

Notes and Correspondence on Mental Imagery

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Attention . stuff about ~~and~~ ^{AL} divided out
being unable to see more than one thing
clearly at a moment . we do so by
the light of an induction spark .
(? possibility of seeing a whirling wheel
in a magic lantern by induction spark)

Attention in its highest form is holding
the main point always in ~~different~~
~~view~~ ^{by rapid} ~~succession~~ while the
mind travels & scrutinises the ground
round it & never rambles away .

Here it may be remarked , iteration
going over the same ground often in
pure waste ~~except to get at least~~
~~to~~ a well trained mind ~~and~~ ^{easy} to
quarrel the field of enquiry like a
well trained hound . Once an idea
is so familiar , that a man suffices
to recall its completeness , it should cease
to be dwelt upon .

Attention in a lower form is like
following a track . Each successive step
is rigorously justified but the starting
point is quite forgotten & done with .

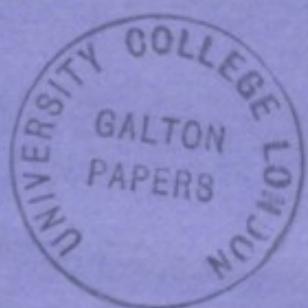
In attention the sense is focused^{f.2}
sharply on a point & the art of fraud,
though it is not to focus the attention so
sharply. Well seen in way savages
shoot to a mark. Sailors find a ship
on the horizon. A novice looks too sharply
at a point & does not diffuse his attention enough
finding a planet by daylight.

Reflexions in water, not seen unless
attended to. Photographs show them
with unexpected clearness.

Old woman & umbrella in Khome Valley
Pattern on wall paper
Faces in the fire.

Reverting proofs to Shelling - and the sense
having thoughts of moral prof. reader

Niagara people talk in a natural
way
~~Hair of flat place~~



Wheat ^{does not} ~~attends~~ *albatus*. -

f31

Tiger stripes & stalking clothes
white belly & black back of wild canary
(darken'd twist)

Note
Stereoscope (see remarks in Nature)
Roll and hand.

84

attention of another low form is
that of a cat watching a mouse hole
or thoughts of one thing alone - This
is a very easy - too easy an exercise
of the mind. If the thing on which
the mind is concentrated has no
variability, the mind becomes ^{adorn} zero
& the man is electus biologized.

Attention which is equally diffused
over many subjects & ^{not travelling with} concentrated
~~over them Accepting~~ ~~no one of them~~ leads also to
state that is next door to annihilation
of its proven name, & Nirvana.

The sum of divided consciousness is
not equal to the undivided one - &
above perchance. Also pulling out a tooth
& pinching the calf simultaneously
~~the~~ ^{of} addition of a new pain
by scattering the attention diminishes
the old one.

Frittering on small efforts. It requires
time & sustained attention to make a new
idea.

~~Mrs Herschel (now)~~

f.5

~~Mrs Haweis~~

Bidder

Schuster

Mon Searle

Col Yule

~~Rev T H. Waller~~

~~Huf Ps~~

~~Rev H. Osler~~

~~Rev G. Hendon~~

~~Antoine d'Abbadie~~

Wood Smith

~~Ruf Gleason~~

L O'Conor

~~C Ambrade~~

F. P. Fairlie

J. Dismore

17

A French Lad,
French Zoologist

14 Dec 1879.

Re. "Insinuation".

JV. STANLEY JEVONS,

f65

2, THE CHESTNUTS,

WEST HEATH,

HAMPSTEAD, N.W.

I have just met with the
following in De Morgan's Panadonek
p. 39. "Whenever I am struck
by ~~with~~ the words of any one, I
carry away a vivid recollection
of position, gestures, tones, &c. I
do not know whether this be
common or uncommon &c &c.

Rev. Dr.
Morgan

POST CARD



THE ADDRESS ONLY TO BE WRITTEN ON THIS SIDE.

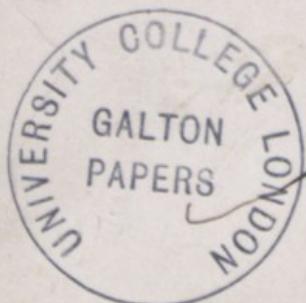
f.6v

B7
DE1



~~Francis Galton Esq M.R.S.~~

~~42 Portland Place
SW.~~



The ^{sores} ~~manns~~ of men differ even more than their bodies. In full case, the ~~chief mental~~
~~characteristics like those of~~ ^{equally} ~~the body are~~, are "innate"
and equally difficult to modify by education
~~and they equally tend to be transmitted by inheritance.~~
Their differences are ^{principally} ~~more~~ due to nature ^{and not} ~~than~~
to education, and they tend to be transmitted by inheritance.

Psychological Facts — Various and numerals. — f8
by Francis Galton F.R.S.

a collection of the curious forms, according to which Numerals are
invariably translated by certain persons.

The tendency to assign ~~each~~ ^{any} numeral upon which attention is fixed, to its
peculiar definite portion in the mental fields of view, is automatic in apparently
about 6 out of every 30 adult males, or of 15 adult females. ^{These forms are} ~~and~~
stated in each case, to have been in existence at the earliest period
to which recollection extends, though ^{usually they were} ~~they were~~ somewhat developed ~~at first~~, ^{occurred} ~~at first~~ ^{and shape is} ~~shape is~~ ^{the} ~~the~~
Forms are apt to be extremely vivid; they ^{are} ~~are~~ invariable in the
same person, though different in different persons ^{and the tendency} ~~to translate numerals~~ ^{is} ~~is~~ ^{to} ~~to~~ ^{Colonel Volo}
~~to translate numerals~~ in this unusual way, however to be hereditary in a very
high degree.

The Forms in this collection include those of Antoine d'Abbadie
(membre de l'Institut), C. Armbruster, George Hodder LL.C., Mr. H. G. Headley,
Gustav Flögr. Baron von Osten Sacken Alfred Schuster ^{R. Woods Smith &} " Colonel Volo

(a memoir on the subject will be read at the Anthropological Institute by Dr. Martinus Nansen
at 8 p.m. on Tuesday next March 9th. (See also 'Nature' Jan 15/52.)

Read Times of Feb 5 (or Feb 4?) in p. 9
hysterically received the real victim but
Easterly received the real victim but
By abstraction by diverted attention
By enhancement by directed attention
By chance superposition
of image & reality
of 2 images

along lines of
approach

Turner & the children dabbling
different violet
hovering swaying
(running a scent backward)

Solles - Clara dots

=
In exercise the eye follows lines
of approach guided by downward smooth
W.M. Schenckel (penwork circles of
beauty &c)

Some personal speculations
young corn in - insipid color
Old corn - extent of field very
smallish - half turkey

Hurd Salvin reprint's f10v

Tant they sent I exactly like
particularly mechanism
work there hope
you

Cambridge don't we they - believe
it is stated that the three
questions will not include the
Kings of Noah,
so not fit favor well enough
Malacca



P.M. MAIL SW
ATHENAEUM LIB

f. 11

Spectator Dec 28/78

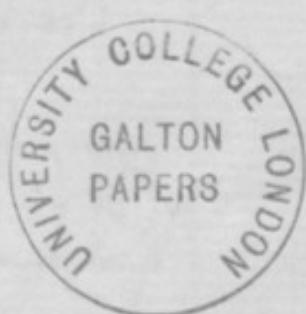
p 1634
letter from S. R. Hodder



He refers to
his own children
more than a sum
power of making
athletic

The Father described his powers
in a paper to the Soc Civil Engineers
at London 1856-7 when
he was President

and article upon it p. 1631



Lent to Miss Ward by Mr Bidden
ask Lashingley
Mr Westmacott

f. 12

Notes from books

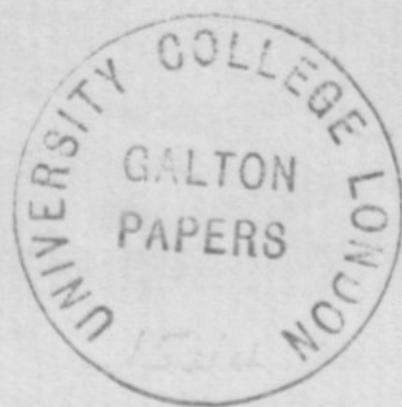


Diagram to

a log curve
Curve of black & white
Composites,
width series of

6 light
Snash they fit 1000 cophorines

Experiments

Composite materials
Sound machine
white & black beans

p. 13



^{Technically} ~~lack~~
judgement imperfectly corrected

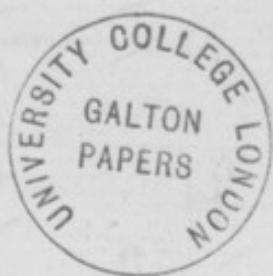
f.14r

Not like perspective

which makes east those correct

False estimates of depth of water.

(Birds striking down at fish in water.)



(2)

f. 14v

$$\frac{1}{x-1} - \frac{1}{x+3} = \frac{1}{35}$$

$$35(x+3) - 35(x-1) = (x-1)(x+3)$$

5

$$35x + 105 - 35x + 35 = x^2 + 2x \cancel{-3}$$

$$140 + 3 = x^2 + 2x$$

$$x^2 + 2x + 1 = 143 + 1 = 144$$

$$x + 1 = \pm 12$$

$$x = \pm 12 - 1 = \underline{\underline{-13 \text{ or } 11}} \text{ Ans}$$

Fechner law

f.15

Objectives & subjective scales
to let different

1 and 1. Subjective deal make 2.

suggests a non Euclidean geometry.
Compare with indication of an air piston.
Draw a log curve.

Sound - my machine

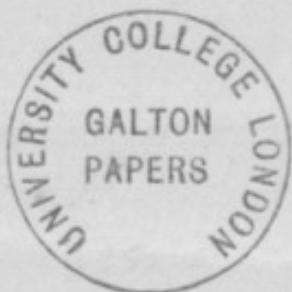
weights - flew a series

Sight. flew my cards

& ? experiment with black & white beans

No. in series	White fresh	Black fresh	White preserved	Black preserved
I	1	1	1	1
II	-	1	1	1
III	-	1	1	1
IV

VIII half part = 2 parts
1 half part 1 white



Combined impressions

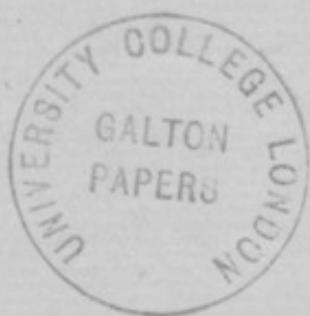
f.16

Mosaic feelings

Cat & nine tails - birch (? abn)
tasking fence - capping machine. (Scattered
attention.)

Very they at average. Either in those on successive
Cessation (sound) vibrations - light. - taste
load - smell. -

• found as mixture of may component
vibration of may simultaneously excited parts / etc.



It is the education of our
early years to distinguish
between dream & reality
& the way we learn to do it
is by noticing the circumstances
of ~~real~~ observation of real objects
such as the sense of touch ~~as~~
of our motor acts changing position
in accordance with our changing
perspective while the allusion ~~exists~~
waves the

Otherwise ~~your~~ images would
be indistinct to faint objects

f.17v



Athenæum Club
FALMOUTH S.W.
November 22nd 1879.

The Secretary begs leave to give notice that
the ordinary weekly meetings of the Committee
will be resumed on Tuesday next Novth 25th
at 4 o'clock when several important matters
will be on the Agenda

Ryley & H. Honorary Membership

Proposed by W. Holliswood Esq^u P.R.S.

Bain (Cap 333)
Senses & intellect p 337-8

p. 18

"The exact precise in ward temptation
due to an state of hunger is almost
irrecoverable & unimaginable in a
state of comfortable repose. But the
uneasy movements, the fretful tones, the
language of complaint, are all easily recogniz.
---- These organic states are in strong
~~contrast~~ to the temptations of sight and
hearing, which may be recoved nearly to
the letter. We can recover a picture -
vision of fancy almost exactly as we
saw it, though not so strongly

(Words. re justification
invitatio nobis)

375 A person may accustom himself to open
to open his eyes when waking from a dream.
The images seen in the dream are then sometimes
still visible & can be observed to disappear
gradually. This was remarked by Spinoza
& I have noticed myself of it in my
own person.

Bain (Sense & Intellect)

Speaker mind of sensations being recovered or remembered - the more easily it is so the higher its intelligent character — Longot says (Bain 158) that taste cannot easily be remembered we dream of seeing a dinner but not of tasting it. Bain says that for purposes of identification a contrast they may be recovered to great extent — while ~~taste~~ ~~odor~~ ("Prominence or distinctiveness of the impression made on the mind").

Scent division by Bain as follows 7
Sulphur, aromatic, fragrant, ambraceous, alliaceous, fetid, virulent, nauseous.
(Longot p. 151) Several others,
Classification of odors



+ 20

Skarze Opera Borboea
Sept xxx

had subjective views.
He clearly had great oratorical
power to be add. in the letter
we can hardly accybz on
minds (intellec^tive) upon
anything, out of which the
imagination, will and the
form some picture out of
a mere hint or trace or
slight indication build up
a picture

Spiraea Spiraea XXX f. 21

When I awoke in morning
duriⁿ day light after a very heavy
sleep, the visions which I had
seen in my sleep appeared as vividly
before my eyes as if they had been
real objects & especially that
of a certain black & scabbed
gray old man whom I had never
before seen. This vision in great
part disappeared when ~~after~~^{at} closing
I fixed my eyes on the book or indeed
on anything else but the instant
I lifted my eyes without fixing my
attention on anything in particular
the ~~same~~ form of the ~~gray~~ black man
again appeared with the same
vividness. This occurred alternately
~~at~~^{at} least ~~at~~ the vision disappearing
by degrees

= He is writing to a friend who ^{in imagination} heard
groans from his son who afterward
died & he thought these ~~were~~ ^{had been} an over
Spiraea describes it to purr imagination
& relates this history to show the force of
imagination

Holland Medical Notes Mental Physiology
1840

¶ 13. Effects of mental attention on bodily organs

Quoted writers.

[Is not the ^{unfull} ~~unfull~~ ^{sight} that induces say tetanus, - ^{if} unconscious too vibration ?]

Consciousness receives a local impulse & direction remaining fixed on one spot with more or less intensity. There is (1) attention solicited by that action derived from the part & independent of volition & (2), attention suggested & directed to the part by some mental state, in which the will is equally unconcerned.

Direction of consciousness is to be understood in a general sense - a part - not a particular texture of it. Heart - if you center consciousness on it beats differently. [try this by tracing] So an irregular pulse is influenced.

Attention to a part will often give a local pulse & arterial pulsation - & create heat, i.e. a redness, heat, in the part due to capillary circulation.

Redirection - Sager attention directs it. - sweating, conjunct - sneezing -
Stomach - a sense of weight - nausea caused a release of ^{the} weight - all parts of alimentary canal toward - Bladder. - Genital organs - Digestion manifestly embarrassed by thinking about it - Articulation as in stamping, Salivary glands - secretion of milk. Sustains in tongue & teeth.

¶ 14. One limb or even a single finger may be experimented on. - We get a peculiar sense of weight with a vibratory tingling or a creampuff or perhaps sensations of heat & cold - itching often,

27. The struggle between the intellectual & automatic functions f22v

[conscious lost - unconscious creation active
in collecto-biology lost of states]

36 Hyperconcreteness by fixing attention
nobody can cause but actually create disease

37 mere imitation growing couch. Disease
(hysteria)

This refers to Dr. Thomas Browne's lectures
on Personal Identity. - thus gains a bearing.

50. In what manner & in what degree are
the mental acts really connected?

52. It is strong when we scrutinize our
own series of thoughts. they theft wonderfully
"What constitutes the thought of an object,
as present to the mind?" An image
may be as a unit ^{last} colour & form
53. Reckless time is infinitely divisible.

55. In a pretty crowd you only attend to
one person at a time - try it.

58. The mind works in a succession of states
succession of ideas involves succession

[I think we have a clear idea of only one

retrace let a man or left faint idea of p235
many others associated in all sorts to it
that any one of these may become automatic-
tically, or be selected voluntarily & precon-
& to succeed at. Think in speechology
how a balanced sentence is somehow
framed while the speaker is not conscious
beyond the first few words of it & an
impostorator]

[a construction imagination selects a
group of ideas naturally associated (in
the order in which he gives them) into it]

63. Different ways of seeing the same thing
certain patterns on a carpet - a few well marked
lines of direction & contrasted colors -

etc.

64. Different persons show great diversity
in selecting & grouping objects of attention
out of a medley.

65. ~~After~~ Recollecting a thing, we can retraces
long lines of association, connected other
by the slightest links

66. Time as an element in mental
functions.



69 } "Each single ^{object or} act of consciousness
excluding for the moment all others, but
of those which come most closely in
precedence or sequence to it"

He has thus far followed that view
of the mental functions which regards
them as operating in series - &

70. In many brain affections - partial conv.
a considerable time often elapses between
a question asked of the patient & his reply
a full minute has sometimes passed.

Is there not in reality a material
variation in the time in which the same
mental functions are performed by
different individuals, & by the same
at diff: times - There are moments when
the perceptions & thoughts are more rapid
similar as respects acts of will. It is
probable that time & intensity may be
connected together

72 Personal Questions refer to Müller's
Handbuch der Physiologie. Transl: by
Katz p. 680.

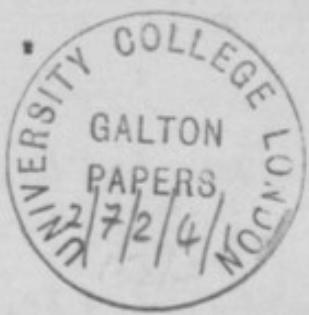
Continued) Hollands Mental Physiology
h.73. In old age thought is more
sluggish [lost this to different
period of life - boys at school etc]

[? in dreams that which passes through
the mind in wakefulness unobserved
became cognized]

87. Reverie - a state intermediate
between Sleep & Waking

95. The law of intermittence, more
distinct as we rise in the scale of
functions - Periodical returns in
Sensibility & Vision

276 "Of the several properties of
"conditions, we may, after all the
"various power, that of Quantity
"is perhaps the most determinate!"





In Leipzig Problem of Life
- mind. III.

p. 405 note quotes from
Mayer die Sonnenstichkranken
and Halluzinationen 1849 p 113
who say that Graefe the oculist
had a patient who lost both
eye balls after inflammation — the
eye balls were atrophied & contained
chalybeous concretions — he had bright
visions — Graefe divided the optic
nerve the visions disappeared a
slo w at first during the first week
after the operation he lost all sub-
jective sensations of light & colors

Broadb. Physiol. Lecture.
Read Bishop Berkeley "Sive" Virtue of the Water

f.26r

16. "Where there ~~is~~ volition is exercised there is fatigue; there is none otherwise: & in proportion as the volition is more exercised, so is the fatigue greater." Heart - respiration - yet no feeling of fatigue.

17. The phantasms of the imagination are never stationary - we have the power of arresting their current; we can make the object which it presents to us the subject of our attention; we can view them under different aspects & thus perceive in them resemblances, relations, analogies which we could not have perceived otherwise. - - we can keep the attention fixed on a particular object until we have, as it were, looked round it. - - Differences in this power constitute many the vast differences which exist between the minds of different individuals. - - - (Very terse & good).

18. A principle of order within the mind
(Some explanation is attempted) [The mind recollects and takes
selected points, as are connected by natural links of association]

55 Memory is closely allied to ~~Intellectual action~~ ^{logical mind}

73. Effect of coat on the temper ^{logical mind}
Animals do not create nervous power, they
merely enliven as it were to wake up that which
is left [Thoroughbred].

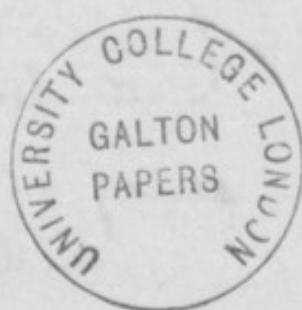
274. Leuret in Australie compares the Systems
Nervous "over the relative weight of the cerebrum
& the cerebellum in ~~old~~ ^{young} children & old age - it is
smaller in the first viz as 1:7.07; in old age :: 1:6.59

see Over

Brodie's Psychology. Lecture 2nd part

f26v

47. Speaks of the rapidity with which the
South Sea Islanders accorde [Cook, page]
~~know me state even~~ (without loss of another
unstated) — torts can check this.
48. Power (continued attention varies much in
different people).
50. — [The recollection of a thing "flashing" upon
me — ? the process]
51. The anecdote about a man sleeping at
an iron - wall paper - (it is quoted from a
letter - name given)
60. About memory
61. about ability
120. Transfer & gifties - taken care of
running away at last - girls (case of
a street Sweeper).



Paget

f.27

Chromatics of life

R Institution April 1859

= Croonian lecture Royal

Society 1857 - about rhythmic
movements.

=

ATHENEUM CLUB

PALL-MALL SW.

artist's pleasure "a composition
of imagination to have an accurate
memory (of Turner) f.82

In the lives in words of Dreams

87. He hated being 'mappy'

Each mind lies in its own world

1. The soft granaries over him

2. Men I mean, cherish thoughts
involuntarily, & it independent ideas
(that kill)

18. In scenes amid which youth is forced
leave their unprep'd the close of life

19. Without memory a painter of landscape
effed is like a carpenter without wood

h-190. Two stones that may be relied
upon" Turner sets 3 children to dabble
over a drawing of which only the doskin
was clearly drawn, with then 30 figures
of the infidels of the aquilon - the sandy

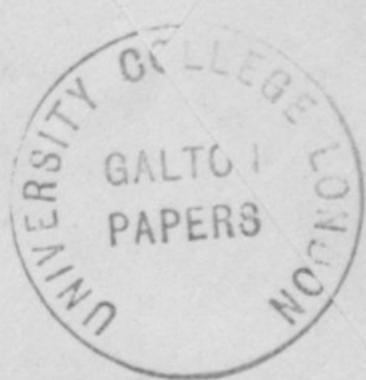
P.28v

Cake 'stop' & proceeded to fill
in form suggested by the accidental
clown. Again he was arranging
tiger lilies on a plate after dinner
& someone disturbed him when he
called out 'There, you have made
me lose £30'



f.29r

"One of the quietest
moments of my life"



f29v



f.30

Notes of
persons



Bramwell

(March 3
Royal Soc. Receipt)

"brown smells" & the ^{f 3½} like are current words in his family.

Tyndall can represent smells with great distinctness.

Rebsorak
his wife associates colour with Xiamen.

Prof Ayrolle in Japan
has associated motion with
smell & species of cotton
also (some purple in their)
says people associat. colour with
brown but seldom vice versa
won't allow a "bad wch tie" to be
red.

Over

lower. Speaks of men who hear
beautiful music but rambling
of a train etc. knew of a case
where it followed a perforated
tympanum. — I spoke of faces in
it for analogy - which was his view.
Leons spoke of different kind of
memory music - language -
thought that Bain vastly underestimates
in speaking 1C, by then a million facts.
Williams sees pillow of dots
dots :: used to ask him
It is a very trumpery affair - He
still uses it a little



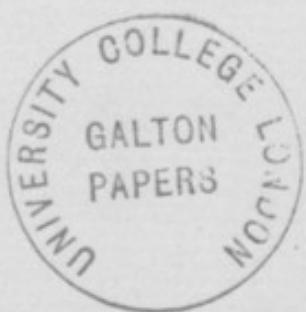
Yours faithfully
John Coler

f.31v

Bishop of Carlisle
hereinafter called Chester Nov 1870 / 918

p. 32

(who has thoroughly digested his science)
"A geometrical man capable of regarding
the whole body of proportions in
which it is divided as scientifically
one and as all obvious and
(to speak) vitally depending on
the simplest & most elementary
properties of Space" — Summary
in wood mechanics



Rudkin
Modern Painters

(3rd Edt)

f.33

vol II / 160

Some facts exist in the brain in a verbal form, as known but not conceived . . . others - in a visible form, not always visible, but voluntarily visible . . . when we wish for knowledge of its form for immediate use, we summon up a vision or image of the thing . . .

