

42, RUTLAND GATE, S.W. *February 13, 1892.*

MY DEAR BESSY, We will write to Emma after the wedding on Wednesday to tell news of it. I saw Douglas* on Thursday, he had rather a bad boil on his face which looked painful but as though it had reached its worst. There were others by, and I had no family talk. He did not look over well. Yesterday I went to see George Darwin receive his gold medal from the Astronomical Society. The President read an Address of no less than 40 minutes of quick reading on his merits. It is a considerable honour to him, but one that he has more than deserved.

It is such a pleasure to be able to think of Emma in her drawing-room and not in bed. I get strong rather by fits and starts than regularly, and still want a good sleep some time during the day. I think I have now no *illness* left in me, but was not so sure of that five days ago. Poor Reginald†. I often think of old times when he was a sort of glorious Bob Sawyer, as medical student in London. It is pleasant getting back to work again. They want to nominate me as President of the British Association for 1893, but I have definitely declined, as I did for 1891, being out of my element in dining out day after day, and making speeches, which I detest. Besides, I am too deaf to do the ordinary Presidential duties well.

This is of course intended as a letter to Emma also. Dear Mother, I often thought of her yesterday. To think it was as much as 18 years since she died.

We expect to be cut off from London proper this afternoon by the Salvationists, who are to disport themselves in Hyde Park round General Booth, so as I have things to do in London proper, I must start earlier and lunch out. I was very glad to hear that William Eccles had had a favourable crisis. I suppose a big gall-stone cleared itself out. With both our very best loves to you all. Ever affectionately, FRANCIS GALTON.

42, RUTLAND GATE, S.W. *February 27, 1892.*

DEAR MR COLLINS, I am utterly humiliated. The registered letter was laid quietly on the table, while I was sorting and tying up MSS. books. When I ultimately saw it, I mistook it for the Introductory chapter, which you took such pains about, and which ever since has been distinguished by being wrapped in the same envelope in which it arrived, and which was precisely like the envelope in which you sent the last. So I heedlessly tied this up along with the rest and never opened it. On receiving your telegram I made thorough hunt and found the missing MS. I don't ask you to forgive me, only to *try* to forgive me for causing all this trouble, which I greatly regret.

Thank you very much for your emendations and suggestions to this last chapter, which I have read through and will adopt, except perhaps the transposition, believing still that it is best to show first that the proposed *principle* of indexing is feasible, and secondly to consider the best of many alternative ways of applying the principle. As I said on my post-card, the corrections you made to the previous chapter have vastly improved it.

I have a set of 50 Welsh which you ought to have had, and which I now enclose—they may be acceptable.

I am trying heredity with some success, partly to test the convertibility or relationship of the *patterns* (not classes of patterns). There is no possibility of doubting the tendency here to hereditary transmission. Can you let me have back the "Album" which contains specimens of relations? I want next to revise the set of standard patterns and have already something useful and hope before long to send a revised plan for consideration.

Very faithfully yours, FRANCIS GALTON.

42, RUTLAND GATE, S.W. *March 1, 1892.*

DEAR MR COLLINS, I send some more Primaries to cut up, for the purpose of defining your frontier. Don't throw away those you don't use, as I should like the opportunity of giving in the book photolithographs of transitional cases, Primary-loops, Primary-whorls and Loop-whorls,

* Francis Galton's cousin, Sir Douglas Galton, the engineer.

† Reginald Darwin, son of Sir Francis S. Darwin, Galton's maternal uncle. He died on Feb. 7 of this year.

and they would be useful for that. It takes many failures before a *neat* collection can be made, equal in depth of tint and all clear. What shall I tell Randall* to collect for you next?

Enclosed I also send back your own family prints that, if you would kindly do so, you might *add* to them a more complete print of your sister's right forefinger. This one has been printed too much on the tip, as in

Fig. e, instead of thus



consequently, a very interesting



Fig. e

part of it is left out. Please let me have them all back. I shall be able to tell you more about hereditary matters in a few days. I get *much* better results even than those of your family. They take time to work up.

Yesterday evening's post brought me the enclosed from you on the 14-21 patterns, dated (? by mistake) February 22. So I treated it as subsequent to the one received yesterday morning, Feb. 29, though the latter contained "certains" and "doubtfuls"; was I right? There seems *no* racial difference, and it also appears that the English group (at least) is very discordant *inter se*. Please let me have it back.

