would be a sort of this. Thus</sup> Suppose that a pious churchwarden emptied the plate, who had <sup>just</sup> carried round a purse for the offertories of a congregation to <sup>put in his hand as a offering</sup> ~~put her hand out~~ a handful of coins, <sup>in order to get a notion</sup> ~~to see whether~~ much gold had been ~~put in~~ contributed. On the whole, ~~this~~ handful would be a fair specimen of the contents of the purse, but it is quite possible <sup>in an extreme case</sup> that all the gold might <sup>have</sup> been



together in the purse & that his handful <sup>may</sup> ~~should~~ have ~~concluded~~ it and nothing else. So far from his handful being in this case, an indication of what remained in the purse, it would entirely mislead. The conclusion, is obvious, ~~we find~~ it has been shown that the number of molecules of each variety in the stirp is probably small, therefore it is very possible that extreme cases may occur in which perhaps not a single molecule remains in the stirp of the same kind as those which have been plentifully segregated from it, for development in the individual. In these cases, the person will be wholly incapable of transmitting the qualities by which he is especially characterized. Experience testifies to the existence of such cases; for example, the sons of men of genius have not unfrequently been deficient, <sup>in ability and this has mainly occurred</sup> ~~and especially~~ in those <sup>instances</sup> ~~cases~~ where the man of genius was the offspring of a mediocre ancestry. ~~Another result of the~~ <sup>degeneration of race</sup> ~~dominant~~ best elements of the stirp being segregated & rendered sterile is the strong tendency to deterioration in every race.

This is shown emphatically by the fact, that races are kept just up to their level by the severe action of natural selection. If they were left ~~unimpaired~~ <sup>unimpaired</sup> ~~themselves~~, <sup>during one generation</sup> the feeblest members of the race would have survived and therefore average vigour of that generation would consequently have declined. The steady tendency to deterioration is also shown by the great difficulty that breeders have in keeping up a valuable variety which has been produced by accident (that is by some happy combination of a number of unknown variable causes), and by the frequent falling off in families that were once highly endowed.

~~Diseases alternate generations~~  
The sterility of the developed elements of the stirp, given an interpretation to the fact of certain diseases breaking out in alternate or more distant generations, if we consent to make the further very reasonable supposition that the molecules of those diseases are exceptionally both gregarious & prolific. Then if owing to their gregarious nature, ~~at~~ <sup>at</sup> least, all the goat molecules in the stirp of M became developed in his person and consequently sterile, the small

fertile residue<sup>of goat</sup> in his stirp would be insufficient to transmit any notable quantity of them to the stirp of his child N. Therefore they would not dominate and achieve development in the person of N, but they would be husbanded and in the mean time multiply, owing to their prolific nature, and would increase in the next or in some early subsequent generation in sufficient numbers to achieve development, as before.

#### Relation of child to parent

Finally, we are in a position to explain the relation which connects an individual with his parents, and which is curiously circuitous. The stirp from which the individual is developed, is descended directly from the residues of the two stirps out of which his parents had been severally developed. His stirp also ~~seems to~~ receives some very slight contributions from the developed <sup>germ</sup> molecules of his parents. It is possible an analogous form of relationship to this, is to be found in that which ~~may be conceived to~~ unites the <sup>members of</sup> government of an independent colony with the

the members of the  
government, of the parent countries, from which  
its inhabitants were derived. The ~~inhabitants~~  
people at large correspond, to the stirp, & the <sup>members</sup>  
of government ~~correspond~~ to the segregated & developed  
molecules. To make the metaphor quite correct,  
it may be supposed that the members of govern-  
-ment of the parent countries, had some small  
privilege of nominating emigrants.





in place among the competing germs and the success  
of the fittest half. 196.20a

(Sexes) Much wonder has been expressed at the  
fact, that a race cannot long be carried on  
by any process of budding but that the concourse  
of ~~sexes~~ two individuals <sup>or as I think, the combination of their efforts</sup> of different ~~sexes~~ is  
~~necessary~~ essential to its indefinite maintenance.  
The ~~entire~~ explanation of the fact seems to me  
to flow very simply from what has been already  
laid down. <sup>as I regard the deterioration inseparable from unisexual descent</sup> To fix the attention, let us take  
the life history of the first second or any other of  
the <sup>three</sup> successive ~~stages of descent~~ <sup>generations</sup>

The diagram represents that of  
the third ind. At each successive  
stage there is always a chance (and the  
chance is possibly a large one) of some of the species of germs <sup>being lost</sup>  
dying out, <sup>when there are</sup> & once gone, they are <sup>gone to zero</sup> irreplaceable. <sup>Consequently</sup>  
<sup>at each</sup> the successive stage there is a tendency to deterioration,  
<sup>and this</sup> which must ultimately prove fatal. On the other  
hand, in the case of two parents, twice as many  
germs of each <sup>as are wanted</sup> kind are in the noceage supplied; <sup>there</sup>



~~Exactly one half of his possible inheritance must have been suppressed.~~

Again, the limitation of space <sup>in the ovum</sup> requires a limitation of the number of each kind of <sup>germs</sup> molecules and some such hypothesis appears necessary, to account for the ~~want of~~ <sup>small number of</sup> ~~sufficient number of~~ many gradations <sup>that are found</sup> in inheritance.