This . . . is called conception by the metaphysicians . . . it is inaccurately called Imagination by Taylor in the passage quoted by Wordsworth in the preface to his poems, and by that the term Imagination is etymologically & rightly expressive of it, but we want that term for a higher faculty.

(He further speaks of the indefinite character of the conception in most men, which admits not of being by themselves realized & yet is a sure test of likeness in any representation of a thing)

Visualizing under hunger

f.34

Mr ^{Montague} Cookson told me
(Dec 6/79) of a relative of his
and two brother officers who
took a sail in an Irish pleasure
boat & were unable to return
owing to unfavorable wind. They
had nothing all day to eat &
had to spend the night in a rock.
One of the three slept the other
two were kept awake by visions
of food. They each stated that
they could have slept had they
not been continually haunted by
these visions.



A.35

Mrs Cosher sent
her own + 9 envelopes & then
one more who did not send

of these ² ₁ ¹ situation numeral

(or 1 in 6)

K. Ayres
T. Bachman
J. Corfe
L. Green

S. Green

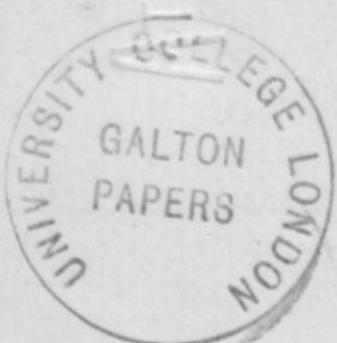
Hawkin ✓

Onions

Dole

Turrell ✓

PALL MALL SW. 1.



Mrs Halle'

f. 36

Not infrequently hears music mentally, which she mistakes for reality. A few days ago (Feb/80) she was sitting in her room ^{thinking} ~~thinking~~ ^{thought} the head) a piano, asked her maid to open the door that she might hear it more plainly. The act of her maid's opening the door wholly destroyed the illusion. Similar instances had often occurred to her; she imagines that her father is playing.

Her health has been ^{in no way} ~~apparently~~ disordered at these times. Her writing power is fair, apparently a perfect good.

^{by W. Hullah}
John Hullah - "Music as an Element
of education" Parker & Son 1854. A37

(Mr. Hullah had only one copy, which he
lent me through George Croce)

p.13. "In a great piece of concerted Music
there are brought into requisition at least
four kinds of voices and at least twelve
different kinds of instruments ... The succession
of sounds which each voice or set of voices, instru-
-ment or set of instruments performs, is called
a part.... Now in a full score all these parts
which we have seen often amount to thirty, are
collected together and placed most of them in
separate staves, over one another, that they may
be understood at once at the eye of a reader as
they are presented at once, when performed, to the
ear of a listener. Every body will feel and under-
-stand that to read any symbols which, in propor-
-tion to letters, are as a page to a line cannot
be an easy process. But this is a very small part
of the musical reader's difficulty, for the same symbol
has many different powers; the same note by no
means stands in all the staves for the same sound...
The musical reader must be able to appreciate
with his mind's ear, that which has no audible
existence; he must make up his brain to do the
work of another as well as its own, and, so to
speak, hear with his Eyes."

Markelyne Feb 26/50

metally
Complex simultaneous{ all
round a crystal die in other
solid body after he has
become familiar with it
& taken it well in

He will ask other mineral
ogists & tell me

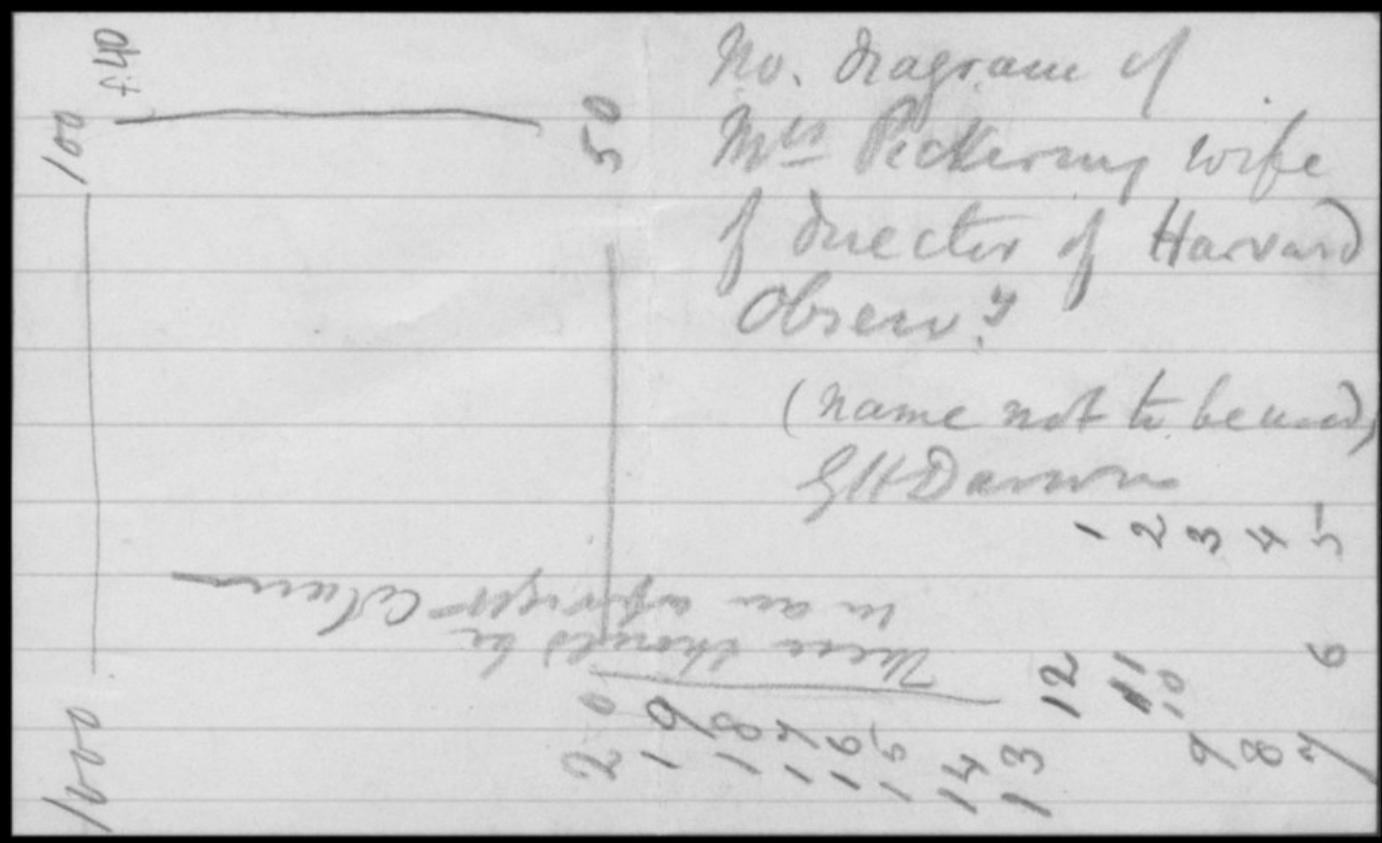


White Sea Peninsula
— Edward Rae.

p. 182 "An old lady was taken to an ancient church. How strong it smells! she said."

"Why not? Just as a room with a comfortable fire smells comfortable - a room infested smells damp, a cottage with peat rush smells horrid &c.
After a dry spell I can generally smell the rain before it comes - this must arise from sensibility of the nerves to damp."

The above no doubt are caused by the mental images produced by certain smells - or the visualisation of smell.



Monday

FH/R

Tuesday

(week)

Wednesday

W/Pickering
S/KD

Thursday

Friday Saturday

Saturday

July Aug Sep Oct Nov

June

May

Apr.

heat

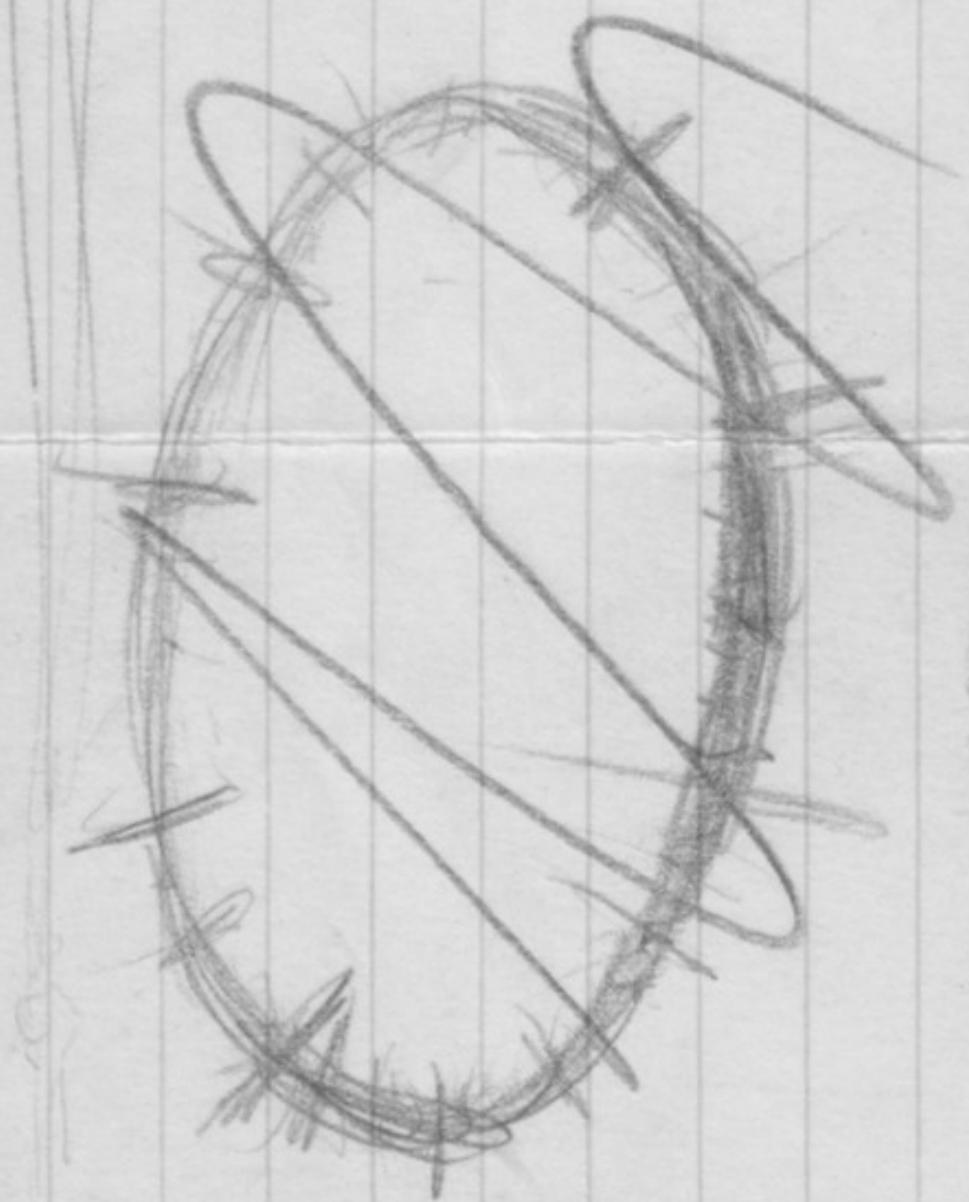
Mar.

"The passage from
Dec. to Jan. is like
the same note in diff.
octaves"

Feb

Jan.

December



Mr Pickering
(Hunting)
of Gisborough
Fraser
Number 42

A 42



Salter Esq FRS
Rutland Gate
Hyde Park
SW 1
London

what a conspiracy must include at least two conspirators. *Dec 26/1853 - page 1 f43r*
Globe **MEMORY.**

Certain feats of great chess players have proved so amazing to the uninitiated world that an interview, on the part of the *New York Herald*, with Mr. Zukertort previous to a chess tour from New York to Hong Kong, will be found interesting. The German chess champion, it seems, finds no particular difficulty in playing sixteen games at once without seeing a single board. "His mind," he states, "is like a wall upon which a magic lantern casts a shadow;" and, even as the pictures are changed in the lantern, so the features of the several boards pass before his mind's eye in turn. It does not seem as if this gift was deliberately acquired, but that its possessor discovered it in himself as to some extent ready made while reading works on chess without a board before him, when about eighteen years of age. Memory in some particular direction certainly appears developed in some persons to an extent that others can only consider miraculous; like "Memory" Woodfall's capacity for repeating, word by word, an entire debate in the House of Commons of which he had taken no notes whatever, or the achievements of linguists like Mezzofanti. But then these verbal memories yield to the chess memory in being, so to speak, permanent photographs, and being free from varied combinations. Words remain in a given order, while the pieces change, and the action of abnormal instinct is complicated by the simultaneous exercise of reason. In many cases, it must be considered doubtful whether feats of memory are any proof of really superior intellectual power. Indeed it has been argued that reason and memory in man are compensating qualities; and certainly the possession of marvellous memory by idiots is by no means rare. But such arguments as this cannot apply to the chess player, seeing that the finest memories have always been found hand in hand with the finest powers of strategy.

under
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Mrs.
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Horses,
Kent,
unner's,
n, Drif-
Horsell
London
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London
; West
anbury
aunon-

E.

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Bryce.
Clare;
dney;
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nity;
non-

Carey's murderer, may still persuade the ignorant that O'Donnell was innocent of wilful murder. Therefore, although the unhappy criminal himself is beyond the reach of legal evidence, it should be noted that the only new fact which has transpired since his execution is that O'Donnell at Dartmouth was provided with tickets both for the Kinfauns Castle and the Orient line. As it was doubtful by which line Carey might travel, the object of his pursuer's double ticket can be easily understood. f.43v

THE Municipal Council of Paris have received a final warning. They are bidden to re-name the Avenue Victoria in honour of the martyr O'Donnell. If they do not, "they will be condemned to-morrow by the Commune of Paris." So prophesies the *République Démocratique et Sociale*, and if it will induce a little peace and quietness in poor Paris, Englishmen will no mind.

AT a public meeting of the Manhattan Fenians at New York, Robert Blissert, a tailor, offered ten dollars to any one who will "fix," or kill Judge Denman. Supposing that Robert Blissert and eight other tailors were chosen as the one man to do the deed, they would each get a dollar and a few cents. Making trousers would be much more remunerative.

IN the columns of a contemporary "Eighty-one ton Gun"—and surely his voice ought to be heard—complains that the Artillery service of the British army is rapidly wasting away. Last year the authorities, unable to fill up the establishment, already too small, abolished five whole batteries. Since then, however, recruiting has so languished, that two more battalions will have to be done away with for the want of men. If this continues, the army estimates will some day be small enough to make Sir W. Lawson the happiest man in the British Empire that was.

ALTHOUGH the Prime Minister finds delight in

Mental Imagery

f44

Mental Imagery Letters &c

This contains letters from

Berry
Benoovotki (only a scheme)
Guenther v. Bothmer
Boroditch
Cyril Butler

Rev A. Campbell
Chaumont
de Cortie (? name)
Monroe Conway
George Darrowin (no Picturing)
E. B. de Fontenay
Glausville
Griffith
Hawes
Helga Henningsen
Major Hertzel
Hilltop
F. M. Holland
Holthouse
Hullah
Lake
Chas. J. Lebrand
Sir Horace Maine
Miss Malton
Mrs Picturing
Vander Pich
Crosson Robertson
James Sully
J. Ward
Col. Yale



University of London, University College, W.C.

The Francis Galton Laboratory
for National Eugenics.

GALTON BEQUEST.

April, 1911.

Benvoroski

f.1



12345

ATHENEUM LIBRARY
PARIS

William J. Berry x p. 15



Sorcery, December 29, 1883.

Dear Sir;

Having read your article upon "Mental Imagery" it has occurred to me that my own experience may be of some service to you.

Some ten years ago many spelling matches were held in different parts of New England. I won several prizes in these contests and think I did so because I could see a mental picture of each word as it was pronounced. Except, of course, those words which I had never seen nor heard. There were many of these as the dictionaries were ransacked for words not in common use. I could form no picture whatever of them. These "eye pictures" were always of words in print and never of words in writing. In most cases the word appeared without any context, but at times, when the word was one rarely occurring in ordinary speech or reading, I saw not only the word itself but also other words and even entire sentences.

On one occasion after a long and exciting contest the class was reduced to four persons and the one next me was given the word "hoy". He had never heard it and asked its meaning. While the examiner was giving it, there

rose before my eyes so plainly that I almost think I could have read from it, a page of Macaulay's History, in which he tells how King James made his escape in a boat.

It was not an ideal picture constructed to fit the word, but was a picture of the actual page as it appeared in the copy I had read some years before.

I have since tried to call up this page but have not been able to do so.

The spelling mania appeared in England at about the same time. If you were to address inquiries to those who were victors in those contests and in general to any good speller I am inclined you would find that the spelling was done from an eye-picture.

I may add that I am a strong chess player for an amateur and that I have occasionally played blindfold games but never more than one at a time. When so playing I see the board when I am making my own move but do not attempt to keep it before my eyes while I am waiting for my opponent to move.

The article you quote from the Pall Mall Gazette is hardly just to Morphy. He made no money by his blindfold play and his games played in this manner while inferior in number to those of Blackburne are far superior in quality.

Of late years I have had work to do which required considerable mathematical study and I now find that my power of calling up mental pictures has become much weaker than it was.

Nothing similar to the number forms mentioned in your article ever presented itself to me.

Hoping that my suggestion may be of some use to you in your valuable researches, I remain

Yours truly
William J. Berry

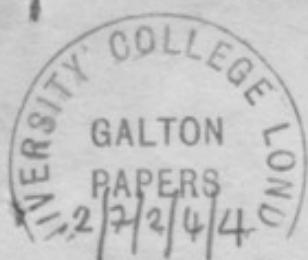
Beverly, Essex Co.

(P.O. Box 430)

Massachusetts. U.S.A



10. Taoistick Terraes ^{Countess of Bothwell}
Westhowne Park F.R.



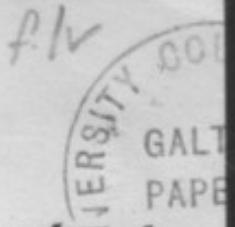
Feb 20 / 83

Dear Sir

As you were interested in my small experiences, I send them to you for what they are worth.

With regard to the "phantasmagoria" I am more subject to them when I am sleepy but cannot sleep, than at other times.

The evening after leaving our kind friend's cheerful society I was very wakeful, and as often as I closed my eyes in the hopes of seeing "Nature's sweet visions"; the preceptional



follicles set in crookedly. I worked
some of them on a chancery
slip of paper, but it is in the
nature of things that the effort
required, puts the appearance
in flight. The annual course of
incubation grows to weariness
and that to drowning, and
then, the original notes, which
I send you, are very radi-
tary. In the copy they are
fairly stated. The appearance
is always (I think) smaller
than Nature, except where the
object itself is small, and then
it is sometimes grotesquely



f. 2c

sculptured. Groups of statuary
do not look like pictures of sculp-
ture, but like the marble or
stone itself: rounded; not flat.
I never remember seeing any
thing in outline; nor is there
any expression or character in
the objects or groups. Sometimes
they are "beautiful exceedingly,"
but I think more often trivial
warriors and commonplace.

To any one I could describe each
appearance (I think) without
destroying the condition; but
when I open my eyes to write
(he it names so incompletely!)
I only know what I have seen,
I see it no longer. Perhaps others

may be favoured with appearance,
on a much higher average or
level of merit.

I venture to conceal my jottings
because it seems more satisfac-
tory to do so, though scarcely
intelligible without the key.

The other matter is different.
It had happened to me more
than once to be urged to write
something. The next morning
I had invariably forgotten what.
Probably I only remembered
the fact incidentally some
days later.

On June 15th - 1878 I kept the
first record of these visitations.
I awoke from a dreamless
refreshing sleep. A voice said
the words, I wrote them, as

A 35

If a child writes a dictation.
How I say a voice, I don't know
a sound, but that I felt my-
self obliged to write down the
words which came. I did not
think, hesitate, or choose. I had
no ~~the~~ opinion, and no satis-
faction. as I had no thought.
I was then mere ^(conscious) agent. I wrote
a word on the paper, questioning
the coherence of what I had just
noted down, put out the can-
dle, and went to sleep. My
mind was not excited by
visions, I was not soaring into
the Illumitable regions of Thought
I was indifferent, calm and
oblivious. Since then on several
occasions I have not had the
means at hand of instant
oblivion; but early in this
month another such dictation

bellow came to me. I wrote for
a considerable time. It was the
same. No crosswords, or choice
of words, or hesitations and
critical amandments. The
"literary" faculty seems dead, or
at least in complete abeyance.
Obedience seems to be the only
necessary condition, and, per-
sonally I feel as much detached
from this strange product of
the mind (?) as if I had never
seen the words before.

Having experienced that condi-
tion called Aphasia - or a
form of it - (for I believe, strictly
speaking, Aphasia is the want
of the right word, not a spon-
taneous verborrhysis) I said

little attention to the matter,
thinking it might be physical;
and so it may be; only that
my Dietation lesson ^(as applied here) has nothing
to do with ill-health. I am
suddenly awakened, I write
my little task, I go to sleep again
and the next morning the
paper on the table shows
me what has taken place
but in the meantime I have
left away all memory of the
words. I read them as a strange
night. They are unknown to
me.

I found that I could not very
well tear the page out of my
S&P book as it was closely
covered with personal

f4v

matter on both sides of the
brain; but I copy the exact words
as written at the time; in ap-
-part, a facsimile.

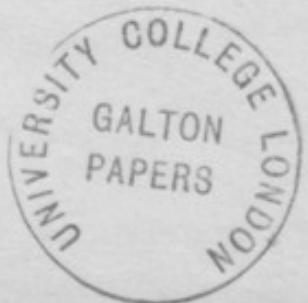
I think this is as clear an
account as I can give of the
matter; I only wish only ex-
-periencers were more worthy;
They bear a very shabby little
contribution towards the solution
of that great moral and
mystery the conditions and
functions of the brain during
sleep. But little pabbles make
the Pyramid.

I am dear Sir

Faithfully yours

Maurice von Bothmer

—



- p. 55
1. A procession of shields, white silk framed in gold, bearing different monograms in Greek, Hebrew, and Gothic letters brocaded or woven in the silk.
 2. A number of elderly women with gold circlets, each with a mace - Myrtles, on their heads; all making the same mournful intonation.
 3. Rows of scrubbing-brushes as in a chandler's shop.
 4. A pair of large gray slippers trimmed with fur.
 5. Smelling-bottle, green at one end white at the other.
 6. 3 large onions, on a staircase; they drop from stairs to stairs, very slowly; and when the last disappears, there remain no more.
 7. Bulrushes - larger than nature growing on the horizon of a stormy sea.

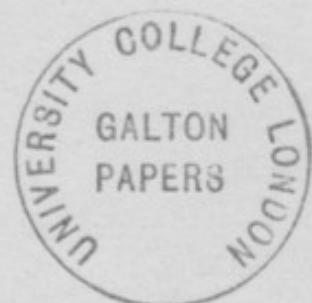
- f. 5v
8. Trees and silk florentine hose,
inflated, but not worn by any
human, walking prosaically
but with grotesque quotifications.
 9. A decoration, of organza lamps
and cauliflower, placed alternate
ly; the cauliflower surrounded
by scarlet cacti.
 10. A small man, in very gaudy attire.
he looks at me, sadly, as though
claiming my attention. His dress
is ridiculous, but his face very
pathetic and powerful.
 11. A pale green satin robe, of classic
shape, clasped on the shoulders
with much grace. one star on
the breast
 12. Sir Walter Scott. Profile. full
face. profile
 13. a group. Two nymphs; one holds
a rose, and looks down; the other
a pomegranate flower, and
looks up. Between them

stands an old man with scales
in his hand, and motions them
to throw their flowers into
the stalls at either end of his
balance.