If all your work should end by showing that race goes for nothing, and if (as I am sure it will) the other work testifies to hereditary transmission, we shall have got, not what was hoped for, but something quite different and of great interest of its own, namely a perfect instance of the effects of "panmixia." This will be charming. There is none other that I know of that approaches it in completeness. The whole subject becomes more and more curious. About the Bar-lock †: I made good progress, but domestic arrangements interfere with its use, at least at present. I write in three different rooms and the click of the thing in the drawing-room after dinner is voted a nuisance. So I sent it back. However my back study is being now fitted up with extra shelves and will be turned into a liveable room, and I may perhaps before long revert to the Bar-lock.

Very sincerely yours, FRANCIS GALTON.

Just before I finished the above, the packet of relations' cards arrived by post.

42, RUTLAND GATE, S.W. May 13, 1892.

DEAR MR COLLINS, The results are certainly very curious of the 31 F.'s and M.'s and of the 44 sons and 83 daughters. The comparison between a parent influencing the patterns of the offspring of the same or of opposite sexes shows approximate equality, thus:

Opposite Sex		Same Sex		
F. D.	M. S.	F. S.	M. D.	
52	31	18	69	on same fingers
83		87		
111	72	44	166	on opposite fingers
183		210		

* Sergeant Randall, the officer in charge of Galton's Anthropometric Laboratory.

† At the suggestion of Howard Collins Galton started a typewriter, but typewriting never became customary with him.

But when the comparison is made between the paternal and maternal influences it certainly does seem that the father's influence on the son is uncommonly smaller than the mother's influence on the daughter :

Paternal Influence		Maternal Influence		
F. S.	F. D.	M. S.	M. D.	
18	52	31	69	on same fingers
70		100		
44	111	72	166	on opposite fingers
155		238		

It is 18 against 69. It is true that there are only half as many sons as daughters : therefore the corrected proportions are as 36 to 69, but this is an enormous difference ; too great for mere chance, apparently. Also, the other figures give 88 against 166. The influence of mother on son seems also equal to that of mother on daughter : the figures uncorrected being 31 : 69, 72 : 166, or corrected by doubling the sons, 62 : 69, 144 : 166. On comparing paternal with maternal influences, the results are not sufficiently congruent, for 70 : 100 (1.43) is a different ratio from 155 : 238 (1.53). One must not be too much impressed by the lesser magnitude of the latter number. It would be fairer to compare the number of the 31 *families* in which the maternal influence prevailed, than to compare the individuals in those families. Taking the last paragraph into account, I should not dare to ascribe to the results more than a *suspicion* that the mother's influence is stronger than the father's. This really ought to be worked out and placed beyond doubt*. I will see what evidence I can collect for you. In haste,

Very faithfully yours, FRANCIS GALTON.

A Bar-lock is busy in my room, copying the MS. at a great rate.

42, RUTLAND GATE, S.W. *May 29, 1892.*

DEAR MR COLLINS, Here is all that seems to come out of the fraternal heredity. (I will leave the maternal, just for the present.) It would be satisfactory were it not for the curious anomaly of the loops, referred to in the last paragraph. Also, I cannot succeed in bringing these data within the grip of the formula in *Natural Inheritance*, or even to make a proper comparison between the two. It is too puzzling for me at present, the problem being a peculiar one. These data give one much to think about. I will go again at *Race* now. If a Royal Society paper can be made out of the Heredity and Race, it will have at this late season of the year to be merely *nominally* read. There is only one meeting after the next, towards the third week in June, and that is technically called the "Massacre of the Innocents." The papers are not read except hurriedly, or only their titles ; but they get printed all the same. I am pegging away steadily but the work is slow.

I am truly glad that you really like the book thus far. The chapter on Identification will be greatly improved. The first Introductory Chapter will of course now be written the last. Hardly any of that which was done will do now.

What a glorious day Saturday was. I rushed off after luncheon finding there was just time to catch a special Saturday train to Hampton Court. The boats on the river were most pretty and numerous, and full of nice, merry-looking people.

Very faithfully yours, FRANCIS GALTON.

* I have had to correct Galton's figures in the above schemes, and, corrected, they modify to some extent the results as they stood in his letter. I have cancelled the *very strong* he put before *suspicion*. On the point in question : see Vol. III^A, p. 192.

42, RUTLAND GATE, S.W. June 1, 1892.