Thus, some simple object, as a mole on the forehead, is not transmitted <sup>as a mole</sup> of half <sup>the</sup> size to the child, <sup>of the</sup> quarter the size to the grandchild, & so on ~~but~~ in an indefinite series of successive subdivisions, <sup>usually</sup> but it is either

present wholly, or not at all, there are never many intermediate stages. Of course there are

more gradations in compound results, as in an expression of the face, because any one or more of ~~the~~ its elementary causes may be present or

absent and as the ~~possible~~ <sup>number of such possible combinations of ~~the~~ <sup>even a few elements</sup></sup> must be very great, there is room for a ~~very~~ large number of grades between the complete inheritance of the expression and its total extinction.

chance of the joint supply of any two individuals,  
 taken at hazard being insufficient for the supply  
 of one is of course very small; still it exists,  
 but it is counteracted <sup>in the case of</sup> by the fact that the two  
 individuals. Now even if the most deteriorated  
 specimens of the race had an equal chance in  
 marriage with the rest, the probability of the  
 joint supply of the parents being insufficient to  
 furnish ~~the~~ the requisite parent to the offspring  
 would be <sup>very</sup> small; ~~that the number of families~~  
~~who became extinct through that cause, would~~  
~~be easily counterbalanced by the <sup>general</sup> tendency to increase~~  
~~of the population.~~ it is still smaller owing to the  
~~fact that the weakest do not marry so often as the~~  
~~action of sexual selection, which still, there <sup>remain a small</sup>~~  
~~part chance <sup>that they</sup> of families <sup>must die</sup> dying out owing to the~~  
 cause. But what if they do? The remaining families  
 are perfectly sound, and <sup>can</sup> fill up, only too easily, the  
 gap. ~~The~~ In unisexual generation every branch  
 of every family is doomed <sup>to extinction</sup>; in bisexual only an  
 exceedingly few families <sup>from the cause we are considering, while</sup> the remainder ~~remains~~ is in  
 no way prejudiced thereby.

a medley of separate ingredients are <sup>contained in</sup> ~~transmitted to~~ each stirp  
 but <sup>by</sup> it is many of which are incongruous and some  
 contradictory, <sup>but</sup> out of ~~which~~ <sup>all these it is</sup> only the dominant portion  
<sup>that</sup> becomes developed. This condition of affairs is perfectly  
 intelligible by the ~~well known~~ <sup>above</sup> analogy of political  
 elections <sup>or already pointed out</sup> in which the body of electors represents  
 the stirp and the ~~chosen~~ candidate prevalent  
 political opinion represents the individual  
 developed out of the stirp. Where parties are  
<sup>nearly</sup> balanced, a trifling circumstance will make either  
~~one or the other~~ <sup>of them</sup> prevail, and though there is little  
 change in the opinions of the electors generally  
 yet a ~~small majority~~ with the <sup>dominant</sup> ~~prevailing~~  
 political opinion may go through great  
 variations <sup>in successive elections</sup>. It is just so, in the case of brothers  
 & sisters; their stirps may be nearly identical  
 but small circumstances may cause ~~the~~ one  
 set of elements to dominate & become developed  
 in the one, and another set in another.

Twins

alike & unlike.  
~~identical~~

p. 34

12

Another argument to the same effect is derived from the history of twins, about which I have made many inquiries. The apoth of these, so far as they relate to the present subject, appear to be, that true twins - that is to say, those who at the time of their birth ~~are~~ <sup>were</sup> enveloped in the same membrane and have therefore been developed out of two germinal spots in the same ovum, are characterised generally by <sup>may be divided into two kinds which strongly contrast together. In the great majority of cases</sup> close resemblance, and <sup>than brothers or sisters generally, in the remaining cases still</sup> sharper contrast, <sup>In all cases they are of the same sex, showing the perfect identity of the circumstances connected with their early development.</sup> they are also always of the same sex.