14. Immense whortleberries, like
forest trees. They look as though
cast in metal, burnished —

15. A full moon. The surface
seems to peel, like an orange,
but the covering grows up as
quickly as it is stripped

16. Two Quakers, with green
hubellas. They are dressed in
true colour, wear Evans' shoes,
and keep opening their sunshades,
and smiling as they look at me.



17 - 18th. July 1883.

I was total and much have
fallen asleep —

Copy of notes
made roughly in
pencil. 17-18.
July. 1883
ShoB

" I awoke just after 2. am June
 16th 1878, and sitting up in bed
 lit my candle. I felt obliged to write
 your words. I had no thought.
 They stand at the head of this
 page. Immediately however the term
 I wrote " If this is delusion they
 will see it tomorrow? I awoke
 perfectly well, and only remem-
 bered the snatches when - in
 despair - I saw the paper.

I can conceive that thing to be,
 When, the dread Angel, summoning me
 To follow o'er a midnight sea,
 With words that roll as Tempests sweep,
 And I arising from my sleep, —
 Compelled to cross the troubled deep
 By words that sweep, as tempests roll, —
 Should, wrapt with sudden passion, cry
 In ~~this~~ ^{the} sublimest ecstasy,
 O Grave! Where is thy victory?
 And where thy sting, O Death, since we
 are one - mixed soul in soul!"

I may say of the foregoing as
of the pencil sketches enclosed,
that they are purely impersonal
and do not, even remotely, bear
upon anything concerning myself.

Thy ^{I withdraw} Feb 21 | 13

The words (in pencil) I don't
destroy this "cc. you will receive.
I have so many papers about,
that my daughter and the maid
are accustomed to see a
note, on anything they are
not to burn. I think I under-
stand you preferred the original
and therefore I send it -

ShoB

As I have no copy, would
you forgive my asking you to
return it -

- framed in gold
for
1. a procession of 8 white ladies
with monograms woven in brocade
 2. elderly ladies, gold circlets, set with
amethysts -
 3. scrubby bushes -
 4. grey slippers lined with fur
 5. a smiling bottle green, over size, which
6. 3 lions rolling down hill metaphor
 7. blushing grecian out of the sea
 8. 3 red silk stockings +
 9. orange lamps and camellias alternately
 10. a small man with wise face but ridiculous
dimples. He looks at me and seems to claim
something. The face a sad but gay story.
 11. a green faun 9 ft of classic shape clasped
on the shoulders with sweet arms. * broad
 12. Sir Walter Scott. Proper, full-faced, poorish.
 13. a sylphette 2 yrs old in rose flower -
 14. immense wheatears like trees - gigantic forests
 15. a full moon. The surface peels grows up and
peels.
 16. 2 dwarfs with green umbrellas w^{ch} they
open and shut, smiling -
-
- D. a group of 2 woolly girls one has a rose and looks
down the other a pomegranate flower and
looks up to the old man who stands between
with scales and points from his nose many flowers in
the quills at his sides and
- + 3 red silk stockings inflated but
not worn by any human; walking poorly
ally with grotesque antics

f.9v

17-18th July 1883.
original notes



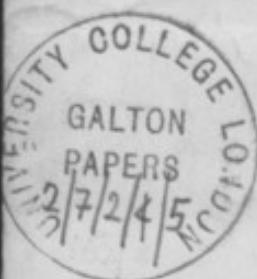
answered
Feb 27/12

[Browditch] A.D.

Harvard Medical School,
North Grove Street,

Boston, July 9th 1872

Mr Francis Gallin



Dear Sir,

While lecturing
upon the physiology of
vision to the medical
students not long since
I alluded to the subject
of the visualization of
numbers & spoke of the
cases which have been
described by you & others.
After the lecture one

F. W.

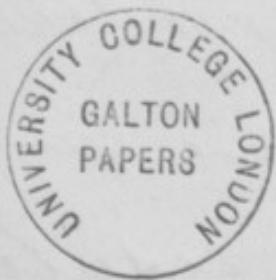
mental image into concrete form.
He tells me that he has always visualized numbers in this way since he has been old enough to think about the subject at all. He has often wondered whether he should live long enough to hear the matter alluded to by anyone. He has hesitated to speak about it himself, fearing that it might be evidence of some thing wrong in his mental operations.

F28

of the students came to
me & told me that he
had always been in the
habit of visualizing
^{from 1 to 100} numbers, along a line
described in space
lying wholly in front of
him & below the line of
vision. I asked him to
bend a piece of wire into
the shape assumed by
the line of numbers &
the accompanying stereo-
scopic view will give you
a good idea of the result
of his attempt to put his

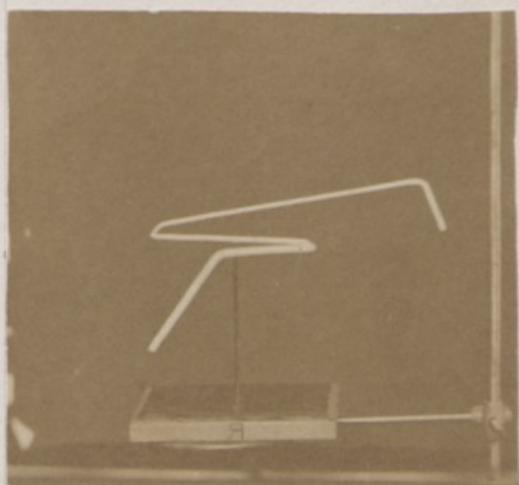
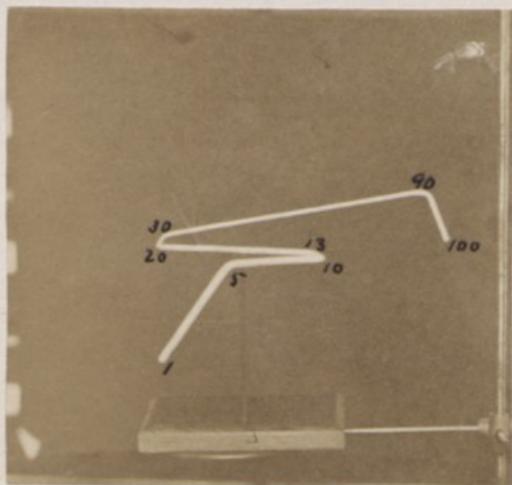
f2v

I venture to trouble
you with this communica-
tion, for I believe that
curves in three dimensions
are not very common?
(Am I right about this?)
and because this method
of stereoscoping photogra-
phy seems to me to be
well adapted for the col-
lection & comparison of
data in this field of research.



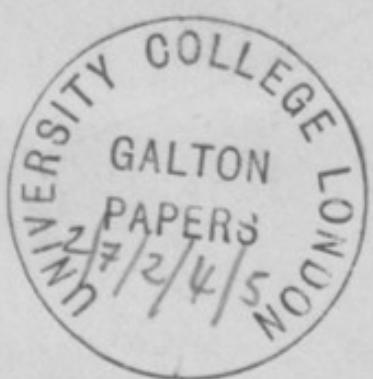
Yr very truly
J. P. Bondieh

A3r



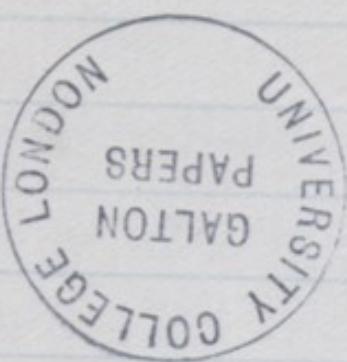
4.3v

Contributed by
H. P. Bowditch
Harvard Med. Sch.
U.S.

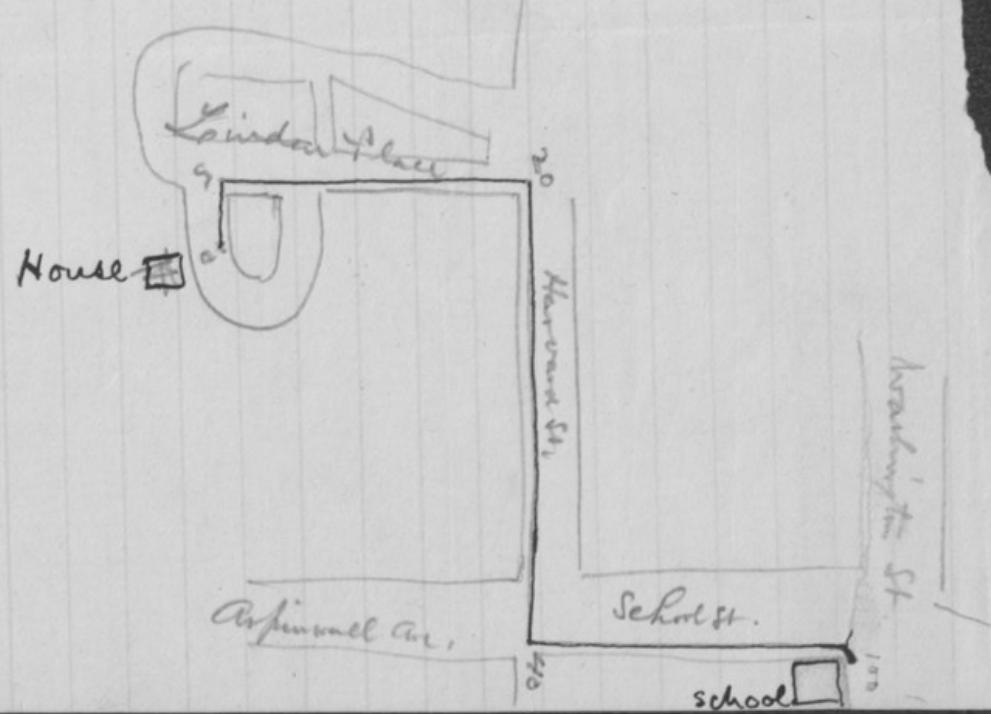


Contributed by
H. P. Bowditch
Harvard Medical School
Boston

f.4r



f.A.v



P.S. I happened
allude to the subject of
visualizing numbers in
conversation with a cousin
of mine this A.M. & he told
me that he had always thought
of numbers as arranged
along the road between the
house & the school which
he attended as a child. He
drew the enclosed diagram
to illustrate his meaning.
He thought the association
of numbers with localities
might have arisen from
the habit of counting objects

f5v

and constantly in the habit of dealing
with numbers.

To my wife
H. P. Blandford



16

along the roadside on the
way to school. This
scheme of numbers does
not assist him in compli-
cated arithmetical opera-
tions but if he has occa-
sion to remember a par-
ticular number he locates
it on the road to school
& is thus better able to
retain it in his memory.

It is proper to add
that my cousin is a
man of about 35 yrs.
of age, a topographical
engineer by profession.



A.L.

Julian Stie

My dear Uncle Frank,

As I promised, I now
send the enclosed news. - I hope
Aunt Louisa & you are quite
well. And with much love

In great haste

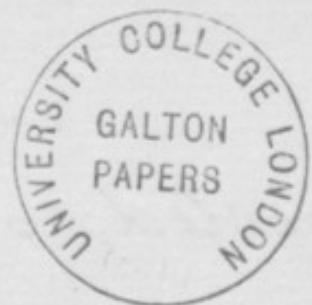
I remain yours affec^{ly}

Cyril Maudslay Butler

10 May 1883

Cyril Butler

f.2r



Now:

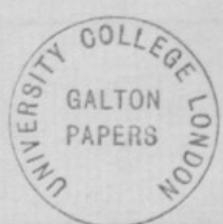
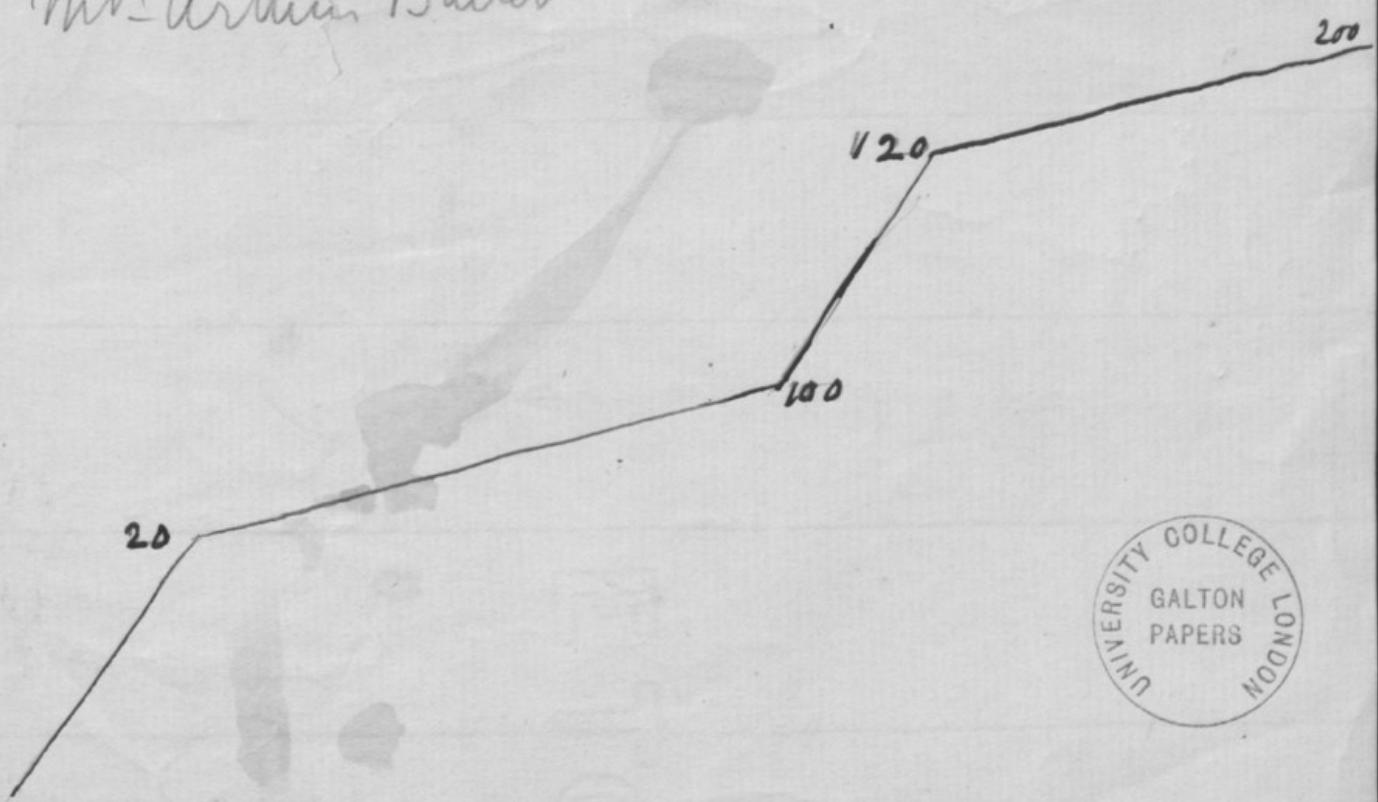
I was walking down Belle Eard on the 7th May 1883 thinking of different things as I went to lunch when all of a sudden I looked up & saw a big man evidently an American & this changed the course of my thoughts & I instantly thought of Yuan (known as No. 1) & began wondering whether he really was in America or whether, as there had been rumours, he was in England other. I imagined a notice on the Evening newspaper placed & after thinking of one or two which

I rejected as being improbable
I settled on the followg. "The
Whereabouts of ^{No. 1.} ~~Miss~~ ^{Mrs.} "I was
enough when I reached the
Strand, the newspaper placard
of "the Globe" contained the
above notice, not last, nor in
the middle, but first, and this
happened all in less than two
minutes -

Cyrus Kendall Butler.
May 1883 —

Mr Arthur Baller

A.3



Kam Seaver & collected

f.4



-revive recover reproduce
recollect

315. Note as to the difference
between a sensation & the recollec-
tion of a sensation

Touch sensation

Dough, putty, gum - crisp,
a dead leaf, grape hair - walking
through grass.

Campbell
1877
f. 15

(1) The Rectory

Knifton, Grantham.

March 18.

15.

Dear Sir I trust you will excuse
the liberty I am taking, if
you should do me the honor
to read what follows.

After reading your Psychological
article - in the March No. of
XIX cent. it has occurred
to me that a comparison between
the condition of the deaf &
the blind, socially considered,
might lead to some curious
Psychometric facts.

I have the misfortune to be deaf,
deaf, that is, as to close General



conversation, and to receive
very few ideas during walking
hours through the town.

Consequently I have been almost
entirely selfsupporting as to new
ideas. In conversation, since I
cannot carry a what I do not
know I must constantly originate.
Let a man who has ears - stuff
them, as Algiers did, for a week
or more. He will be sensible of
the utter blank left in his mind
by the cessation of sound.

By that channel, usually to
rich, not one idea will come
into his head.

Let him unstuff his ears and
instead of the "busy hum" of
certain ambient ideas will

revive his torpid brain. and
the greatness of the contrast will
at once be felt -

I am often tempted to say at
of fortunatos numero sac libo
norient!

Surely in society the blind
man, with a acute sense of
hearing has infinite advantages
over the deaf.

I am your faithful p^r

A Campbell

Francis Saltin^q
Rector of Knippton
FRS. 000.

P.S. I am told of a curious
fact - doublets occurring to this
as well as myself.

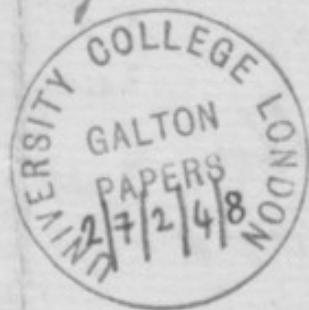
While utterly unconscious of hearing

f2v

a sound I speak of a subject
or mention a name which
has just been mentioned ;
just as one inostantly
speaks of a person who
is about to appear.

Is there any account
for these facts?

There may be a subtle magnetism ?
on the approach of a human
body unseen. but I cannot
account for my experience.





F.3r

Knipp to
Grantham
March 21. 77

Dear Sir I am much obliged
of your kind letter.
I am told that I sometimes
mention subjects - rather
than repeat ^{actual} words - which
has just been subject of
conversation - so immediately
before, that people wonder
at my starting them as if
were apesh. This has happened
presently enough to lead
me to think that it is
more than an accidental
coincidence of ideas, but

not often enough to be called
a "habit"; and I thought I
would mention it in case
you had noticed the same
occurrence in others.

It may plausibly be an
accident - but it is strange
if it is - that one should, not
once only, ^{but often} have the same
idea occur to one mind, which
other has at that very time,
unknown to him, ~~seen~~ ^{discovered}
I am certain that it does
not arise from "noulli's wedz"
for I am shortsighted &
do not wear spectacles &

& not always use a step
 so that I now watch the
 mouth as a help to hearing
 indeed I am very slow
 in that way & make a lot
 of mistakes or ^{through what} ~~medium does it?~~
~~come into the mind?~~
 The result of deafness is
 however curious - & shows
 a great absence of mind (?)
 when they do not hear things
~~they~~ ^{suspect they} ~~think~~ ^{they are safe} —
 is the fact? of the ~~black~~
 hiding his head in the
 sand analogous - He cannot
 see & therefore he thinks?
 no one can see him. but
 that would argue therefore

f4v

The question is for ask and
somewhat difficult to answer
as to imagining the sound of what
one reads - I think every one
derives pleasure or other feeling
from what he reads ^{partly} ~~but~~ for
the imagination of the sound.
You read a couplet of Claudio
Harold & then some of, say,
Browning - one is not more
difficult to read than the
other - but the one gives you
pleasure & the other portion
pain - why? because one is
sweet & soft & beautiful -
(as my, be) and the other is
rugged & harsh - i ugly.
I think even ~~to~~ those who are
not deaf, sound has as much
it is also true that one is easy to understand
the other is, to say the least, not so -

f.55

as sense & do with the effect
on the mind of reading - (to deny
that is my idea - of course)
soundly runcase would
give no pleasure - tho' we have
heard of an old lady who was
much moved by the recurrence
of the word Mesopotamia
in a sermon - and Greek and
Latin quotations are greatly
appreciated by them who do
not understand them.

One offering Taylor sermon
full of quotations were preached
at Glynneath in S. Wales
where, if there were any
of the common people present
they could understand
nothing at all the English.

As I said. it is my misfortune to have a very bad ear & to be very fond of it. Day & night fortune, & it is so, being deaf. I naturally therefore much mind with pleasure - & I am sure that it is of all instruments the most powerful over the various emotions of the mind. smellet modes, or other - in accord' lots tones written rec sound & per fers -

In the hours of 48 at Frankfort the nob besieged the Diet house which ^{now} is a round buldy castle surrounded by a shell.

Some thousand members were inside

RS
LONDON

f.65

someone had the happy idea
of sending the best military
band to march down the
principal street (the 3rd.)
at far off. as it drew
within earshot the crowd heard
it, wondered why it came &
gradually melted away
in search of it. to the
deputies escaped.

I was in Frankfurt
in 1848. I believe this
to be a true story.

Many thanks for letting
me know of Mr D'Alby.
I am, as some importers
are like politicians - well

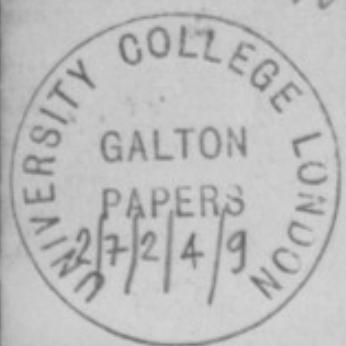
Know to many aurists

Affloigng to the
length of this very hurried
note I am Your faithful

Campbell

I shall be coming to stay in
London in May - at -
7 Lower Street -





Maurice Conway

f/15

INGLEWOOD,

BEDFORD PARK,

TURNHAM GREEN.

May 10

My dear Mr Galton,

I have delayed writing to thank you for your book because I believed I would be able to read it through pretty soon, with studious care, and write with some knowledge. But I find that it will be some little time before I can take it all in. Postponing then that letter I mean to write I will not longer delay

thank you for a
book which has done
what few recent books
have done - awakened
certain new trains
of thought in my
mind. I congratulate
you on having completed
such an important study.
- While I am writing
let me mention an odd
incident, the only instance

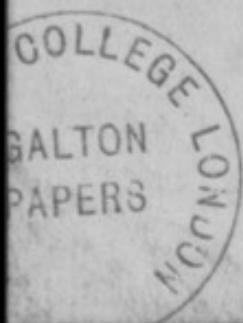
in which anything inapplicable
has occurred in my life. On ^{the} evening
Tuesday ^{afternoon} last I
dined with a number of
members of Parl^t, all of
whom believed the Govt.
w^t have a small majority
in favor of the Affirmation
Bill (from 7 to 25) My
own prophecy was sanguine;
I said 30. I never heard
a ready statement or
calculation looking to an
actual defeat. I went to
bed as usual about 11,
having seen nobody. On
Friday morning when I
awaked I said to my
wife:- "I dreamed that
the Govt. was defeated by

f2v

two or three votes. As
dreams go by contraries
let us hope the Bill has
passed by a large majority.
To my amazement I found
at breakfast that the
Bill had been defeated by
three votes. I had ^{or read} not
heard any such figure
used in any calculation
of the result either way,
indeed had not heard a
single anticipation of the
feat. I cannot explain it
at all.

Ever faithfully

Moncure D. Conway





Chamont

f.t

WOOLSTON LAWN,
SOUTHAMPTON.

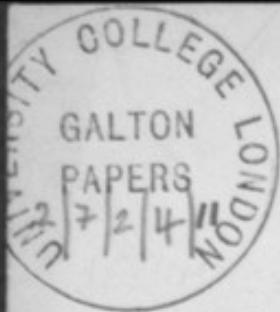
April 7th 1878

Dear Sir,

The paper "On the value
of Taste" - was published in
Volume IV of the Army Medical Report,
published in 1864 (containing the statistics
for 1862) - page 355 - I am
sorry there were no separate copies of
the paper printed off, or I would send
you one, but I should think you will
have no difficulty in seeing the book
as it is a blue - book - faithfully yours,

Francis Galton Esq. F.R.S.

F. de Chamont



? de Cortie

f.15

33 West 25th

N.Y.C. Nov 10 1877

My Dear Sir

I have to thank you very cordially for your letter of Sept. 8th. After much consideration of the subject I conclude to write again hoping that I am not troubling you much more than you find.

First, however, regarding the experiments you proposed respecting the red dye ofail completely. Therefore return

to pp. 85-6 task what is
the real difference between
the image produced by mem-
ory, (that is if any image is
produced,) the results of vis-
ualization? You adduce in
your letter but one way in
which the optic centre may
produce an image, while I
read over over again those
portions of your book which
seems to teach that real im-
ages are formed in visu-
alization. Why may not
visions of past scenes be

f.2r

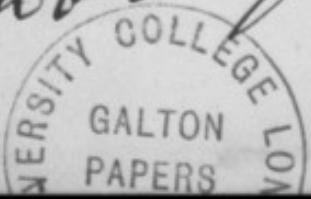
Stored up in the Brain like
sounds in the metallic cylinder
of the Phonograph? I have
an idea that sounds may
be stored up in the brain
as in the phonograph, but
this is apart. The thing I wish
now is to know the real nature
of the alleged images discussed
on pp 85-6. & elsewhere
In the case of the Colours of fig-
ures, it is the work of memory
or memory, or it is not. If
not what is it ~~not~~ show
shall one get rid of me

charge of the "initial fallacy".

"Now you, observation
may seem wide of the mark,
yet I am willing to exhibit
any amount of ignorance
if thereby I may get a
firm grip upon a solid
fact.

I have to begin at once
in preparation of a paper on
"Apocryphology" & I hope if
I do it to avoid all errors
in this direction. Hoping for
the benefit of your further

B.T. De Carter



J. Darwin

Friary College
Cambridge

A/15

Mar. 6 80

My dear Galton,

Yr question about the ship & horizon does not present a very clear idea to my mind. My scale of figures is in dream-land & I cannot say that it corresponds at all to any part of my visual field. The nearest approach I can make to an answer is to say that I am standing a yard or two or foot or two on one side of a single metal of a railway line & that 10 is just a little way off but within distinct vision - but I think your statement is very memory

415

paper when he done copying them & I
certainly will send one to Miss Galton too
Reginald D. has sent me one of Dr. D's
trading cards. I shall be in town in about
10 days or so for some days I think
No trace for more as I must go to dinner

Yrs
G H Darwin



f.2

as it is impossible for me to assign an linear scale of length to my scale of numbers. I think perhaps that it is sometimes larger & sometimes smaller.

I think yr dinner party will be amusing ~~but~~ paper too, but I hardly feel the spirit to come to London - for I have recently caught cold & am rather flat tho' not very bad.

I wonder whether you are genealogist
enough to care for the Darwin
pedigree - It has been traced
back to a substantial person
of Market C Lincoln who
must have lived in about
1500 or a little earlier.

I will send you a copy of the

With millions & billions
Sleep these themselves
as stars-

F. Y. Edgeworth

f.15

SAVILE CLUB,

15. SAVILE ROW. W.

March 15



I am

yours truly

F. Y. Edgeworth

Dear Sir.

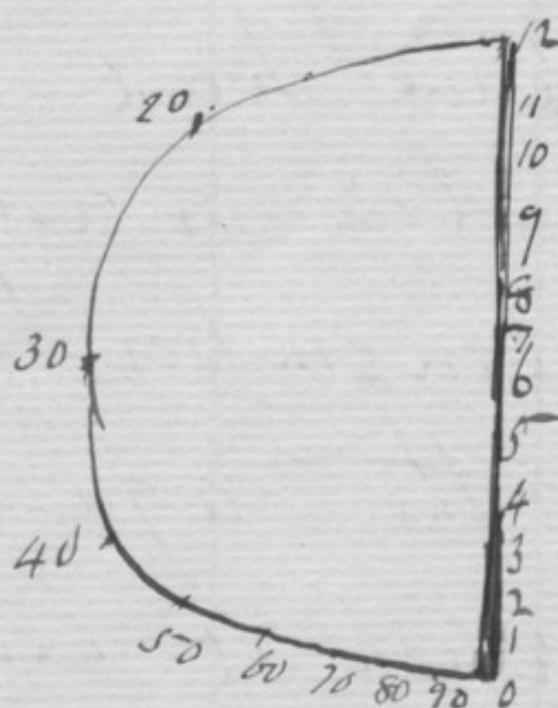
(In the margin)
My friend Mr
James Tully whom
I accompanied to
the Anthropological
Society last Tues-
day tells me that

f. 1v

you would be glad^{f. 1v}
to have information
bearing on the subject
of your lecture. And
indeed you express this
wish in the article
in 'Nature'. I shall
therefore describe my
'number-carve'. It is
shaped like a hunting
whip the handle
of which is held

f²⁵

vertical while the end
of the lash is held in
the hand, a rather
something like the form
which the whip would
assume if gravity acted
horizontally. Thus:-



I may make the fol-
lowing remarks suggest-
ed by the points which
I'm noticing.

The curve was left-
ward.

There is a point of
discontinuity at 12.

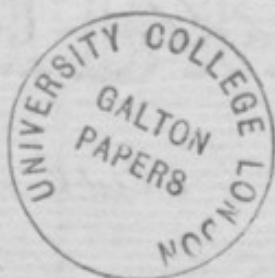
I have had this
presentation as long as
I can remember certain-
ly at the age of
four when it used to



2 F. Y. Egerton

be my amusement f³r
trying how ^{SPURS CLUB.} high I
could count.

The hundred I
think of as along the
digit-line (the whip-handle)



1000
900
800
700
600
500
400
300
200
100

The thousands up
to 100,000 along the
curve (the lash of the ^{curse} whip)

f3v.

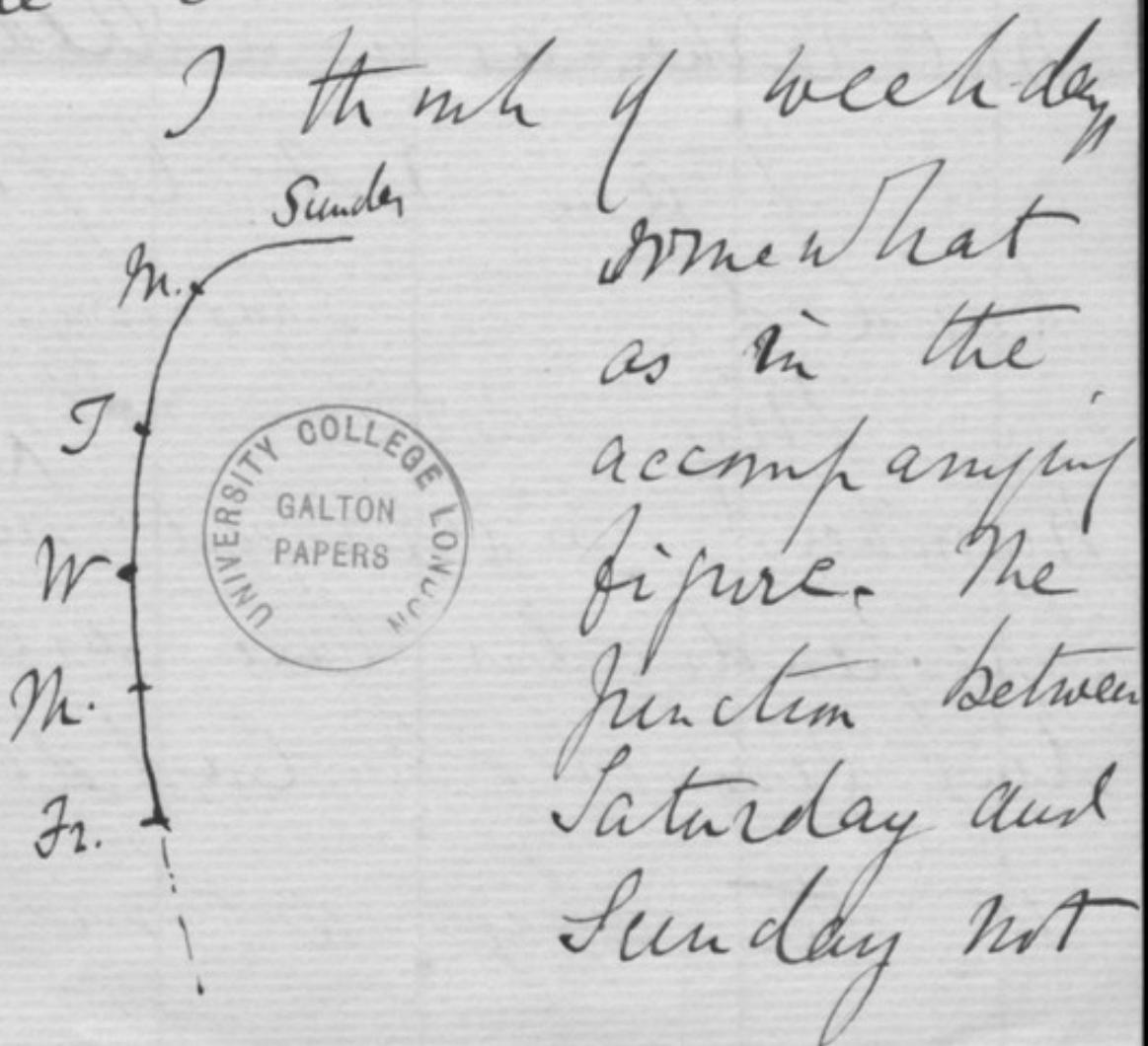
When attention is fixed
on a particular part
of the curve it seems
slightly to alter its form.
Each decade appears
when considered by itself
quite a straight line
and of greater length
than when viewed as part
of the curve. (Mr Scher-
ter I think made a
similar observation.)

1 The latter decades

F. H. S.

are, as represented in
the figure, somewhat
huddled up.

I arrange the
events of my life and
of each century along
the curve.



very dear. &

f^{4v}

I do not think
of the number curve as
localised / except so far
as to speak of a vertical
and left hand direction
imply or directional fixing
but rather as in a dream.

I am not left
handed. ^{I have always thought} My sister thinks of
~~Mar 29/60.~~ numbers as arranged on
a perpendicular line ascend-
ing like Jacob's ladder
~~now~~ to the sky where

Many thanks for yours of the 16th
I shall send you in a few days
a larger drawing as you suggest with
any further information which may
be supplied by near relatives.
You are quite at liberty to cite
my name. I have no memory
about the origin of my name
from but F. G. Edgeworth
18/3/80 Savile Club - 15 Savile Row

POST CARD

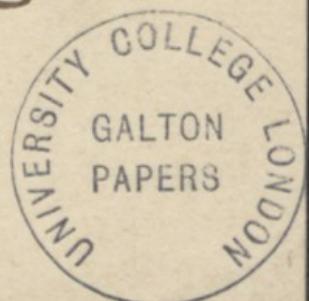


THE ADDRESS ONLY TO BE WRITTEN ON THIS SIDE

Francis Galton by F.R.S.

42 Rutland Gate

G





F. G. Stegworth
F.G.T
Janit Club

March 30

Dear Sir
I enclose a
drawing of my
curve giving two
forms between which
it moves. When
the mid runs

f6v

Rapidly over the
curve then the more
regular form (2) is
apt to present itself
but when attention
is confined to a
decade it straightens
itself as in (1)-

In consequence of
your last letter I
thought it best

A75

to write to my sister
again to avoid any
mistake - I repeat
very much this ad-
ditional delay. I
understand that my
brother (my aff brother)
has not a curve or
line. My cousin
Mrs Butler will
doubtless be able

FFv

to give you some
further information
about the family phy-
siology.

I am

Yours faithfully

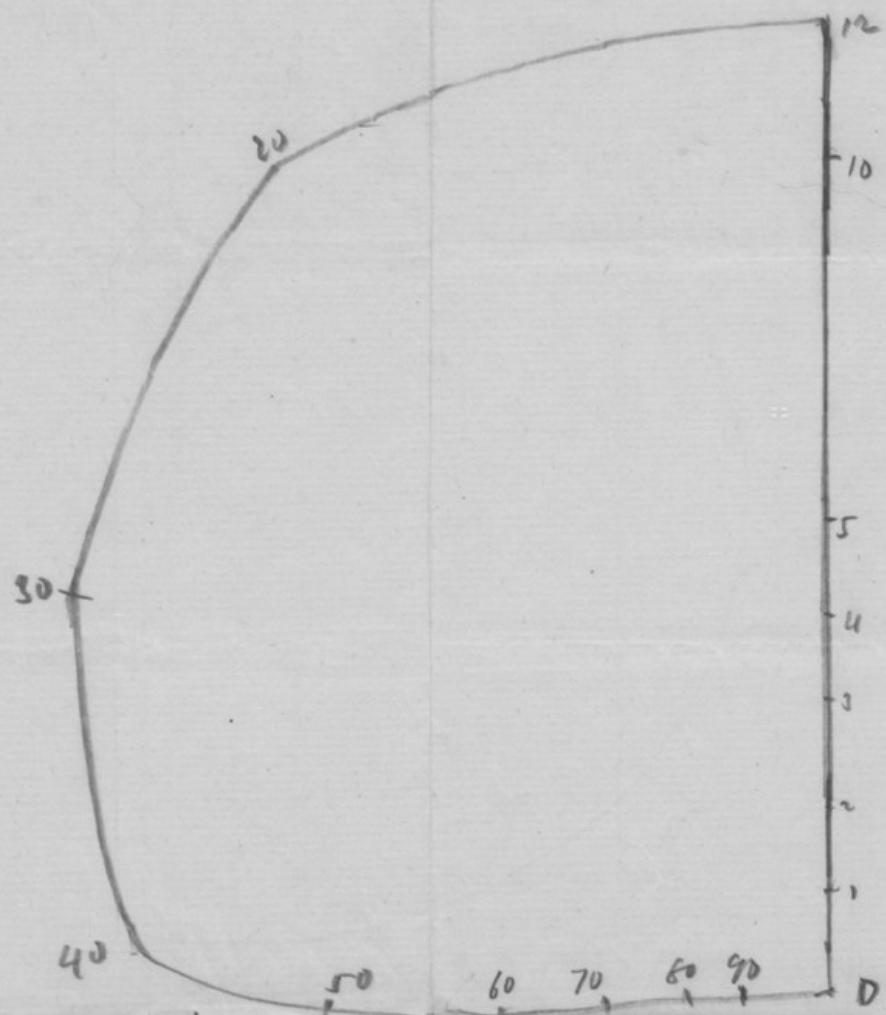
F. G. Edgeworth.

P.S. I think I said
in my last that the
later decades 50 - 100 ap-
pear somewhat more expan-
ded when considered separately.
Mr. Schuster said something similar

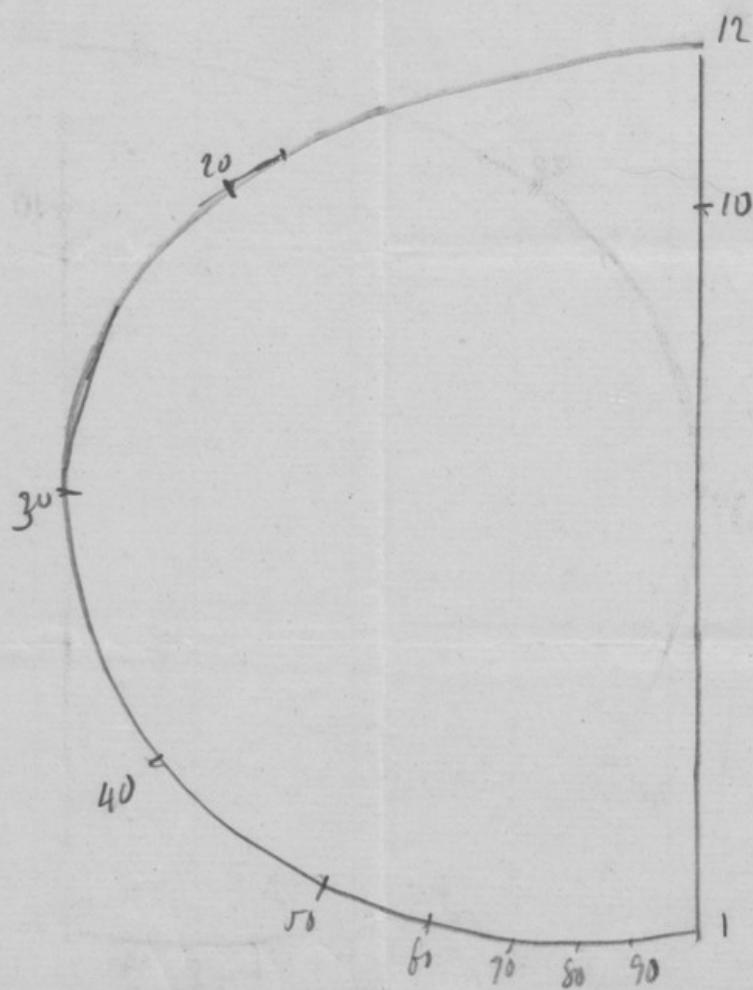
F. G. Edgeworth

f.8r

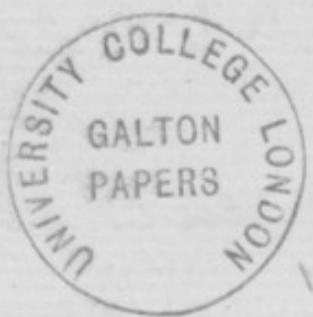
(1)



f.8v
2



7 y Edgeworth
entomology Saunders Paine Club ¹⁸⁹⁵
Paine Row
April 3



Dear Sir
I send herewith
the number-line of
my sister Mrs Lander-
son (née Edgeworth).
It consists of a single
line running from earth

F.G.V

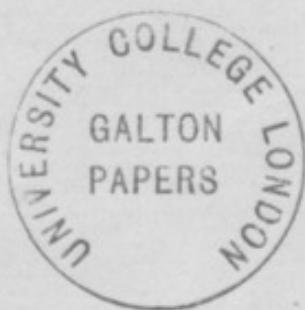
to ~~heaven~~ sky. I have
ascertained by repeated
question ~~the~~ the accuracy
of the proportions marked
in the line and stated
in words. There seems
to be some sense of
interruption at 10-12 once
but not consistently de-
scribed as a 'notch'.

I repeat extremely

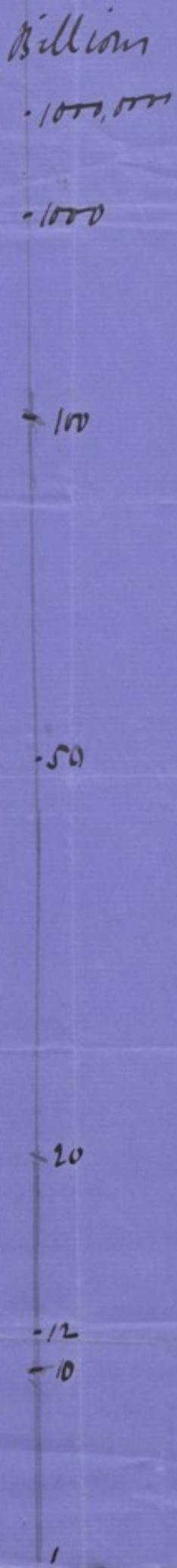
to have kept you so long waiting for such trifling information as it has been in my power to supply.

I shall read your new article in Nature with great interest

I am
Yours truly
F. Y. Edgeworth.



Mrs. Sam Lengton
Mrs. Esty Smith (filed 7/4 Colworth)
Com. by Miss

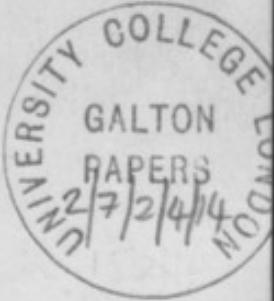


10 halfway between 1 and 20. 1-20 shorter than 20-100. 50 halfway between
20 and 100. 100-1000 shorter than 50-100.

E. B. de Fontblanque

f.15

April 29. 83.



Mr

Your very interesting work, & more
especially the chapter on colour
associations, tempts me to
communicate to you a personal
experience on the subject.

A daughter of mine then about
five or six years old began to
associate colours with various
ideal ^{objects} & more especially
with days months, countries,
languages, sometimes also with
moral qualities — for she used to
say that she felt "yellow" by which



The meant idle or dissipated
to exist herself. — Her brothers &
sisters used to laugh at her
& by this means gradually
weaned her of the habit of
calling Monday "Blue-day",
but after the bad attained her
sixteenth year she told me
that "in her own mind" she
always thought of those
objects by their colors, though
these were more ~~mixed~~ than
they used to be. — At a still

Later found the remark to
be quite inadvertently after
having taken a lesson in
Italian, that she was getting
on so well with her ~~pink~~ "pink".
To show she had always
associated with that language
this person was known:

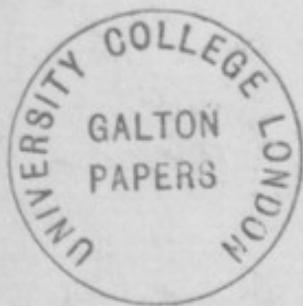
He has now / 33 years of age/
Cantiby only from this fancy
that one of her children has
acquired in the highest degree.

I would mention that

f2v

The reader associates colored
with numbers, nor though any
fond of music, with sounds;
but as a delirious offer, I will
tell there were a few very
few colored thus people know
of, & this "my portfolio"
had ever contained. —

Trusting you will excuse
this intrusion, I remain
With best regards
H. M. Daublaupre.



British Museum. Jan 16 ~~2000~~
f.15
My dear Sir. I am greatly obliged
for the copy of Nature you have sent
me. I have distributed all your
schedules, and could easily dispense
of several more. I think I have
noticed that the faculty of visual
is up in many instances, corre-
lated with that of acquiring lan-
guages by the ear: it might be worth
your while to inquire with Mr.
R. Garnett.



Power?

Richard Garnett.



f.2

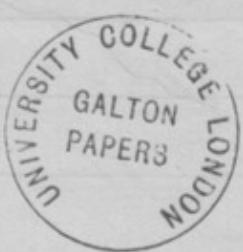
Power of Visualising Print. I acquired the ~~faculty~~^{power} of reading at a very early age, and read incessantly. For several years every word I uttered appeared before my eyes in print, the letters apparently floating in the air. I took it for granted that it was the same with other people, and was astonished when they not only disclaimed the possession of any such faculty, but disbelieved that I possessed it myself. At this time I had no companions out of my own family, which was a small one. In a few years, when from associating with other boys I talked more and finally read less, the faculty gradually disappeared, and I could only see the spoken word in type by a distinct mental effort.

Mental Arithmetic. I can make pretty long calculations, if requiring only a knowledge of the fundamental rules of arithmetic, in my head by what is probably an unnecessary tedious process. In so doing I do not picture the numerals to my mind's eye, either as figures or as tangible objects. I could do so to some extent, but should not see enough at once to be of service. If I were asked to multiply 1150 by 384 I should mentally multiply 1150 by 100, multiply the product by 3, add $\frac{1}{3}$ of this, dividing it by four to get the quarters and casting away $\frac{1}{4}$. This would give me the product of 1150×375 . I should then multiply 1150 by 9 and add the product in, and the result would probably be correct or nearly so. During the whole of this process I should have no visual perception of the figures except by a distinct effort of the will. It would give me less trouble to visualize the multiplier and multiplicand than the product. I

f3v

have always been very backward in
book arithmetic.