The explanation of this is simple, in ~~any~~ <sup>an</sup> ~~anatomical~~ <sup>anatomical</sup> hypothesis, supposing the ingredients of the stuff to have been in the first instance unorganised. First, we should expect that the two halves of any medley would be closely alike and as these halves are developed under identical circumstances we should expect the development to be identical. On the other hand we should expect, if a <sup>trifling</sup> ~~sufficient~~ delay had occurred,



before the division commenced, for the ingredients  
to arrange themselves a little after their affirmation,  
that the two halves would consist of opposed  
factions, to speak, and would be strongly  
contrasted. The identity of sex in both cases,  
would be expected owing to the identity of other  
circumstances.





Local Position, ~~the~~ medley - brothers & sisters

f. 36

15

That the germs excited in <sup>the stir</sup> a state of medley, having the power of free movements, ~~at the earliest stage of life~~ is probable from many reasons. The primal cell divides and subdivides <sup>in</sup> successive <sup>steps</sup>, each successive subdivision resembling that of a mole into two factions, having thenceforward different attributes. ~~One reason~~ Another reason worth considering, is to be derived from the occasional great dissimilarity of brothers & sisters. There can be no doubt that the stirrings of brother and sister must be always must alike, for they consist of simple organisms derived from the same parents, and simple organisms breed true to their kind, yet the brothers and <sup>the</sup> sisters are often very much <sup>unlike</sup> one to another taken after the father & another after the mother. Upon the germ hypothesis, this difficulty disappears.

11.12.13a



We need not trouble ourselves particularly to enquire into what the conditions may be, which favor the chances of any element to succeed in developing itself, but we <sup>may specify one of them</sup> ~~must bear in mind~~. This is, the ~~important~~ accidental place of the several <sup>germs</sup> ~~molecules~~, just before organization commences. It follows from every <sup>germ</sup> ~~molecular~~ hypothesis, that the <sup>germ</sup> ~~molecule~~ A must have certain other <sup>germs</sup> ~~molecules~~ more closely adjacent to it than others; when organization commences, it must make considerable difference which of the two, B or C, with each of which A

Summary.

- Darwin retains — { Germs  
 { Germs are prolific while latent  
 { Germs arrange themselves by their affinities.  
 not retains — { Germs develop consecutively  
 { Freely circulate throughout life  
 { Proliferate by means of cells.  
 P. preliminary — { First office simile  
 { Stork - meaning of  
 Latent and developed. { election simile.  
 { apparent embryonicity,  
 { advantage of statistics in heredit. research.  
 Limitation of space { inheritance of  $\frac{1}{2}$  of the heritage  
 { Sexes versus budding ✓  
 { few gradations in inheritance ✓  
 Local position <sup>at first</sup> a nucleus { brothers & sisters  
 { twins alike and unlike.  
 Sterility of developed germ <sup>reason</sup> { loss of inheritance of habits  
 { consequence { child very unlike parent ✓  
 { disease in alternate generations ✓  
 { deterioration of race ✓  
 Relation of child to parent  
 Remains unsettled {



In this rapid ~~outline~~ <sup>and explanation</sup> of many difficulties <sup>and obscurities</sup> of  
 in heredity by means of ~~the~~ molecular theory, ~~is~~  
~~probably insufficient~~ <sup>enough</sup> has been said to show how valuable  
 wide is the range of ~~the~~ <sup>of that theory</sup> application, & how  
 great is the probability that the true theory <sup>of heredity</sup>  
 whatever its details may be is at all events  
 a molecular one. It will be ~~borne in~~  
 mind that I know of no difficulty ~~which~~  
~~a molecular theory is not~~ <sup>that</sup> ~~it is~~ <sup>the</sup> ~~discovery~~  
 of those details <sup>the advance</sup> of the science of  
 heredity must depend. There are many problems  
 to be solved and <sup>with an eye to</sup> many <sup>indeterminate</sup> factors  
 in the molecular theory to be discovered <sup>which</sup>  
~~will then~~ <sup>will then</sup> effect their solution. The theory stands  
 at present in a very <sup>abstract</sup> ~~general~~ form, relying  
 only on the facts that there are <sup>of each one</sup> ~~germs~~ <sup>that</sup>  
 (the germs are prolific in a latent & ~~very slightly~~ <sup>almost</sup> ~~in~~ <sup>in a</sup> developed state, that only  
~~part of the~~ <sup>some of the</sup> varieties of germs in the <sup>2</sup>  
 stirp are developed & that the rest survive in a  
 latent form. <sup>& that they develop under the influence of their mutual affinities</sup> I have not touched the question  
 of the whereabouts of the latent germs in the