R. Garnett.





fDr
Fopsham

Dear Sir

I have had some photographs copied and forward them to you as I am anxious to make my paper as complete as I can.

I ought to have said before that I inherit from my mother the power of seeing things in my mind, I suppose it is ideality. I remember my sisters and I looking at each other with consternation when my mother was graphically describing some incident in connection with a little boy in her journey to London. how she had never been to London, it was my sister who had told her this incident long ago! And then I was in India, my sisters said she described my house (from my letters) as minutely as if she had seen it. I thought of this vivid vision right, when I, in India, described Abram's picture of Christ in the Temple, even to the colours of the dresses & ornaments of the

f/r

poes. But, said my listener, when did you see
that picture, it has been exhibited since you
left London?" Then I considered, and knew that
I had only read a description of it. Often I am
obliged to think whether I have really seen a
place or only a picture of it, and more,
if I read anything that interests me much
I immediately see the whole thing, even places,
and this remains a perfect picture in my
mind. I remember one especially from the
Nibelungenlied. The bare footed ragged princess
and her maid meeting her lover as he stood
on shore. I have seen no picture the memory
of which is more clear to me than that
which exists only in my mind. Truly in
the next world I shall be an artist!
There is another thing I must tell you. I do
not think you will say it is nonsense, I feel
that nothing is nonsensical because we

do not understand it.

f25.

I think it must be about sixteen years ago when I first noticed this. On awaking in the morning I sometimes saw behind my closed lids a lovely pattern like a rich carpet or a lace curtain, at first I thought I must have seen such a thing somewhere, and the image was fixed on the retina, but as time went on, and the same thing occurred again and again, I became convinced that it was not so. Perhaps weeks pass and then it nothing. Then again I see beautiful arabesques or a perfect pattern of flowers & which I am quite incapable of drawing. Twice I saw on opening my eyes a broad slice on the ceiling which sent out black rays, and I knew somehow that it was from my eyes. By directing my attention to these forms another thing ^{occurred}. Behind my closed eyes

f2v

an intense clear light often appears. I began to think that there must be electricity in the brain, one morning I saw a large, clear ball of light, with a margin of little black dots, which moved as if they floated, but did not move away from their places, below, there was a fringe of seeds, after a moment or two I became convinced that what I was looking at was my own eye! Then I thought, what is it that sees? After all the eye is only an optical instrument, something looks through it - well one morning, lately I discovered how those patterns were formed. I must say that when I am in the dark it always seems to me that I can see the atmosphere, the air is filled with innumerable globular points in rapid and constant motion, and here and there a speck of light, like an electric spark. Behind my closed lids also, the black disc I see is always in rapid motion, never quite dark - the morning when

135

but kept my eyes shut.
I awoke. I saw a confused mass of little
black dots, shapeless but rapidly moving.
Suddenly they separated into lines at regular
intervals, then cross lines, forming a diamond
and in an instant there was the pattern
of a carpet, with clusters of roses and leaves
at the points and a smaller rose at
the sides — now I know that if I were
to try ever so much I could not draw
such a pattern. I opened my eyes suddenly
from my sleep one morning, and there
by the side of the bed seemed on
exquisite bit of carving in light wood
a most involved pattern, among
which a Lily turned back on its stem,
it was gone in a minute but how
came it there? How is my brain able

to form beautiful shapes of itself, when I am
not able even to imagine such things
consciously? I can imagine groups and
faces, but not elaborate patterns -
One thing more. Sometimes I see very brilliant
points of light which fall like spray, springing
up again. A little while ago I saw two small
waves of most brilliant light, the most
exquisite lilac, they rushed together and
threw up a shower of diamond spray.
Did I look at the very source of life? Was it
electricity? Where was it? In my brain
surely but where? I do not know, I am
puzzled, but I am sure there is something
to know - I said to a scientific man to
 whom I wanted to say all this. "You know
if you press your fingers to your eyes

you see a light". "No I don't," he said
f.2v f.24

If course I could say no more -

But you Sir do not pass over as trifles
any facts such as I have mentioned
I could say much more but all of the
same kind, but I am afraid of tiring
you - Sometimes weeks pass and
there is nothing to be seen but the
rapid globular motion which whether
I shut my eyes or open them is all
the same - No, not globular motion
but motion of atoms which are globular
so that the air looks like ^{his} wet paper
upon paper, all in motion -

I must say no more and hope I
have not tired you -

Yours very faithfully
Wilmot Glanville.

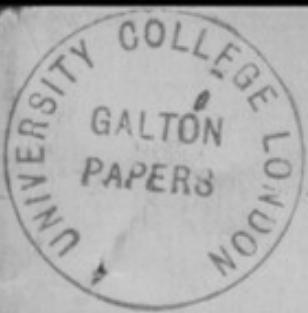
Mr. Galton
R.T.F.



f5r

Francis Galton Esq
42 Portland Gate
London S.W.





Glanville

f.65

Topham

April 22

Dear Mr Galton

If those pictures were due to the imagination, however unconscious, would it not be in the power of the imagination consciously to produce them?

How I have tried, over and over again, to form images in the rapidly changing lights and shadows which fill all the air, and have failed.

Sometimes ago I opened my

f6v

eyes suddenly in the night
and there floated by as if
outlined in silver on the
darkness, a face. I have
never seen any one like it.

The nose was like the Duke of
Wellington's, the mouth straight.
The chin massive, and the
forehead half hidden under
a mass of curling hair, it
seemed moulded in colossal
calm; serene, gigantic.

A week afterwards I saw
two faces, one a lovely

woman. For a long time I
thought these faces were drawn
on the darkness, and wondered
what it meant, but one three
months afterwards as I lay awake
idly watching the shadows,
not thinking at all, suddenly
the white masses seemed to
rush together, crystallize as
it were into a face like the
first, but not a profile this
time, a full face, and a grand
th. I closed my eyes and
there was the face, I opened

F. T. V.

them and it was just fading away. Then I was sure that those faces, and pictures were formed by my brain and projected on the dark as on a mirror, how impress'd on my brain I know no more than I know how it is that I never dream of places that I know, but always of what I have never seen.

I saw one morning a cluster of branches with lovely white

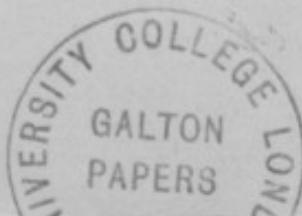
f. 80

flours, and when I opened
my eyes, there were the handkerchiefs
for one second, close to my
eyes. The pattern I remember
perfectly, it was a small
diamond formed of scrolls
and in the middle a
fleur de lys. I thought at
the time, is it possible
that there is only one fleur
de lys, and my eyes are
like telescopes and
multiply an image?

f. 8v

The morning I saw a beautiful
group of flowers with one
white rose just falling,
another, a border, with a
splendid crimson lily
bending back on its stem
and a curled leaf in under,

I saw the same pattern in
an intricate carvings, but
all these are too beautiful
and too perfect for a
fortuitous assembly of
atoms.



f95

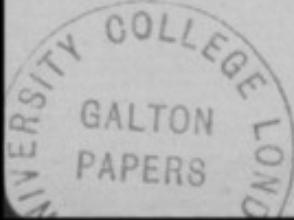
My idea is that these pictures
are formed by the brain and made
apparent through the electricity
in the brain. I am sure there
is electricity in the brain
of some kind - Sometimes I
can see a light pulsing from
my eyes which makes a white
mist wherever I look - often
at night. if I move my eyes
quickly I see a splendid
flash just before my eyes.
Whenever I enter a dark room
I see circles of a beautiful blue
colour playing round my

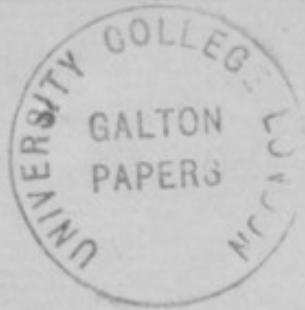
f9v

eyes for a minute or two.
There is one face which is always
in mind which I try to see
but never do, and I cannot
make the patterns appear
they always come wrong
and are always heralded
by a bright light.

Last night I opened my
eyes suddenly in the dark, and
saw a large eye and part of
an eyebrow & temple just vanishing
and knew it was my own eye.
Is there a lens in the eye
that can magnify? —

I remain dear Sir
yours very truly
W Glaenwells





Fresham
May 3rd
F. D. O. R.

Dear Mr Galton

You wished me to tell you anything I observed in connection with those curious figures or patterns seen behind the closed lids. I have seen nothing at all for some time, but yesterday morning they came again and I was sufficiently awake to observe them carefully. I was just aware of what looked like a sheet of

black tissue paper across
which were transverse bars,
the black moved up and
down like the carpet when
the wind gets under, but
the bars were stationary -
This merged into a confused
mass of moving black strands
which suddenly parted off
into small pieces all the
time shape, and at equal
distances, then a bright
light came down upon
them, said I saw that.

f. 115.

each little form was a perfect
rose and leaf. I thought, what
has occurred to me before,
that molecular motion, the
finer at least, is rhythmic
and takes regular forms -

The ice crystals are perfect
forms, may not the motion
on or about the optic nerve
be regular ?

Some time ago I suddenly awoke,
opened my eyes, and saw in
the flesh, two magnificent
trees with large white flowers
on them, and in winter

f 11 v

and beyond the trees a glorious
red sunset, the whole bathed
in the a brilliant light, like
the light of a Transformation
Scene in a Pantomime.

My idea is that what I
saw would have been a dream
if I had slept another minute.

A dream to which the色々
of time and other things would
have been added. I look
out of the window now and
see a wide landscape, hills
and woods, and fields and
river. I see it in an instant,
I think dreams are often

just the same, a momentary
impression of a scene with
the addition of certain ideas.

I was able to measure the
length of a dream once. I opened
my eyes and saw my husband
take a piece of white paper
between his fingers and thumb
I closed my eyes, slept immediately
and dreamed a long dream
full of incident which ended
by my rushing on an open
canopy, down a steep cutting
on a white hill sides and
stopping suddenly at the bottom

GALTON
E.R.S.I.
EE LO

#13v

I opened my eyes, and he
had just torn the paper,
the sound of which no doubt
suggested the rush, and
the previous dream of my
difficulties in climbing over
rugged ground, and obstruction
from multitudes of people,
could not have lasted more
than a second -

I am groping not in the dark
but in a dusky twilight in
which I see faint images of ideas.
I do not believe that thoughts
take bodily form, yet it

f. 145

seems to me that there ~~surely~~
is something material in thought
tho' of the purest essence.

I am not quite satisfied
yet whether I actually do
see the atmosphere, or whether
the motion + light I see may
not be owing to the play of
light on the optic nerve.
I think it is something of both.
Sometimes I see precisely the
same shapes of light or darkness
the same clusters of light whether
I shut my eyes or open them
and whenever I look, the
light follows my eyes. In

At other times I see flesh out
a brilliant fine point of light
and I see faintly luminous clouds
which disappear when I shut my
eyes, and appear again when
I open them. I think they are
in the air, and I believe
that those minute stars are
electric and I have fancied
that they are the very germs
of life itself, for I believe that
which gives life and heat to
the body, is of the nature of
electricity. But you do not want
my beliefs, only observations so I will
conclude.

Yours very truly
W. C. L. Conville

COLLE



f.11 K

Sydney N.S.W
Australia
Oct 28th 1884

Dear Sir; I have just read with
much interest an article
entitled "A Genealogical
Search" in the September
number of "Macmillan"
and it has prompted me
to write & ask you if
any particulars of family
matter, such as those referred
to by the writer, coming
from Australia, would
be of use to you - I
Francis Galton Esq^r FRS
of Mews Macmillan & Co

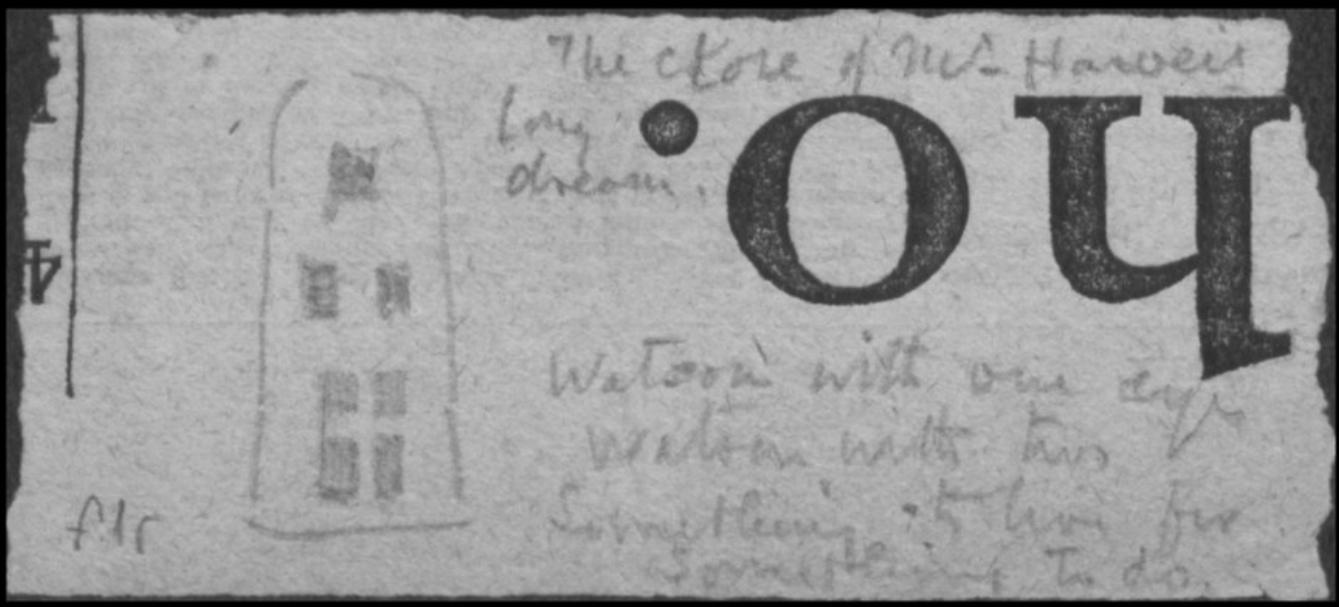
I have taken a great interest in my own family tree & could obtain particulars about my parents & grand parents etc & might be able to get you information of other Australian families which have been, now, for nearly one hundred years, settled in this part.

Please address your reply as below yours faithfully

J. G. Griffin

address

J. G. Griffin
Australian Club
Sydney
NSW



Madame Pauline Lucca, Madame Vallera, Sigmar Schubert,
Mons. Devries, and Sigmar Lesterler, Conductor, Mons. Dupont,
Production of "Velleda."—Madame Adelina Patti.—Tuesday,
July 4, will be produced for the first time on any stage, Leneuvre's
opera, "Velleda," Madame Adelina Patti, Madame Verdi,
Middle, Stahl, Sigmar Cotogni, Sigmar de Hesske, and Sigmar
Nicolini, Conductor, Mons. Dupont, The Individual Diver-
sions mainly concern individual nations.
war preparations;

lise. But our hand
costumes by M. Faigueret, Madame Dubreuil, M. Dehigne, and
M. Hanssen, The scenery by Messrs. Dages and Chauy. The
ment will be directed by the Corps de Ballet, under the direction
of M. Nicolini, Conductor, Mons. Dupont, The Individual Diver-
sions will be directed by the Corps de Ballet, under the direction
of M. Hanssen, The scenery by Messrs. Dages and Chauy. The
ment will be directed by the Corps de Ballet, under the direction
of M. Nicolini, Conductor, Mons. Dupont, The Individual Diver-

THE

116

THE AMBER HOUSE,
(LORD'S) REGENT'S PARK.

f.2r

Dear Mr. Galton



I send you our little picture, painted by my
husband's father the Rev. J. O. W. Hawes in the most
earnest and conscientious spirit and after the most
careful examination of Turner's picture.

Yours very sincerely

W. J. Hawes

May 7.



Hawes

f.2v

Francis Galton Esq
42 Rutland Gate



The boy is healthy, trustworthy, & eighteen.
Do you care about more details?

Yrs sincerely ~~W. H. H. M.~~



A 3r

May 24

Dear Mr. Galton

I asked Dr. Newell the other day whether you wanted any more "Visual" facts. He said he thought you might, and if I wrote or told you of the new case I have found, you would tell me whether these phenomena are the same as you have already noted, or some new branch. A youth we know very well sees various kinds of things on closing his eyes: both at will, and, sometimes, involuntarily, & against his will. The visions come instantly on looking for them, best in the dark. 1st He has a "flight of stars," accompanying exactly to my "roses." 2nd He has pleasant, commonplace, or ideal floating scenes, which cover the ceiling, or any darkish spaces where he calls them. He can call up certain faces as Blake the painter used. 3rd He sees ^{with} eyes open, & awake, in daylight or lamplight, the vision of one now dead. This ^{is} rare with him & I fancy connected with nervous crises: it seems to be a regular orthodox "Vision". I asked him once whether he ever saw me. He said "Yes, but usually cut off at the knee". This struck me, as ^{many} all the Spiritualistic visions, & medieval ones, are so described.

A3v

$$\begin{aligned} & 1 \text{ min per km} \\ & = 1760 \times 3.5 \text{ per km} \\ & = 176 \times 6 \text{ per minute} \\ & = 17.6 \text{ (higher sum)} \end{aligned}$$

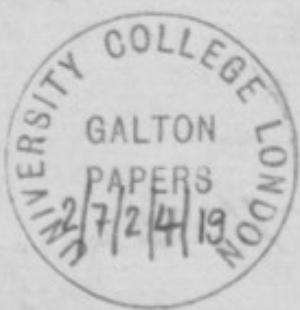
$$\begin{aligned} 1600 \text{ min per km} & = 17.60 \text{ (higher sum)} \\ & = 142.5 \text{ feet per sec} \end{aligned}$$



Danais Hall
42 Rutland Gate
S.W.
Lag.
228.



~~1000 ft per sec~~
~~= 60.00 ft per sec~~
~~= 10 water gauge per min per km~~
~~= 600 feet high (= about 500 water m)~~
~~1500 ft per sec = 900 ft per sec~~
~~= 1000 statut. ft/sec~~



f.1r

Coker Court,
Devil.

Monday 29th

Mrs. Helyar presents her compliments to Mr. Galton and having heard from the Miss Staceys - friends of hers - of Mr. Galton's interesting researches into the power of Visualizing she begs to enquire whether she may be supplied with the questions on that subject. She is much interested in the subject of education and it appears to her from the slight information she has had that the enquiries about visualizing may lead to some

important hints as to the training
of the perceptive powers of children.

If W. Galton would let her know
what numbers and kind of answers
are wished for she would endeavor
to obtain them.

Mrs Helyan

f2v

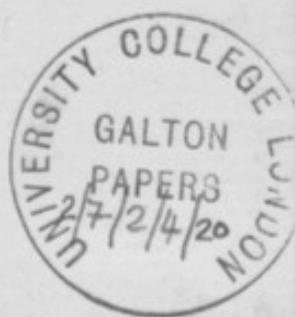
f.1

X

22. BEDFORD SQUARE,

W.C.

Feb 3.



Dear Mr Galton.

We have been very interested this morning in the 'visions' of your "Human Faculty" book, and in case it be of service to you I send you a ^{drawing} description of my own number form and a few words about myself & my family relative to these points.

We were wondering if Mrs Haweis' word visions would be continued in French or German.

Believe me

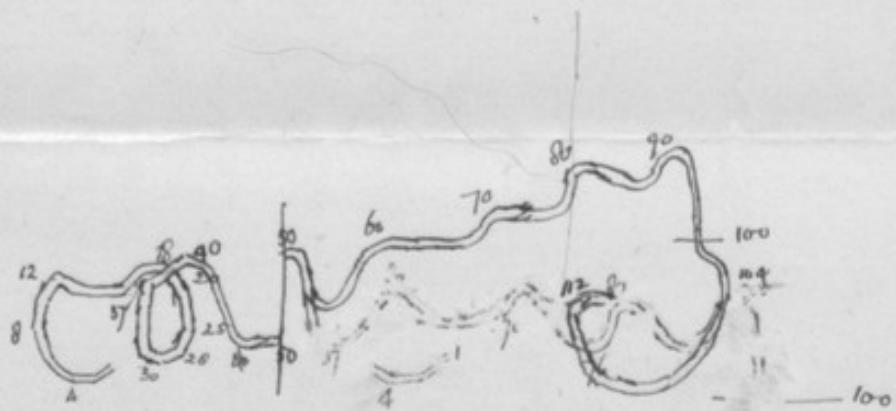
yours truly

W. P. Kershington.

1. Left. W.P.H. age. 28.

D^r Herringham fl

number form as long as I can remember. I draw it with a double line to show that it is in the ordinary relations of actual space, not merely a line on a surface.



1-4 slightly downhill to my left.

(I am above all this, looking down on it but just over 30. I believe I have occupied the same position for the last 5 years at least. I cannot speak for earlier times. This you see has nothing to do with my age.)

Then 4-8 go up hill.

11 is on a very steep incline.

12-20 are in the shade. The darkness is greatest from
13-17.

27 begins to go up hill & is almost immediately in front of me. 19 is the top of the curve.

20-25 come straight, or almost straight down the hill towards my right hand. At 26 they begin to turn to me and 27 to 29 are shaded.

Then is a step up to 30. 31 to 39 are shaded. They are on

a higher level than the twenties. And a person walking along the thirties could look over & down on to the twenties. I could almost paint a sketch of the place. It is no place I have ever seen. The crossing is at about 37 but the relation is not clear because I never see 37 and 19 at once. I know from the direction of each that the crossing must be there but 37 is very much higher than 19. so that when I see 37 19 is out of focus.

Then is a sharp hill just before 37. There is a sort of a gate, or something which gives me the feeling of one, at 40.

40 - 46 down hill. 47 - 50 nearly level. A curious thing happens at 50. It is in two different places according as I think of it in connection with lower numbers or by itself. not. If the former it is close on to 49. If the latter it is a good way above. Between the two places, then is the feeling of a straight unseen wall.

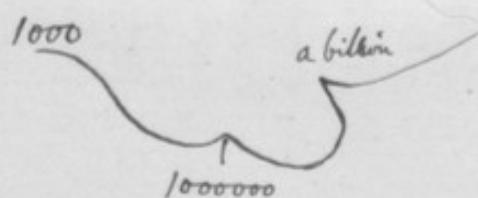
50 - 56 goes down hill to R. then 57 turns up to 60 which is a good way off. 60 - ~~68~~ an nearly level running towards me ~~sightly~~ sharply to 65 then curving round a turning away again.

70 - 80 & 90 are further away. The numbers

then curve round & at 112 occupy a similar place but much to the R. I do not know when the double crossing, which I see would follow, takes place.

Very high The hundred go on to the R.
A thousand is in a position like 100.

A million is



I forgot to say there is a hedge at 100. which lets me out in a large open space.

I have distinct preferences for certain numbers. 23 has a feeling like a word which I am quite ashamed to write it looks so silly,

"crassgrecious": I have never seen heard or used the word but it has a bad meaning.
I know a man who's like 23.

I believe the preferences are mostly due to these numbers being easily multiplied or divided

As far as I know I have no visual images of words.

All the "Catechism", the Lord's Prayer,

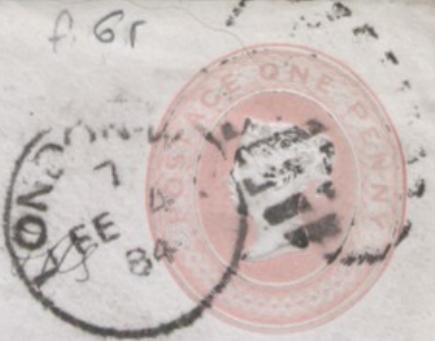
and a few hymns, are 'located' in different places when I was when I learnt them. The Catechism goes all round a large garden.

My two sisters 26, and 18, say they have no such imaggs.

I have written to ask my brother at Cambridge

My wife, aged 30, has none. This is to me curious because she is a person of great talents both in art and in business matters, and is besides decidedly morbid in some ways.

One of my sisters locates the Catechism & such things.



f. 65

S. Henniglum
Number Four,
Knightsbridge.

Nov 1884.

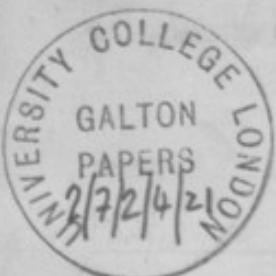
W.

Francis Galloway

42 Rutland Gate
Knightsbridge

W.M.W.





Major Herschel RE

f/r

Collingwood

Feb. 21st /80

My dear Sir

You will find an account of the occurrence you mention in the article "On Sensorial Vision" * republished in my father's "Familiar Lectures" - or as the publisher has chosen to rechristen it 'Popular Lectures'. My mother authorizes me to state, with respect to the object thus mentally reproduced, that she perfectly recollects the circumstance, and that it was the 40 foot telescope; which was being taken down, prior to the vacabon of Mr. Slough residence in 1840. A collateral circumstance, which has a peculiar interest of its own, may have helped to produce the hallucination. This would depend however on dates somewhat. At any rate there was a near approach in point of time. It -

* p. 40.

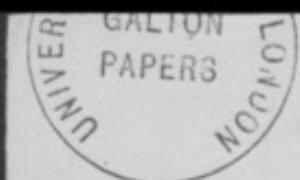
^{was}

when photography on glass was being tried. He had taken a picture on glass of the 40-foot telescope (which is still in existence) showing it in process of dismantlement. This must have been in 1839; and probably the mental vision was not long after.

The cases which you have elicited of numerical imagery reconcile me to the general fact of what you denote by "visualization". I do not in the least dispute it. The mind - by which I mean here the structured matter w^t the senses work upon - receives impressions, and builds itself with these. What it receives most copiously it uses most readily; so that most of its operations may be called visualizations; because most of its material consists of visual impressions, and most of its activity is spent on pictorial subjects. I have nothing to say against this, provided

Subordination of other impressions, and the part they play does not amount to entire suppression and extinction. If you aim at studying The influence of the sense of vision on mental action - that is one thing; but if you aim at studying mental proclivities irrespective of the sources of its inspirations, that is quite another - I mean without any particular limitation of those sources. I believe from the general drift of your questions that you aim at this latter; and that it is only to bring the question home to ordinary minds that you make use of the commoner form of experience not by way of exclusion, but by way of illustration. Now, without intending in any way to interfere with your method, it yet seems to me legitimate to suggest that, however well aware you may yourself be of the distinction & which I have tried to draw, you may perhaps be unwittingly causing your interviewees to define their experiences too nar-

sorly by the mere choice of illustration expressions. This will perhaps be more evident if we suppose for a moment that your question fall into the hands of a witness who has no such experience as your questions suppose. You say (for instance) that I have clearly but a moderate gift of visualization. Put me aside, and suppose a witness who can have none - a blind man, say. It seems to me that in that case, you do by the mere form of your question, exclude evidence bearing on the broader question. The "visualizing gift" does not, I imagine, depend, really, on the possession of eyesight. [If it does I misunderstand your drift entirely] The possession of a "men-tal vision" is only illustrated by appeal to ocular vision. The "numerical mag-ery" must have its analogue surely in the mind of the physically blind. Similarly all the phenomena which you seek to learn about must surely have their



Mayn Herschel

f.3r

representatives with reference to all the senses; and the general theory of such phenomena can only be made out by admitting evidence on a wider basis than what vision alone supplies.

Of course I may be altogether mistaken in your drift; but if not, permit me to say that your terminology ~~prescribes~~, on the one hand, too narrow an exercise of attention; and, on the other, suggests a form of evidence which, however true if read figuratively, may be very far from true if read literally.

There is so very much in the sense in which words are used. Where there is common ground, there is little to fear in the way of misapprehension. But where there is no guarantee of any such common ground, one may go far without anything occurring to show that there is all the time a fundamental difference. Thus, although I gave



F.3v

you no answers, it was not so much (I think) because I have or have not any "gift"; as that I cannot tell really what it is that you want to know. And because I cannot describe my mental imagery in optical terms without apology to the other senses and to other faculties which are more impetuous even than senses.

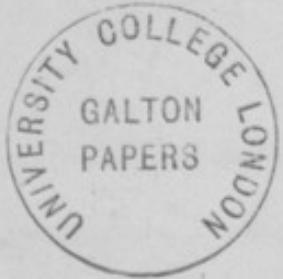
There are occasions in which I "see" a face. I can make, or allow, or "see," that face go through rapid, striking, fascinating, changes and phases of form & expression, as though it were an elastic mask. It never imitates: its play is quite original and almost quite spontaneous. I "watch" it with amusement. I experience this rarely, but when it does happen, it is a positive phenomenon. It is at least a near approach to hallucination — but I only "see" it, in the way that I "smell" sulphuretted hydrogen, with my mind's nose!

Yours truly, P. Hirsch.

Jottings by Sir J. Herschel.

" 1860 April 20 About a fortnight ago I
 " had the most distinct - of my "visions of faces"
 " I ever saw, and the first I ever saw in wh.
 " The features were coloured like life. It was a
 " muddled aged face" &c &c " others appear-
 " ed less vivid and some rather pleasing."

" May 13 1866. I was awake and after lay-
 " ing aside some numerical calculations with
 " which I had been beginning the long morn-
 " ing hours from 5 to 9 o'clock, was just go-
 " ing to rise and dress when I was aware of
 " words in my mind, connected as far as I could
 " remember with nothing I was before thinking of.
 " After repeating them several times over to myself
 " mentally to try and make out some rational con-
 " nection, I took pencil and wrote them down. These
 " were the words:- "But not yet blasted high &
 " flinted track of struggling monies". As to
 " the unaccountable word 'flinted' all I can
 " say is that I am sure that was the word.
 " "Intégrer à présent qui peut!"



f.5v

Collingwood

Hawthorn

Feb 26 / 80

My dear Sir

I transcribe two jottings wh
bear slightly on your enquiry.

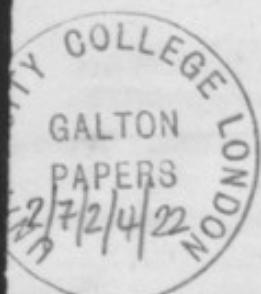
The first shows that there was oc-
casionally "mental visualization" of a kind
which, I believe, is not uncommon; and that
it was sufficiently a phenomenon to be
worth noting.

The second shows a "mental visual-
ization" of another kind, in which the sen-
ses played no part as originators - but
as clear a case of will-less construction
as could be desired.

I may add that these jottings occur
among notes of dreams, in which both
queer and happy forms of diction - often
in verse - play a prominent part.

very truly yours

J. Herschel



N. Hislop

f.1

Birmingham.

30 Decr 1878.

Dear Sir

I have been long in
acknowledging your Note
Enclosures, for which I
am much obliged to you.

I read your Note & the
Society, as I knew it
would gratify the members.
I hope soon to send the paper
filled up. Believe me

F. Galton Esq^r N. Hislop



F. M. Holland f.15

Concord Mass Sept. 27. 82

Dear Sir

I am really honored by your letter and take great pleasure in giving what information I can.

My study of biographies was mostly in the winter of 1876-7. I discarded all the people not remarkable for ~~genius~~ virtue, or vice. Remarkable for virtue means unusually pure, temperate, upright, industrious, truthful, and philanthropic. I took no account of the so-called religious duties, though these were of weight informing the judgment of biographers by whom I was necessarily influenced. I meant to take only people better than the average standard into this or else decidedly worse. Doubtful cases I omitted as stated. Remarkable for vice means notoriously dissolute, dishonest, intemperate or actually criminal.

I made a subdivision so as to put notorious criminal, and other people of the worst reputation by themselves. Most of the people were born after 1700. It is some years since I gave up these studies on account of their difficulty. I think the vicious were to the virtuous about as 1 to 4 and the women to the men as 1 to 5 or 6.

My conclusions were mainly based on two tables of percentages. To get these for the good people, I found the percentage in each particular for such as had high ability, and then for such as were mediocre, added these two percentages together and divided by two. This quotient I put in my table side by side with that obtained by taking half the sum of the two percentages, for the vicious & gifted and second for the vicious and mediocre. A third series of percentages was also obtained by the worst. Thus I tried to

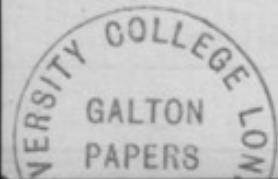
consider differences in character but not in ability. I mention this because you may like to know that I found that 51.4 p.c. of the Good men and women, 29.8 of the Bad including the Worst, and 19.9 of the Worst had more than the average number of brothers and sisters, for all the 407 cases here considered I am sorry to say I forgot what the average number was. I can have the figures for most of the 407 copied for you with their names, I discarded children dying in infancy, as is usually done by biographers. A similar table for comparing Gifted and Mediocre people gave 34.5 of the former and 46.7 of the latter ^{with} more than the average no which, I think, was between four and five.

This last result I don't understand. It may be merely accidental & due to the small number of instances.

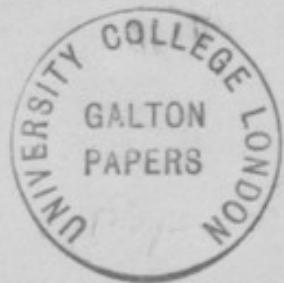
Having many brothers & sisters seems to
 morally &
 me, beneficial not only because the
 sympathies are developed, but because the
 habit of deferring to the claims of others
 is greatly encouraged. Parents and servants
 are usually more indulgent than other
 children of the same age, who are brought
 much together in large families. Here
 indeed is one of the advantages of going
 to school. Franklin advised a man in
 search of a wife to take one of a bunch
 of sisters. ^{Kittens} Cats that have been brought up
 with others are said to make the best
 pets, because they have learned to play without
 scratching.

I may add that I took North's
 History of Augusta Maine only on account
 of the fullness of information about children.
 Only 20 of the people there mentioned, or less
 would have included in my table. I
 wish I had more information to give.

Yours truly
 Fred. May Holland



Concord Mass Sept. 28. 1882.



Dear Sir

I send a copy of my tables. I think you will be able to understand them from my recent letter and essay. They have never been published, and I should be glad to have you make any use you choose of them.

Respectfully Yours

Fred. May Hollond

P.S. For the tables I studied habits until age of 30, thinking those formed later had little influence. Elementary education means reading & writing. Those who had more I call well taught. I taught are all the rest, including the illiterates.

Table First

Comparing the
People who had

	Good	Bad	and Worst
	p.c.	p.c.	p.c.
Both Parents Moral	7.5	4.6	2.8
Both Parents Devout	14.4	5.0	5.7
Both Parents Clerical	4.4	1.8	2.5
Both Parents Intellectual	8.2	14.5	7.5
Both Parents Vicious	0.5	14.5	27.8
One or Both Parents Moral	38.4	28.1	17.8
One or Both Parents Devout	42.7	24.0	24.2
One or Both Parents Clerical	19.3	12.6	9.6
One or Both Parents Intellectual	54.9	44.6	33.9
Father Intellectual	47.0	40.5	28.6
Mother Intellectual	16.1	18.6	12.5
One or Both Parents Business-Like	21.8	17.5	19.6
One or Both Parents Artistic	5.6	6.5	9.2
One or Both Parents Vicious	4.9	32.0	44.2
Parents Rich	32.1	39.9	42.0

	2.		f.5
Parents Moderately well off.	46.6	33.9	28.9
Parents Poor.	21.1	26.0	28.9
More than the average No. of Brothers & Sisters.	51.4	29.8	19.9
Good Instruction at Home *	98.6	40.0	16.6
Bad or no Instruction at Home. *	1.3	60.0	83.3
Very Devout Habits	56.8	16.3	16.0
Moderately Devout Habits.	28.6	41.	42.8
Decidedly Worldly Habits.	6.0	28.6	26.7
Sceptical Views	8.2	13.8	14.2
A University Education.	38.1	24.0	10.4
An Academical Education	36.2	42.7	49.8
An Elementary Education	22.2	21.3	21.5
No Instruction	3.1	11.7	17.9
Enough Education to be Well taught	74.4	66.8	60.4
So little Education as to be Ill taught	25.5	33.1	39.5
Education in Clerical Institutions. *	20.0	12.4	18.6
Great Fondness for Books.	79.3	61.0	57.1
Average Fondness for Books.	16.6	14.0	15.6
Slight Fondness for Books.	4.0	25.0	27.1
Peculiar fondness for Scientific Books.	11.4	4.0	5.6
Peculiar fondness for Poetry.	37.7	35.0	24.2
Peculiar fondness for Novels.	5.9	17.0	11.4

Peculiar fondness for Solid Reading.	46.7	31.0	29.5
Taste for Ethics	21.3	16.7	5.6
Very much Taste	66.6	71.2	63.8
Average Taste	26.0	15.1	16.9
Very little Taste	7.2	13.5	19.1
Written Poetry	36.5	40.4	19.1
Great Opportunities to see the world.	48.3	58.5	57.4
Ordinary opportunities to see the world.	41.1	29.9	26.1
Small Opportunities to see the World.	10.4	11.3	16.3
Used little or no alcohol, &c.	56.6	7.3	12.5
Used Alcohol, &c. Moderately	35.5	30.5	30.2
Used Alcohol, &c. Excessively	7.7	62.0	56.2
Very little Amorousness	45.5	13.9	11.2
Ordinary Amorousness.	27.3	13.8	8.5
Very much Amorousness.	27.0	72.1	80.1
Married before 25	26.8	39.8	42.4
Married between 25 and 30	27.8	20.6	17.3
Not Married before 30	45.7	39.4	40.0
Very much Business ability	54.5	21.3	22.3
Average Business Ability.	24.2	9.7	8.9
Very Little Business Ability.	21.0	68.8	68.6

Great Fondness for Society	47.0	84.7	87.2
Ordinary Fondness for Society	26.0	4.3	6.6
Slight Fondness for Society	26.8	10.8	6.0
Very good Health	54.9	77.3	87.8
Average Health	26.8	15.2	7.1
Bad Health	18.1	7.2	4.8

#

Statistics too scanty for these results
to have as much weight as the others.

Table Second.

Comparing the people of Ability, who had	High - High			
	P.C	P.C	P.C	P.C
Both Parents Moral	7.6	5.0	8.8	5.3
Both Parents Devout	3.7	15.7	4.9	1.0
Both Parents Clerical	3.6	2.6	4.0	3.1
Both Parents Intellectual	19.1	3.6	20.6	16.1
Both Parents Vicious	7.8	7.2	8.5	6.5
One or Both Parents Moral	32.3	34.2	32.6	31.0
One or Both Parents Devout	29.8	36.9	32.2	25.6
One or Both Parents Clerical	16.7	15.2	19.2	11.7
One or Both Parents Intellectual	63.0	36.7	63.1	63.3
Father Intellectual	53.9	33.6	54.6	52.6
Mother Intellectual	28.2	6.5	29.1	26.9
One or Both Parents Business-Like	18.1	21.1	16.1	22.4
One or Both Parents Artistic	6.2	5.8	8.9	1.0

One or Both Parents Vicious	17.8	18.6	16.6	19.4
Parents Rich	36.1	35.8	29.5	48.2
Parents moderately well off	41.5	39.0	48.1	29.5
Parents Poor	22.2	24.9	22.3	22.2
More than the average no. of Brothers & Sisters	34.5	46.7	33.7	35.2
Good Instruction at Home *	75.0	63.6	80.0	66.6
Bad or No Instruction at Home *	25.0	36.3	20.0	33.3
Very Devout Habits	34.2	39.0	36.7	29.2
Moderately Devout Habits	30.3	39.3	28.3	34.2
Decidedly Worldly Habits	11.4	20.7	12.4	17.1
Sceptical Views	22.2	0.8	22.3	19.2
A University Education	34.7	27.4	41.9	22.8
An Academical Education	44.4	34.4	42.9	46.8
An Elementary Education	18.0	25.5	12.5	27.4
No Instruction	2.6	12.3	2.4	2.6
Education in Clerical Institutions *	14.4	18.4	15.1	11.4
Enough Education to be Well taught	79.2	61.9	84.9	69.8
So little Education as to be Ill Taught	20.6	37.9	15.0	30.0
Great Fondness for Books	80.4	59.9	86.0	68.3
Average Fondness for Books.	15.2	15.3	11.8	22.3
Slight Fondness for Books.	4.3	24.7	2.0	9.2

Peculiar Fondness for Scientific Books	8.5	6.8	4.5	17.5
Peculiar Fondness for Poetry	41.3	31.4	49.0	24.5
Peculiar Fondness for Novels	12.2	10.2	17.0	2.7
Peculiar Fondness for Solid Reading	55.6	27.1	51.5	44.2
Taste for Ethics	18.1	11.1	20.2	12.8
Very Much Taste	77.1	60.7	83.3	58.6
Average Taste	19.7	21.4	16.5	31.0
Very little Taste	3.0	17.7	0.0	10.2
Written Poetry	48.1	29.1	60.7	16.1
Great Opportunities to see the World	61.8	45.0	61.8	62.2
Average Opportunities to see the World	32.3	38.8	35.6	26.7
Small Opportunities to see the World	5.6	16.0	2.5	10.9
Used little or no Alcohol, &c.	36.3	28.6	33.4	41.6
Used Alcohol, &c. Moderately	43.6	22.4	42.5	44.7
Used Alcohol, &c. Excessively	20.9	48.8	23.8	13.6
Very little Amorousness	30.3	29.1	34.2	23.8
Ordinary Amorousness	22.2	18.9	19.9	26.6
Very Much Amorousness	47.3	51.8	45.8	49.4
Married before 25	31.4	35.2	29.1	34.7
Married between 25 & 30	25.3	22.6	22.4	30.5
Not married before 30	43.2	42.0	48.4	34.6

Very Much Business Ability	37.4	36.4	16.8	73.5
Average Business Ability	17.4	16.5	22.1	9.6
Very little Business Ability	42.9	46.9	60.9	16.7
Great Fondness for Society	58.4	73.3	58.1	59.9
Ordinary Fondness for Society	19.0	11.3	16.6	23.7
Slight Fondness for Society	22.4	15.2	25.1	16.1
Very Good Health	61.9	70.3	56.7	71.9
Average Health	23.8	18.2	27.1	17.7
Bad Health.	14.0	11.3	15.9	10.3

*

Statistics too scanty for these results to have as much weight as the others.

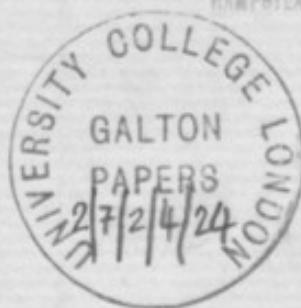
Prof Stanley Jevons

W. STANLEY JEVONS,

F.R.S.

7 Dec 79.

2, THE CHESTNUTS,
WEST HEATH,
HAMPSTEAD, N.W.



My dear Galton

I now enclose a
half full series of
answers to your
questions on Brachios-
tia - regretting the
delay that has taken
place.

At the late Paris
Exhibition in the collection
of the Ministry of
Education (if I recollect

night I saw books
full of maps of the
same country, drawn
from memory by
different pupils. The
curious differences in the
power of reproduction
struck me at the time.

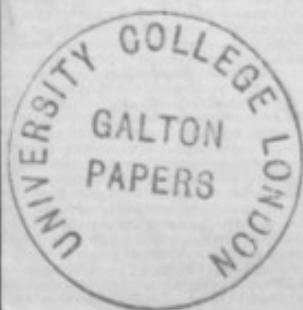
Are you acquainted
with Lecog de Boisbaudran's
'Education de la Mémoire
pittoresque'; mentioned
at p. 81 of Hamilton's
Life of Turner? The
remarks upon Turner

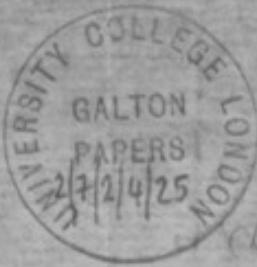
for memory are curious
I seem to show that he
had no accurate visualising
power. His pictures seem
to represent mental effect
rather than exact portrai-
me. It has often occurred
to me that the exact
comparison of the works
of eminent artists with
photographic or other
precise copies of the
things represented would
give some startling result.

To speak of another
point I was surprised the

Other day to hear a highly
educated & intelligent friend
say he found ~~labour~~
Composition a great labour,
because he had to look in
books of reference to get
the right words. With one
word seen to pop up of
their own accord as if they
were one with the idea.
For some years I had a copy
of Roseti's Thesaurus of
English words, but
found it totally useless.

Yours very faithfully
W. S. Sloane.





f15

220 South Broad
Philadelphia Pa
(West) April 12 1890

Dear Sir.

I thank you sincerely for your kindness. My lecture was received with great interest and when published in the Journal of the Franklin Institute I will send you a copy. I am collecting many startling instances here of Eye-Memory. Do you not think that this term covers the subject better than "visual representation" "mental pictures", &c?

There is a wonderful instance in Baltimore - a patient of a friend of mine - who literally has

members entire books for
years, by Eye & Memory.
He reads type, page by a
paper, &c., as he reads.
I have never read of any
thing so remarkable in
the kind. He is said to re-
call every book he has ever
read. I hope to see him
myself before long.

Your book on Iceland
it's development is
greatly esteemed here.
I do not believe there ever
was a Island who was not
an antiquary. It is abso-
lutely wonderful. Since
the 'Flor Grammaticorum'
came to date for 400
years, there has always
been a Island grubbing
in antiquities and writing
about them. It has become
secondarily automatic
with us. Our present pro-

fixed antiquary is John Bayliss of Hales for a ripe scholar into whom the spirit of old John has transmigrated.

I have several wonderful instances of Eye-Memory here in Philad. Dr. Gridley possesses it - he can draw and color any thing from memory, though he has only had a glance at it. He -

Dr Holmes has just sent me Visions by Dr E. A. Clarke and himself, in which the new physiology of Eye-Memory or "volitional pseudopia" is exhausted up to date. He follows W. B. Carpenter, but enlarges on him.

Is it a painful, overstrained, Rose-colored - Gaffawaken -

of an idea, to suppose
that there is latent in us
all a male and female
nature or double "soul"?
I use soul for want of a
better word. Farj the fire.
many gem was born after
either a winter, the other
sex determined by some
accident, this would be pos-
sible. Wigan's Duality of
the Mind bears a little
on this. It is a principle but
it may be.

I will collect all
the cases I can. Many
thanks for your kind
answers and your very
valuable "tips". My idea
has long been to write
a book on Eye-Memory
not as you are treating
it, exhaustively and scien-
tifically, but with a view
to its place in general
and especially in Art-
education. The ~~at~~

Kinder-garten with them
object-looking at devol
oping Eye-Memory at
a great rate here. Hotel
is rising to a God. The
number of instances of -
Eye-Memory are so nu-
merous and remarkable
that I am quite sure
the faculty exists in
all children and may
be developed by training.
Women have share of it
than men. There is an
extract from your article
(opening to women) which
has run through all the
newspapers here. I
cite it in my lecture.

If you have not
read it, be sure and get
Visions, a Study of
False Sight (Probab-
ly) by E. H. Clarke

731

MD If it be not in the
British Mus. Library
then tell Garrison & be
An atheist a bananathian
masanathian and a
Schlemihl for neglecting
his shop. It ought to be
there. If he has it not
I will send it to you at
once.

With sincere thanks
for your kindness I remain
Yours very truly

Charles G. Leland

Francis Galton —

P.S. I am working hard
in a good field here, trying
to establish the culture
of certain easy minor
decorative arts, among
the young folk classes.
Drawing alone has not
sufficed to extend art.