developed individual, not finding it necessary  
 to do so, so far as we have as yet been concerned,  
 and because Mr. Darwin <sup>thinks</sup> of the free  
 circulation throughout the body seems open  
 to grave objections. Among <sup>these</sup> are the ~~fact~~  
 & exceptional <sup>& faint</sup> effects of graft hybridizing <sup>the</sup>  
<sup>fact</sup> that I myself produced a system of long  
<sup>cross</sup> circulation between rabbits of different  
 breeds by temporarily connecting their  
 carotid arteries cross ways together. The  
 result of <sup>which</sup> ~~this~~ was, that I obtained pure  
 silver grey rabbits of both sexes, in whom at  
 least half their blood had been replaced by  
 the blood of large topped eared & coloured  
 rabbits. Then I bred from the silver greys  
<sup>whose blood had been so</sup>  
~~so~~ <sup>changed</sup>, & again operated on  
 their descendants. This I did consecutively  
 for no less than five generations without  
 the slightest effect on the purity of their breed.  
 The experiments when they had extended over three  
 generations were published Proc. R. Soc. (1871)  
 I did not succeed in <sup>another set</sup> ~~the~~ experiments to ascertain



whether <sup>or no</sup> the germs could circulate by other channels than by the blood. ~~they~~ <sup>could</sup> ~~be~~ <sup>more</sup> ~~inhibition~~ ~~but certain~~ If they could do by <sup>mere imbibition</sup> ~~the~~ <sup>mother's</sup> ~~germs~~ <sup>nearby</sup> ~~every~~ <sup>paternal</sup> ~~germ~~ in the father ~~must be washed out~~ <sup>drained out</sup> while the child <sup>which is</sup> ~~the womb~~ <sup>must have been</sup> and replaced by maternal germs. <sup>According to this</sup> ~~the~~ <sup>which</sup> ~~case~~ <sup>the</sup> ~~grandchild~~ <sup>grandchild</sup> would always have the maternal grandmother's qualities, and none other, transmit to its descendants the qualities of its mother and of no other ancestor; <sup>this</sup> ~~which~~ <sup>it is almost</sup> ~~it is~~ <sup>needless to</sup> say, is not the case.

It seems to me that the applicability of the molecular theory would be equally effective ~~whether~~ even if the <sup>x vacuole</sup> ~~old~~ <sup>notion</sup> the very report of Pangenesis, were true, which supposes each fragment to contain a representation of the whole; ~~in each~~ <sup>or as I would put it</sup> ~~other words~~ <sup>more precisely in which</sup> each cell ~~to be a strip~~ <sup>it would be possible to say</sup> ~~as father~~ was a modified strip <sup>whence</sup> ~~in which~~ <sup>might be</sup> many of the varieties of germs ~~were~~ <sup>present</sup> ~~about~~ <sup>in which a very few were</sup> ~~some~~ <sup>clipped</sup> - portunately over represented, and some of these developed.

If the parent states contained ~~the~~ <sup>the</sup> similar  
 peoples and if <sup>both</sup> they and their colony inhabited  
 similar countries, <sup>we should expect</sup> the governments <sup>of all these to</sup> ~~would be~~  
 closely alike. ~~Here~~ <sup>such instances</sup> ~~are to be~~ <sup>abundant</sup>  
 found among nomad tribes, where hundreds & ~~thous-~~  
 and thousands of years <sup>have hardly</sup> ~~passed~~ <sup>little changed</sup> ~~little~~  
<sup>their political conditions</sup> ~~their~~ <sup>correspond</sup> ~~the~~ <sup>directly</sup> ~~are~~  
 pure breeds. <sup>Where</sup> the parent states contain  
 dissimilar peoples, the government of the colony is <sup>likely</sup>  
 to betray ~~these~~ numerous points of resemblance  
 to those of both parent states and very <sup>commonly</sup> ~~common~~  
<sup>showing of these are strong points of</sup> ~~these~~ <sup>resemblance</sup> ~~are~~ <sup>marked</sup> ~~in~~ <sup>basic</sup>  
<sup>minor</sup> ~~minor~~ <sup>matters</sup>, such as <sup>in political procedure</sup> ~~forms~~ <sup>of procedure</sup>. The  
 effects of individual variation are <sup>usually</sup> ~~often~~ <sup>parallel</sup>  
 to the effects of on the colonial government &  
 politics due to the altered ~~climate~~ <sup>conditions</sup>  
 of life under which the colony exists.  
 Even in cases where the colony is established under  
 very different local conditions to those of the parent state,  
 we may trace in the differences of its government the  
 precise effects that we <sup>trace</sup> ~~see~~ in heredity & individual  
 variation.

436

	log	log	5	5	3	3
lakes	hg	45	3	2	2	1
left	hg	hs	2	3	1	2

$$b \mid 2 \mid = 8$$