But making something
which will readily sell
appeals to the anti-cata-
strophic faculty at once.
There is a great decorative
art movement now in
America, but there are
a hundred women in it
to one man.

You will find several
instances of Eye memory
or vis. representation
in my Lecture. There is
a wonderful case, near
to where I write, of a
blind lady who lies,
like Herschel, for hours,
contemplating scenes
and people whom she
saw before she lost her
sight. She believes it
is all spiritual vision
— poor soul! A lady
cousin of my wife, having
read Thoreau's book

f4v

cultivated the power with
perfect success and can
now recall sketch from down
and scenes of 30 years ago.
Mr. Ryder here is a wonder
ful artist as Dr. Seidey is. -
One glances at a wriggling
animalcule, and he paints
its portrait to perfection.
I know him. Also a carriage
maker who can draw every
thing he has seen for an
inhabitant for 40 years, if he
has willed to remember it.
Also an artist. Dr. Everybody
here knows an instance of
it.

Mr. Just and Nature



f.15

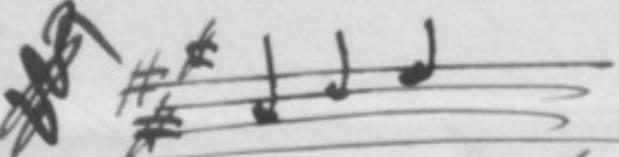
27 Nov. 1924
31, Kensington Square, W.



Dear Mr Galton,

Mr Hullah's question is not quite easy to answer but only because it is one w. which has been put by any one who has thought of what a "notation" really means. His best reply to his illustration. Suppose a man ~~who~~ knew a certain German poem for often reading it as printed in the ordinary Roman type. If he "visualized" it at all, the image of course being an image of the familiar printed page. If he, or another man, knew another poem from always reading it from a copy written in

German handwriting, of course
the image w. follows that forms.

 means to
one man a certain series of
sounds: and another man
recognizes the same sound
by another set of black marks
on a piece of paper viz.
of the marks

[m:f:s]

How can the difference in the detail
of the system of symbols make
any difference in any question of
such as W. Hullah moots?

A Musical Faist, who chooses

use a "full score" (for instruments) in that notation, feels a good, or less good, impression of the mass of sounds supposed to be indicated, according to his greater or less quickness & capacity - in short according to his being in possession or not of certain personal qualities. The precise form of the sign-machinery can't make any difference in the general law, whatever that be.

To a shorthand writer any reading from a page of shorthand w.d. course be as natural as from a printed page of common type.

So also, in an ordinary band, the Violinists
and the Clarinet players have before them
different sets of notes on the paper, & all the
^{same} series of sounds.

Tracing W. Hullah's

letter one may say that it
is one of the threes and twos,
of how the expert, immersed
in the practice of the mechanical
~~ways~~ of his profession, may
thereby almost lose the power
of seeing the large facts - of
over the whole thing.

(I have pencilled some
numbers for reference on
his pages).

See p. 2. (1)

This is just as if a man
sp. solemnly ate until
it often the case that a

31, Kensington Square, W.

Sentence of good sense in
English is spoken to one
who could not spell the
words of it ~~with~~ on paper
with even approximate
correctness! Naturally,
after both as if music
was first invented when
people began to make
signs of sounds on paper
wth a pen or if the
dictionary maker thought
he made the language.
— I don't the least believe
(do you?) that ideas

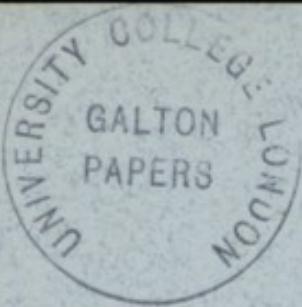


cannot be said to be
 'formed' till they are
 put into language." Never
 some shadow of teeth in
 it. Not ^{the} most ~~most~~^a cogitated
 way of talking. (283)

Afan Kullaki's way of
 denoting 'Not a conductor'
 does ^{is} very misleading.
 Not a conductor does ^{is}
 "Sjuidar generis" with
 that ^{very} number of
 a singing class is doing
 or supposed to be doing the
 the specified piece of music
 is being sung. "The power"
 (3) "not at all uncommon".

Why hundred of thousands
 have it! I nearly every
 one may be taught it
 (say 7 out of 10). If
 for any ordinary "light-
 finger," can pretty easily
 "read" (i.e. imagine to
 myself as I play ^{the}
 sounds indicated by) 4
 or 6 lines of music -
 Mel Richter does it all
 different ~~in the same way~~
~~that~~ ~~exactly~~ ~~a~~ ~~certain~~
~~way~~ multiplies his
 sum of 13 figures in
 diff'nt ways multiplies 2
 sum of 10 figures - It

is only a question of more or less complication. His statement (4) "Musicians 'know' & is only true if you give a very limited sense to the word know. I mean that, after all that one has said about misappraising sounds from signs there is with most people to peddled with nearly every one, an enormous difference between the mental impression thus produced and the impression resulting from the actual sound. If they were



f5r

DOWN,
BECKENHAM, KENT.

not so, such case as
that of St. Bennett w^t.
he mentioned w^t not be as
it undoubtedly rare.
It illustrates how, as
a rule, any mere
imagination of a sound
is absolutely extinguished
by the hearing of a sound.

Macfarren, I believe,
took rooms in Cheapside
to do his composing in,
as the only way of getting
out of the way of finding
organists. Perhaps Bennett
may have stood them
better.

I am looking forward to
the Plan dinner

DOWM
BECCHENHAM KENT

with great pleasure. I
hope and request - a
very wool one - did not
pull you to any trouble.

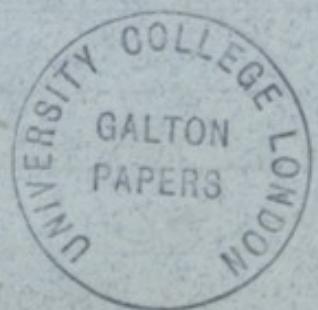
Believe me

Yours always

B. B. Litchfield

I gather from the last page
of Mr. Fullers letter that
he means to publish the
letter thereby unvaried

between her husband and
the sonic self-fascists -
and that she thinks
some discussion of
points as to "visuallyizing"
it may help her.
This is a pity: for it
was a hopeless battle
that Hullah spent his
life in - a fight against
common sense & the
misleads of the human
ear. Yet he had a
real genius for Music,
and moments of
inspiration, in song
making.

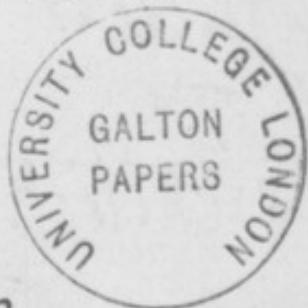


J. Hillier
Grosvenor Mansions.

1
f7c

Feb. 7. 80.

Victoria Street, S.W.



Dear Sir

I ought to have
answered your interesting letter
many days ago. Much obliged.
English & some Hittite, which
has diverted my mind so.

Do don't "do mind both in
many different ways"; but I am
differ to think that among the

greatest poets (dramatic especially)
architects, painters, sculptors &
musicians, whose works are, more
than sketches, seen, by the mind's
eye. Before they are finished, even
& the artist himself is at risque
from. This seems to me to be
the wonderful in literary & plastic
art than in musical. Language
is, in some degree, a universal gift.

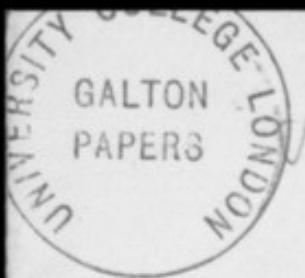
Voices cannot be said to be fitted
till they are fitted it. We have
so little fact a man who could not
build, paint or model a cathedral,
a picture, or a statue could design
it; whereas a melody (for instance)
comes to, & often has been, dictated
& sung, hummed or whistled, by one
who could ^(not) write it with even approximate
correctness. Many declaimers have been

presented to me, on paper, of which
 I could make nothing, till the envelope
^{or even paper} had ~~sung them~~, when I found, as
 I knew must be the case, that they
 had not written what they had intended.

The realization of visible music -
 the converse of writing a visible story & write,
 what is already in the mind - is not
 at all a rare power : listed as who
 has it not cannot be called a Miniceman,

(He has the)





J. Hallak

A. 9r (2)

Grosvenor Mansions,

Victoria Street, S.W.

The finest condition of whole
existence is that he knows the
sound of what he sees. I have

myself reflected conducted from a
full score I had never seen till I
entered the orchestra. Then, I need
not say, ^{nothing} moreless, the appreciation,
at a glance, of the character of each
movement, & but the soul of

detecting girls falsely with her, or
read; indicating to partners when
they are to begin again after silence
of any duration, &c. &c. This know⁽³⁾
is not at all uncommon, & is the
habit of one or more persons in
every town I mind Europe - a
American. Physicians know⁽⁴⁾, sometimes
intimately, a vast quantity of music
they have never heard - Leter will have

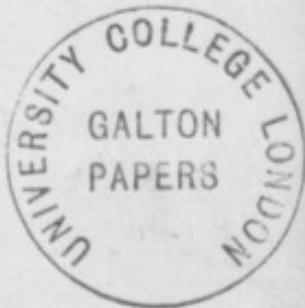
a chance of hearing. Some, I may
exceptional cases, can read one
piece of music while another is being
performed within their hearing. The
late Sterndale Bennett gave his
composition lessons in a room adjoining
the orchestra at the Royal Academy
during the hours of rehearsal. Other
men have composed under like
circumstances, - probably he easier

of the two,
which has demanding closer attention
in one act.

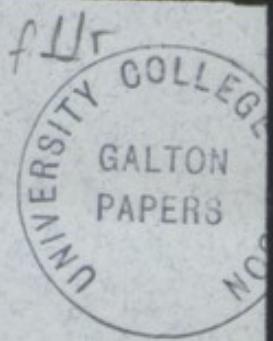
I do not know that I have told
you any thing that you did not know
already: but if there be any question
I can answer, or any matter in which
I may be able to give direction from
news, may consider me entirely at
your disposal. I am, dear Dr —

Always your faithful

John Hallech



Mr. Hallah
Grosvenor Museum
Jan. 19. - 84.



Dear Sir:

Your letter has been received. My husband's reply I return as you requested. I am afraid it
I remember very well now
a long talk he and I had
about the "inception" of
Sculpture, a branch of
the practice of
Art which, while youth and
health lasted, made the greatest
happiness of my life.

On comparing notes we find
that I saw my statue complete
down & to minutest details
in my mind's eye, before I
was destined to die in which
it essentially ~~were~~ took form,
^{to the musician}
and that he had a new
composition whenever his
brain was engaged in music
creation. Creation; but this certainly
did not include in making
musical alterations when
his composition ~~had~~ was



translated into musical language.

unable to all ~~know the~~
acquainted with musical
notation. If you have occasion to
pursue the musical aspect of
'Mind room' (is that the right
spelling? I wonder?) it would be
interesting and I think also unfa-
tiguing to see whether a musi-
cal finish; decorated only on his
and magnified, with the effacement
of his system of notation, could not
in mentally, a full score.
This notation has, I am told, such
limited power when applied
to illustration, that to use it

f 12 v.

seems impossible for a true sol-
fo composer - if indeed such a
being exists - to leave his thoughts
or what a musician means
by a full score. I am not
a musician, and therefore I appre-
hend I have stumbled in expressing
myself - but even as I will
question I would you have
answered me in my mind,
therefore should I be able
to gather information on this
point, it would help me to
deal with a particular chapter
in, I think an original way.
I cannot tell you how greatly I should
be in your debt. Your very obliged
James H. Stedman

Miss Mason

Received Dec/83

P. 1r

QUESTIONS ON THE FACULTY OF VISUALISING.

For explanations, see the other side of this paper.



The replies will be used for statistical purposes only, and should be addressed to—

FRANCIS GALTON, 42, RUTLAND GATE, LONDON.

QUESTIONS.	REPLIES.
1. Illumination	my breakfast this morning as clear as if I were now looking at it, all but the salt cellar
2. Definition	charply clear
3. Completeness	All but salt cellar. I can visualise two, which but, but cannot draw them
4. Colouring	perfect
5. Extent of field of view	perfectly
6. Printed pages	I can't read it, & visualize as much as I remember by heart. See all words in print (written by myself or others)
7. Furniture	yes
8. Persons	most persons, perfectly. Can see them well, &c. Friends Can draw a portrait after from memory than actual sight
9. Scenery	So well that on seeing the actual place afterwards I have, like not feel that it is more real than my ^{own} earlier impression - Of few perfectly - recognised National Parks
10. Geography	"Hills & Rivers" from his description, on first seeing a drawing of it.
11. Military movements	Seldom attend to them - could realize if tried, but it generally bores me.
12. Mechanism	Can visualize as far as I know. Do not understand mechanism, but can see planes, lor automobiles, an electric machine - at work. Hear the sound
13. Geometry	Can still do propositions I have written or thought of for years. Visualize both plane & solid figures as if I saw them
14. Numerals	Can see figures either in print or as "56" naturally the latter. Can remember about 6 or 8 in a row. Know very little from friends arithmetic how many been taught
15. Card-playing	Remember very card set but by counting, but by remembering their look as the table but after perhaps 2 rubbers - 2 rows true forget - Always forget the turn-up card - remember as when to count in, fancying it in the former hand
16. Chess	Play chess very well. Used to play draughts very well - having visualised images of the moves far ahead - hence tried checkmate
Other Senses.	
17. Tones of voices	Can hear, at. all, the voice of anyone I know as if hearing actually. & mimic some perfectly
18. Music	Music absolutely perfectly, harmony but so distinctly. Can read music, & hear it as played, or sing without troubling any sound to aid me.
19. Smells	Some, well, & easily - roses, pine knots &c. of scents. A stuffy cottage of bad smells. This however not so perfect as sight & hearing
20. Tastes	This sense still less perfect - Will eat chocolate, sugar, salty, neutral, &c. but cannot do so without imagining the taste of the things as all

Signature of Sender and

Address

Miss Mason

Mrs. H. Mason

26 Upper Brook St., W. - till Friday.

QUESTIONS ON THE FACULTY OF VISUALISING.

BY FRANCIS GALTON, F.R.S.

THE object of these Questions is to elicit the degree and manner in which different persons possess the power of seeing images in their mind's eye.

From inquiries I have already made, it is certain that remarkable variations exist both in the strength and in the quality of this faculty, and it is highly probable that a statistical inquiry into them will throw light upon more than one psychological problem.

Before answering the Questions 1 to 5 (see the Schedule on the back of this page), think of some definite object—say your breakfast-table, as you sat down to it this morning—and consider carefully the picture that rises before your mind's eye. 1. *Illumination*.—Is the image dim, or fairly clear? Is its brightness comparable to that of the actual scene? 2. *Definition*.—Are the objects sharply defined, or are any or most of them little more than blotches of light and shade? 3. *Completeness*.—Are all the details of the breakfast-table seen with equal clearness, like a real scene, or do some parts obtrude themselves while others are barely visualised? 4. *Colouring*.—Are the colours of the china, of the toast, bread crust, mustard, meat, parsley, or whatever may have been on the table, quite distinct and natural? 5. *Extent of field of view*.—Does it correspond in breadth and height to the real field of view?

The Questions 6 to 16 refer to definite kinds of mental imagery. 6. *Printed pages*.—When recalling passages in a book, is the actual print clearly conspicuous? How much of a page can you mentally see and retain steadily in view? 7. *Furniture*.—Can you judge with precision of the effect that would be produced upon the appearance of a room by changing the position of the furniture in it? Could you rely on your judgment in purchasing furniture that should prove suitable in size, shape and colour? Can you carry in your mind's eye the colour and pattern of your wall-paper and of your carpets? 8. *Persons*.—Can you recall with distinctness the features of persons whom you know well? Can you at will cause your mental image of them to change position, as to sit, stand, or turn slowly round? Can you deliberately seat the image of a well-known person in a chair and retain it, and see it with enough distinctness to enable you to sketch it leisurely (supposing yourself able to draw)? 9. *Scenery*.—Do you preserve the recollection of scenery with much precision of detail, and do you find pleasure in dwelling on it? Can you easily follow the descriptions of scenery that are so frequently met with in novels and books of travel? 10. *Geography*.—Do you readily follow the geographical descriptions in ordinary newspaper letters from foreign correspondents. 11. *Military movements*.—Can you realise the changing position of troops, as though you actually saw them on the march, when reading the description of battles or of manœuvres? 12. *Mechanism*.—Can you visualise any machinery at work? If you are a mechanician, describe one of the most complicated machines that you can clearly and completely imagine? 13. *Geometry*.—If you have experience in this, state fully your power of visualising plane and solid figures. 14. *Numerals*.—Are any mental figures associated in your mind with the various numerals? that is to say, if the words "fifty-six" be spoken, do you mentally see those figures in any shape or not? Can you picture to yourself many lines of figures and hold them fast in the mental field of view, and peruse them when there. (If you happen to have decided powers of mental arithmetic, describe your process and mention the most you can do.) If you are a mathematician, how far do you visualise your formulæ? 15. *Card-playing*.—Have you a good recollection of the cards that are out, and how far does your recollection consist of a mental image of them. 16. *Chess*.—Can you foresee far ahead the effects of a contemplated move? If so, is it by means of a mental image of the board? (If you happen to be able to play chess blindfold, please describe fully the limits of your powers.)

As regards the other senses—17. *Tones of voices*, and 18. *Music*—explain themselves. 19. *Smells*.—Think of tar, verbena, otto of rose, shoe blacking, chloroform, ditch water, hay, seaweed, jessamine, turpentine, a fur coat, &c., and consider whether in any or all of these cases your representation of the smell is vivid, and how far it may compare in vividness to that of the objects you visualise. 20. *Tastes*.—Proceed on a similar principle as regards these, with salt, sugar, lemon juice, currant jelly, castor oil, raisins, mustard, ink, Epsom salts, blackberries, &c.

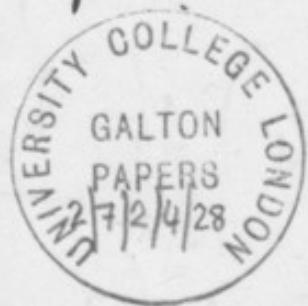
Any further information as to your visualising powers will be acceptable.

F. G.



F.15

Trinity Hall, Cambridge. Dec-31st



My dear Galton,

Dr Logan, to whom I told
you your questions were given,
has mislaid your paper after
posting over it. He is old and
of course a bachelor and shift-
-less to a proverb, so this sort
of loss is instantly happening
to him. Will you then send him

f. 1v

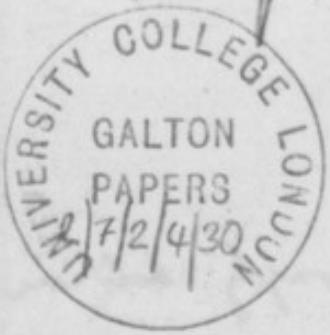
another copy (two would be
better) of your question? The
best address will be

Mrs. Dr. Logan
c/o of P. W. Latham Esq. M. D.
Humphryton Street
Cambridge.

We return Friday to London
at the end of the week.

Ever kindest regards

H. S. Maitland



Prof. Max Müller ^{A.I.F.}

7, Norham Gardens,
Oxford.

16 Nov. 79

Dear Mr Galton,

Enclosed I seal you my answers.
You see I do not visualize much —
my memory lies more in general, &
descends from them to individual cases.
I am short sighted, which has much to do
with want of vividness of memory.

Believe me,

Yours very truly
F. Max Müller

Do not suppose that I am not a

PLV

envelope and all.

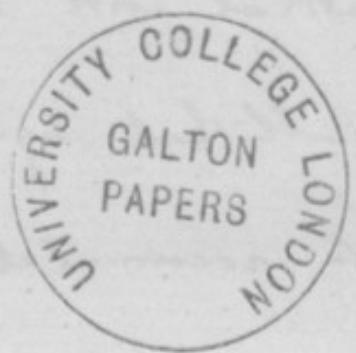
1870

believe in Herodity - I strongly believe
in it, but belief here as elsewhere
is the very opposite of understanding.
I was quite startled the other ^{day} when reading
a book of my Great-grandfather (Bardon)
a book I had never seen before, & meeting
with a phrase about religion, almost
identical with a sentence I had written
& published myself. No doubt the right thing
is to accumulate well authenticated facts,
and not to impel statistics by theories.

Thanks for your generic pictures - they

f. 2

are full of meaning with regard to
memory and forgetfulness.



W. M. Flinders Petrie

A/15



S, CRESCENT ROAD,
BRONLEY,
KENT.

17 Feb¹ 1880.

Sir. Your appeal in Nature for data for your most interesting researches on mental numbers, induces one of the stupid sex to send you the following notes, though they rather shew the force of habit than anything else.

I have no mental tally, nor do I conceive of numbers except as written on paper. A large number of units (i.e. discontinuous quantity) I always conceive as a square, roughly taking the 7. Quantities to be operated on, or continuous quantity, as numbers of dimensions, I either imagine on a scale of equal parts, with each 10 numbered & each 5 a long stroke, like a plotting scale (not necessarily extending to zero); or more usually I think of the number on a slide rule, which I have used more than any other form

of scale ; in fact complex multiplication (as 27×17) I do very roughly (within $\frac{1}{20}$ or so) by f/v imagining a slide rule so set.

Decimal fractions I usually conceive as space; but vulgar fractions as the proportion of figures, with an innate sense of weightiness more than size.
refer to Archimedes letter & Commercial Arithmetic
Each quantity bearing its own weight

The number of my age is never prominent, in fact I never know it without reckoning. A space is not easily divided mentally into anything but tenths & hundredths. Fractional spaces (as in copying a plan by squares) are carried in the eye & reproduced, without reduction to any expressible standard.

+ & - are usually conceived as heights on a uniform scale, above & below a datum line; not horizontally, though I have done very little levelling.

Mental arithmetic I always do as on paper; though the numbers, beyond the half dozen or so immediately operated on, are not so much remembered by the mental image, as by the mental speech; going through the will of speech

just short of actually using any muscles, except perhaps a slight ^{PLT} recitation of the breath.

The limit of mental retention seems to be about a dozen figures in several different ways.

Multiplication up to 3 figures by 3 (none of them being 1 or 2), square root to 8 places, Permutations of such words as Concatenation, I do without seeing the question; and, with the question on paper to refer to, such algebra as differentiation of tolerably simple functions as $\frac{x(x+1)}{x^2+x+1}$, $\frac{x^3}{x^2-1} - \frac{x^2}{x-1}$, or $a^x(x^2-2x+2)$, &c.

Connected with mental numbering is the accuracy of estimation of fractions, on which I have tested about a dozen people; part of the results I published in Nature (16 Dec² 1875); and I hope that among your mental statistics you may take it up, as it gives an easy & delicate numerical test of accuracy. The average error of all people

f.2v

tried is $\frac{1}{55}$ of the whole space; my own (in later trials than those in Nature) is $\frac{1}{173}$.

The retention of color & sound is a branch well worth working. I do not sharply detect small discords, and am abashed by people complaining of a want of tuning in a piano which I had not observed; perhaps $\frac{1}{6}$ or $\frac{1}{8}$ of a semitone is the least I can detect; yet absolute ~~true~~ pitch, without any standard for reference, I can always be certain about (if pure) to the nearest semitone.

Another branch of memory & judgement combined is the accuracy of guessing the ages of books & other things, by their appearance; an estimation employing more complex considerations, but which can be performed with greater accuracy than would be supposed.

I remain, Sir,
Yours truly,

W. H. Flinders Petrie.

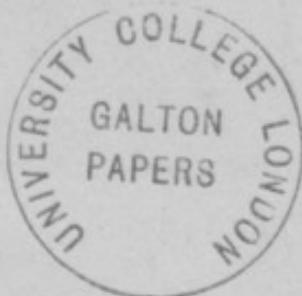


Flinters Petri Bromley, Kent.

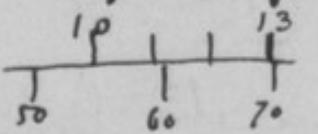
1 March 1880.

A3r

My dear Sir,



Thanks for your letter of the 27th; from which it seems that amplification on one or two points may be desirable.

The slide rule is used more by differences than directly in mental operations; e.g. though I imagine 13×54 as set, i.e.  , yet 23×29 I think of as 600 - the space $\frac{29}{10} \frac{30}{60}$ & + the space $\frac{20}{10} \frac{1}{60} \frac{23}{70}$; using the remembrance of the relative values of the spaces in different parts, to work by. Of course I can work by imagining the Rule, but not so easily or accurately.

I tried reproducing the slide rule scale on paper, having the ends 1 & 10 given, & filling in 8 marks (2, 3, ..., 9) solely from memory of their relative

distances; carefully avoiding arithmetical intercomparison (such as $1 \text{ to } 2 = 2 \text{ to } 4 = 4 \text{ to } 8$): the result on 3 trials was an average error of .09 inch, or $\frac{1}{926}$ of the total length of 11.3 ins; the error being greatest in the middle as in estimation of fractions.

With regard to a sense of weightiness in vulgar fractions, I think this is clearly habit; owing to their being usually $\frac{1}{8}$ or $\frac{1}{4}$, & my never using vulgar fractions except in once weights.^{so divided}

If you should ever go into all the methods & "dodges" of mental arithmetic, I might supply some.

The extraction of square root is not at all formidable; though, like you, I always use logs, when on paper. I give here the whole working according to the usual arithmetical rule, exactly as mentally performed: I wrote this down by reworking it on paper. During the mental working the whole result was kept in mind, without writing, until

finished. $\sqrt{462580}$ to 9 places correct.

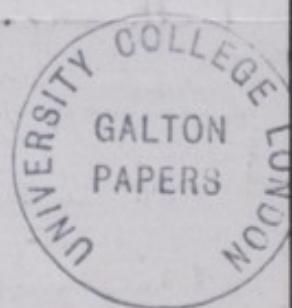
$$\begin{array}{r}
 462580 \\
 36 \\
 \hline
 128 \quad | 1025 \\
 \quad \quad \quad 1024 \\
 \hline
 13601 \quad | 180\ 00 \\
 \quad \quad \quad 13601 \\
 \hline
 136023 \quad | 43\ 9900 \\
 \quad \quad \quad 40\ 8069 \\
 \hline
 1360264 \quad | 3\ 183100
 \end{array}$$

f45

the last fig is wrong, it
 should be 06 truly; I got rather
 confused.

$$\begin{array}{r}
 680132 \quad | 1591550 \\
 \quad \quad \quad 1360262 \\
 \hline
 \quad \quad \quad 231\ 288 \\
 \quad \quad \quad 204\ 040 \\
 \hline
 \quad \quad \quad 27\ 249 \\
 \quad \quad \quad 27205 \\
 \hline
 \quad \quad \quad 43
 \end{array}$$

here halve both divisor & dividend,
 so as to have divisor = quotient,
 to save memory.



The figures underlined in red show the maximum number that had to be kept in mind at once. Strictly these are remembered in rather different ways; in fact there seem to be four intensities of memory, which, though merging into each other, are yet as distinct as different as the merging terms marsh, lowland, hill, & mountain. The figures in the active working part are merely in (1) ^{stage} mental presence; in which, if once dropped they cannot be recalled, the limit being 10 or 12 figs. Those of the result are retained by a few repetitions.

in ⁽²⁾ Transient memory, which is quickly lost if intentionally dismissed, but may be retained for some minutes: the limit during working is 6 or 8 figs, for the divisor is re-derived from the quotient as wanted. Beyond these stages of memory come ⁽³⁾ Ordinary memory, lasting a few days or weeks; which again merges into ⁽⁴⁾ Permanent memory. The relief of dismissing figures, or a subject, from the mind, is very plain to me; particularly as I have a bad memory.

I am very glad that you have taken up estimation of age. On a dozen books of the last 50 years, my mean error was $2\frac{1}{2}$ years; on 10 averaging over a century old, mean error $7\frac{1}{2}$ yrs. The binding is worth as much as the print in judging.

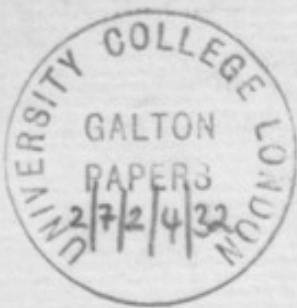
I have not seen Mr. Ellis's papers you mention, but will look them up; thanks for mentioning them.

Believe me,

yours faithfully,

W.M. Flinders Petrie.

P.S. Pray make any use of what I have written, with name if desirable, though I do not see that it adds force to the facts.



Baughan Price ① fil

Henley Lodge,
Amburst Park Road,
Stamford Hill. N.

Dec 27 1879

To Francis Galton, Esq.

Dear Sir

one of Prof:

Croom Robertson's students
has called my attention to
the interesting series of photo-
-graphs by which you illus-
-trate the formation of the

f lv

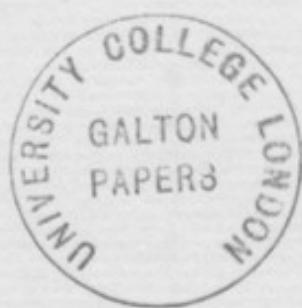
concept. I trust you will
pardon the liberty I take in
writing to you on the subject
but I am anxious to secure a
copy of the photographs if
that be possible. During
session time I am accustomed
to lecture on Psychology to
a number of students & it is

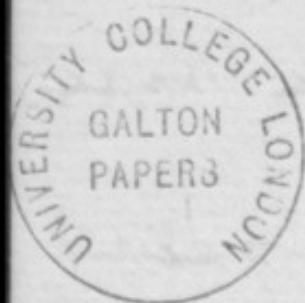
f.2

on this account that I venture
to ask you whether my desire
can be gratified.

I am, dear Sir,

Faithfully yours
R. Vaughan Price.





H. Vaughan Price ②
Stamford Hill

Dec 20 1879 N

To Francis Galton Esq Sir

Dear Sir

I am very

grateful to you for your
kindness - for exceeding
what I had ventured
to hope for. I shall be
deeply interested in all
you have sent me.

f.3r

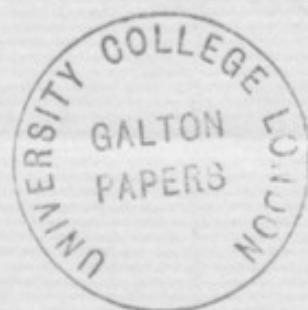
I will return the paper
containing the list of ques-
tions in the course of
day or two but hast to
thank you for the papers.

I shall not meet
my class again till towards
the end of Jan: if that
will not be too late for your
purposes I have no doubt
many of them would be
interested enough in the

f4

subject to answer the ques-
-tion.

Dear dear Sir,
very faithfully &c
R. Vaughan Pugh.





31, KENSINGTON PARK GARDENS.

w.

f.lc
3. 10. 79

Dear W. Galton,

I have been much interested by your recent psychological papers and have tried to give some account of them in the new number of Mind just out. If it should be agreeable to you to publish any further researches in the journal itself, I should be extremely glad. I have only a very modest degree to draw upon for the remuneration of such writers as are asked to contribute with pages, but I believe that most

of those whom you would like to address
- whether abroad or at home - would
be reached through the journal.

As I am writing, perhaps I
may mention that Mr. Frank Allen,
about whom Mr. Domanez wrote to
you, will most probably start for
the South of France at the end of
next week. He has today seen
Dr. W. Jenner, and is encouraged
by him, as well as by the medical
man before consulted, to hope that
one winter's rest in that climate
will enable him to turn the corner.

f. 2

and resume work in London the
winter after.

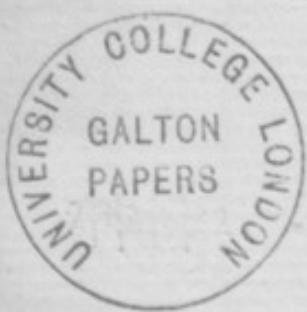
Believe me

Yours truly
George Robertson

F. Galton F.R.S.

Crown Robertson

f.3r



31, KENSINGTON PARK GARDENS.

w.

2/1/79

I am Mr Galton, I ought before this time to have thanked you for the copy of your R. I. paper. The paragraph marked uses a consideration of real importance which had not occurred to me in reading the XIXth cent. article. The illustrations are admirable. I am more particularly struck by the Napoleon. The left hand figure at the bottom seems to supply

The framework of the composite,
but has its individual characteristics
modified by the varying features
of all the others in a most subtle
way. The uppermost Roman
lady, strikes with her clear-cut
features, which are as commanding
in a somewhat similar way, &
the interesting thing here is what
difference in the others she is all
to make, or perhaps rather how
the differences of the others by
mutual influence become eliminated
in the beautiful composite.

I am often struck, in my own
experience, at the way that
the image of one person keeps the
similar image of another person
constant from coming up when the
first has either more decided features
in itself or has become more
deeply ingrained by circumstances.
It seldom it happens that I quite
fail at a particular time to recall
the features of one person because
another face, generally similar, will keep
obtruding itself.

If you do not happen to
have sent a copy of your paper

to Professor Bain in Aberdeen.

may I ask you to do so? He
seems to have heard of your experiments
for the first time from the little note
in Wuiss and is much struck by
them.

Fuly yours

G. Brown Robertson

The obstruction of one face by a similar one is
I know but one case of ~~the~~ called 'Obstruction
Association' (which appears ^{notably} in confusion &
misapplication of resembling words), but it
has perhaps some special bearing on the
formation of your 'generic images' - as
reflected their individualized definiteness.

31, KENSINGTON PARK GARDENS.

W.

24. 11. 75

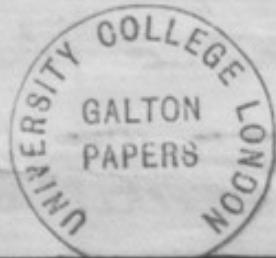
Dear Mr. Sutton. Here is the schedule at last and filled up with as minuteness - of writing at least - which will be sufficiently troublesome to get through. I spare you "any further information" about my visualising or other powers, but must mention a curiously persistent case of visualising impotence, related to what I mentioned in a note two or three weeks ago. Trying experiments on myself, with a view to the schedule, on Saturday afternoon, I sought to call up the image of a Carpenter who had been doing work here day after day at the beginning of the week & whom I ought to be able very easily to re-phrase. But it happens that his ~~image~~ ^{in my mind} here is not unlike one or two other workmen

f5 v

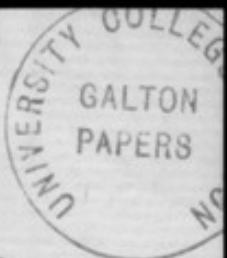
One of the subjects most requiring definite experimental investigation is the relation of misperception to perception from wrong associations of what the object must be followed after a short, but still apparent interval, in the case of the appropriate image with right perception as the immediate consequence.

I have had dealings with, and their images would keep coming up before me instead of his. After trying some time to get hold of him without success, I turned to other things, and since then have at intervals of some hours repeatedly tried to recollect his particular image, when the obstructions might have been removed, but up to this time - after nearly two days - quite in vain. Once or twice I thought I had a faint glimpse of the right man, but immediately he vanished. At this moment I positively cannot represent the face of him, and yet if I saw him in the street the proper image would start out and I should recognise him at once. Other workmen who were with him at the house at the same time come up quite distinctly.

Melville
Groombridge



Prof Croon Robertson



31, KENSINGTON PARK GARDENS.

w.

8/12

f6

Dear Mr Galton. It occurs to me that it might be interesting to discover whether two of your correspondents who get on by day without anything in the way of definite images, dream less than other people or not at all.

An American friend told me a little time ago that he cannot get on without the word 'reperception' ('repercept') to express what is more usually called 'representative imagination' ('image'); & his word certainly has the advantage of being as general as 'perception' itself. But it might sound strange in common use.

Very yours

John Robertson

From G. C. Robertson, 31 Kensington Park Gardens, W.

f 70
22.12.

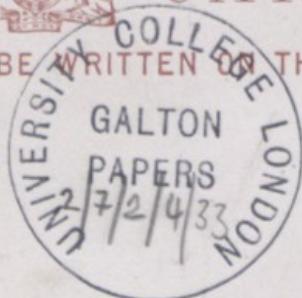
I ought to mention that the author of
recepted by W. D. G. Thompson of New
York, who has contributed various articles to
Mind. As far as I know, he has not yet
seen the work in print.

Yours

POST CARD



THE ADDRESS ONLY TO BE WRITTEN ON THIS SIDE



J. Galton Esq

42 Rutland Gate

S.W.



f.15
Holywell House,
Wren梳 mill Hill,
Hampstead.
3 P.M. 1880.

Dear Mr. Faeth,

I promise Mrs Carpenter, the very worthy Secretary to the Workmen's Education Branch of the Education Society, that I will send you the enclosed rough scheme of questions which it is proposed to submit to teachers. Mr.

C. E. Lake, the Secretary to the Central Society, has drawn this up & is anxious to have any criticisms or suggestions as to additional points

f/v

thought to be desirab. ^{f/v} Having
from experience in National
Engineering they thought the
Society would greatly profit
by your looking at the
Scheme. If you can help
them in any way
shall be glad.

Mr. Lake seems as eager
inquirer, though I hardly
know whether his psychology
is very clear or sound.

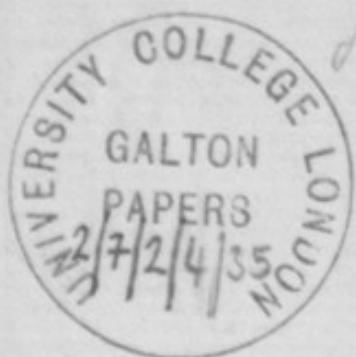
I was deeply interested
in the extract from your
answer contributed to
"Natur", a copy of which
Dr. Kindl sent me. I find
him that all scientifi-

psychologist will be grateful^{P.25}
to you for undertaking the
Enquiry.

It has occurred to me that
a first supplementary question
would be "Do you definitely
see the arrangement of objects
in a dark room familiar
to you, & can you easily
find your way in it?"
It was suggested to me by
the present series of
tests which have tested
people's power of visualization,
a good deal of late. I do
not forget this difference in
this report may be due to
inequalities in motor representa-
tion, but visual representation

play a prominent part, I fancy.
Do you have anything to
suggest to Mr. Lake on
the whole question of
frankness? Please to flunk
me if you write them
directly; the address is
Witherden,
Cathlam Valley.

Yours very truly,
James Sully



J. Ward

A.I

TRINITY COLLEGE,
CAMBRIDGE.

Nov. 24th 1879

Dear Sir,

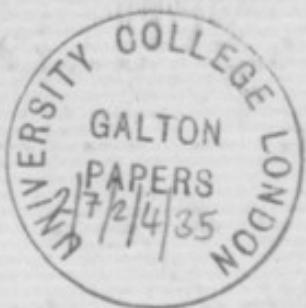
I enclose some very meagre answers to your questions: I dare say that on the whole you will be satisfied. Statistical results are hardly compatible with much detail. If at any time I can be of any service to you I shall be happy to know of it.

Very truly yours

J. Ward

F. Galton Esq. M.A.K.

Answered



J. Ward

flr

TRINITY COLLEGE.
CAMBRIDGE.

Feb. 7th 1880

Dear Sir,

Your letter in "Nature" this week has reminded me of some remarks which I mentally addressed to you on reading the paper you were kind enough to send me some two or three weeks ago. It is only the interest I feel in the subject which induces me now - somewhat against my better judgment - actually to inflict the said remarks upon you. Of course you need pay no attention to them & for the bore of having them thrust upon you you have after all chiefly yourself (Kane).

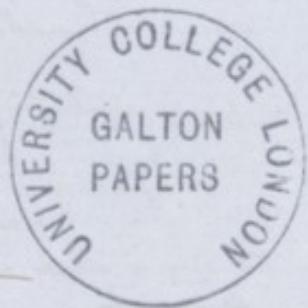
First of all as to my perniciousness of the numbers. Though, so far as I know I had never mentioned the matter to anyone till filling

of your schedule, I had a dim recollection of having written a note on the subject somewhere at the bottom of the page in some book, I remembered too that it was near the beginning of the book, but what the book was I could not tell. Only this morning it occurred to me that I must have written the note in papers of Pythagoras & I once found it. - all this by the way. The note written in 1887 or thereabouts in Seaver's Hist. of Phil. after the Pythagorean formula, upon your circle was in a circular answer, runs:-

When ^{as} a child I first learnt multiplication tables, I distinctly personified all the numbers 1, 2, 3... &c; 5 was a clever boy of the 10 family, a wonderful being whom 10 had made 'to play second fiddle'; & 3 was his dudge. 2 was a sleek good-natured sort of girl who made everything even, no matter how odd before... & so on. In the light of such juvenile speculations I have the ^{less} difficulty in realising the standpoint of Pythag.

How incredible as this, I find, has seemed to some who have read your paper, I have no difficulty in accounting for it. My multiplication table was of this form:-

1	2	3	4	5	6	
2	4	6	8	10	12	
3	6	9	12	15		
4	8	12	16	20		
5	10	15		25		
6			30	36		



that number seemed greater, which or older, which could accomplish the result by a stride down the table. Then the quality I might almost call it as well as the quantity of the stride was for something: 5 was doubtless like 10 inasmuch as every second stride gave a product ending with 0; 9 was wonderful partly because its successive strides ended 9, 8, 7, 6, 5, 4 &c.; 3 was a ^{sort of} fellow editor of 9 because it did the same thing but

less well & more slowly; I was not capable of multiplying at all 'till was my equal & the more mental & preliminary operation of ~~in~~ numeration. Why the numbers, 1, 3, 5, 9 should have appeared masculine & 2, 4, 6, 8 feminine I think may be explained in this fashion - I myself, ^{the first person am male} ~~am male + odd~~
~~& one is odd~~; my sister comes next second & this is even. So my father is first, my mother is second: uncle comes first, aunts second. Then odd & even alternating, all the odd numbers which were sufficiently individual - i.e. represented by a single digit - would be masculine & the even numbers feminine. But as far as I can recollect 2 & 8 had most definitely a female form, 8 & 9 being in fact closely associated with my father & mother.

It interested me to note ~~an~~ ^{the following} observation by one of your correspondents (whom I take to be a lady), which belongs to the same category as the above: I mean the following (14): -

"As a child I had a great liking for the number six, arising I fancy from a keen desire to be six years old. I had also an excessive love for blue, so perhaps this accounts for the connection between them."

Of a piece with this again is the varying colour or tint shade of the numeric diagrams & scales pictured by this & other of your correspondents. But all alike failing, as you are no doubt aware, to a very wide extent. See class of mental phenomena, for which so far as I know, no one has invented even a name - one might call them, ^{perhaps} the emotional analogies of diverse sensations. Thus musical people are continually comparing sounds & colours, & we all agree to call blue not only cold but soft & quiet & see a meaning in the remark of Socrates' blind man, that red must be like the blast of a trumpet. Prof. Fechner of Leipzig has been working for some time at this subject - as I think I mentioned to you: & there is already an extensive but scattered "literature" devoted to it.



There is perhaps another question to which very
instructive answers might be forthcoming if it
were asked, viz. Have you ~~any particular~~ liking
for any particular numbers? Do some numbers
appear to you more clear, distinct or familiar
than others? For example if you were task
a thousand persons separately to name three
different numbers under 500 you would, I feel
sure find they would yield you a very peculiar
target - some numbers would be very often hit
& others missed so often. Or if the question were
put in this form: - Name ten numbers you like
& ten you dislike, you would equally get some
odd results. I know for myself that 36
& 49 awaken peculiar feelings, & I think I
can see why. In the multiplication table
up to 20 times, 36 occurs as 1 over again
 2×18 , 3×12 , 4×9 , 6×6 , & their permuted,
while 49 besides occurring but once is the
square of a very characteristic digit & looks
a little like the multiple of anything a 47

which has gone just before it. I believe that in two of the diagrams you give 36 is specially singled out; also 108 by one of them, a number which always appears characteristic to me too, being I suppose that by which in my ~~first~~ earlier doses of multiplication I first passed out the hundred (9×12 coming before 10×10)

The perusal of your paper has brought to my mind facts which I had overlooked in answering your questions in the hurried way in which I was obliged to answer them. There is a clear difference between one's intuition, or attempt at ^{the} intuition of an individual number & any presentation one may have of the series of numbers in the decimal system. In saying that I picture numbers in groups I meant that in trying to realise how many a given number is I think of 5 as a quintuple, or as two on each side of one & so on. Probably many people know the lower numbers in this way,

each for itself, the higher number they only know, as Leibnitz would say, symbolically or in a few cases by their position in such diagrams as some of your correspondents describe. I should be saying just too much, I think, if I were to say that I ~~have~~ ^{quite well} such a diagram: the charm of the multiplication table dispelled it at the outset for me. Your correspondent 15 & 20 make a similar remark. But I have amused myself lately by counting from 1 to over 200 & I notice peculiar feelings which I could certainly ~~not~~ ^{quite well} describe by a diagram, although no diagram is there. I feel the ground from 1 to 10 is very familiar & so familiar even beyond that I hardly note 10 as a sort of stepping place. This extreme familiarity ceases with 12 & then the way seems to get heavier, especially about 17, 18, 19 till at 20 there is a good rest. From 15-20 seems on the whole no stage thoughriegated; from 20 to 200 seems symmetrical & easy, would readily associate itself with a straight road, at 50 there is a feeling like

Motor Associations

(91) J. Ward PGS

that of being halfway, although the two terms
are ^{of new means} ~~now means~~ alike, for the associations with
7, 8 & 9 make themselves felt in passing
through the corresponding decades. But from
then from 50 to 100 would be not unlike
a run down hill: as it is there feeling only
comes & the pre quite at the last, the
coming rest makes itself felt through the 90s
& at 100 there is a big halt. At 100 &
my feeling is as if I were all at once on a
new level, too suddenly in fact to allow reading
of spatial representation (cf. with this feeling
the sharp change of direction in some of your
diagrams.) It is to me more like the change
of scene in a Dream. From 100 I move on
more slowly - ^{the numbers now} it takes longer & say I buy &
wife - not with a sense of cleverness or
sophistry still perhaps & that of a man who
has just taken his degree. From 100 &
120 is again a stage, but I hardly notice
150 as a half way, nor do I feel much
relief in approaching 200 nor a bigger man

f.6v

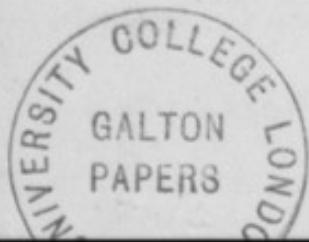
when I have passed it. From this I
think that if I had happened when very
young & count a good deal, as many
children do, before learning the multiplication
table, I ^{might} have elaborated such a
diagram & placed there as I well have seen
particular numbers in their appropriate place
upon it & ^{the} emotional associations of
these numbers might then have entailed the
~~addition~~ ^{of colors or shading.} But as I have
said I learnt my multiplication too early
& was too much interested in it to allow
of this.

I am quite in hopes that your investigation
will ^{give us} throw some light ^{on} the proper method
of teaching young children arithmetic.

Trusting you will not be very angry with
me for intruding up at such length,

I am, dear Sir,

Yours very truly
Jas. Ward.



f.l.r

3, PEN-Y-WERN ROAD,

EARLS COURT. S.W.

Feb 2 / 80

(Col Yule)

Dear Mr Gullion,

I send back
your paper of "visualizing" questions, which
you were good enough to send me sometime
ago, & I am very sorry I can make nothing
of a reply to any of them, except a hesitating nega-
tive in almost all cases. And if I write even
that I shd begin to doubt whether it was
correct. So I have thought it best to make no
answers at all - Dear friend some of while

f.1v