DEAR MR COLLINS, Bravo thus far. Your figures tally well and conviction is at a measurable distance. Still a total of 44 families is not large. The figures show that the ratio of paternal to maternal influence is as 7 or 8 to 10. Now if 44 families are divided in that ratio they would split into 18 and 26 ($18 \times 10 = 180$; $27 \times 7 = 189$). What your figures really show is that 18 of the families have preponderating paternal influence and 26 have preponderating maternal. If the influences were really equal, the chance against the figures coming out as yours do, would be as that of tossing 44 pence and only 18 of them coming down heads instead of 22. This is not highly improbable by any means. I don't see that the number of children mends matters. They tell the variation in the degree of preponderance of one parent or the other in the various families, but that is all. It strikes me as hazardous in exactly the above proportion to publish the results. You say, I have tossed up 44 pence, 18 only have come down heads, therefore those pence were weighted, like false dice. The judge would say—the evidence is strong but not cogent enough to convict. I should certainly advise your working hard to get more cases, the inquiry being very hopeful; and when you have enough, it might be well to try the effect of eliminating loops, because they *seem* to be less hereditary than arches or whorls, so their inclusion may dilute the results. So glad that you are safe back, well refreshed. All is well with us.

Very faithfully yours, FRANCIS GALTON.

42, RUTLAND GATE, S.W. June 3, 1892.

DEAR MR COLLINS, By all means, in respect to Miss H. I should be delighted to give her £5 towards a holiday with a roving commission for families and Quakers. For my own part, I doubt the Quakers worth inquiry in the face of the fact that racial differences are so minute. Moreover on going carefully into Race, I feel sure that nothing can be substantiated without dealing with large numbers. The Jews are all right being upwards of 1000, but 50 is inadequate, as shown by the non-conformity of 50 groups with the larger ones. I should certainly say "concentrate upon families" never minding their origin, but settle (1) the comparative paternal and maternal influence, (2) the parento-filial, (3) the fraternal. I think (3) is already good enough to justify publication, but it would be improved by more cases. As Quakers drop in you might if disposed work them up apart, as a luxury rather than a necessity. I would write to Miss H. and enclose the cheque, but it would be nicer through your hands. When you have fixed with her, please tell me what I otherwise owe. Very faithfully yours, FRANCIS GALTON.

42, RUTLAND GATE, S.W. June 5, 1892.

MY DEAR MR COLLINS, Miss H. has written to me enjoying the prospect of her holiday and asking for the papers of lists of relatives, which I have returned to her. I said that I had sent the cheque to you, which I do herewith. There were two reasons for not sending it to her, one was that you might have already given her the money and the other is that *quære* would it not be better to give her more tether, another two or three pounds will do for twice as many extra days. So I send the cheque unfilled but with "not exceeding £10" written on it for you to fill up. (Besides I am in your debt for much else which this will not and is not intended to cover.) Might it not be well that I should anyhow pay her as usual for the families she gets, *in addition* to her holiday fund. It would prompt her to work all the harder. You will understand better than I do what is right and reasonable, without fear of spoiling her.

I am going through the chapters you corrected at Ryde. Your criticisms are most just and the corrections most welcome. I am sincerely obliged for them. This Whitsuntide breaks into postal arrangements so I don't know when you will get this.

Very faithfully yours, FRANCIS GALTON.

September 20, 1892.

DEAR COLLINS, I welcome the briefer and more cordial mode of address. Your paper reached Callander yesterday in time for getting *everything* done before post time; the contents being re-written in the train and posted *en route*. I shall get proofs of these, of Index, etc., here, and then that too will be closed.

We stay here (Alnwick) for three days—then go to Lincolnshire for three or so more, and thence to Leamington, 5, Bertie Terrace, on this day week, or the next day to that. I hope it will be fine and may tempt you to come as you have proposed after all.

You are indeed most good to offer continued help and I appreciate its value. We will have a good talk. I have had an inquiry in view for long and must now begin to beat the bushes as it were, to see if the covert I want to shoot over holds a fair quantity of game. If it promises well, I shall think of taking it up steadily. It would be a growth out of one chapter or rather paragraph of *Human Faculty*, which must in the meantime be disposed of in a 2nd edition. I am very glad you like the job just completed. I wonder if it will produce results. A good deal of routine work will now be set going, in continuation of what has been done, at the Laboratory. Among other things, I must form a good standard collection of enlarged prints. I must start a photographer to attend some hours, say three days a week, at the Laboratory. I must talk over with you my plans about all this.

What grand mountaineering you have had. But it will be difficult to change into a sedentary life. Till we meet. Very faithfully yours, FRANCIS GALTON.

Address to: 42, RUTLAND GATE, S.W. *September 22, 1892.*

DEAR COLLINS, It would take long to explain, as the idea is at present nebulous and capable of concentrating round one or other of many alternative centres, but briefly it is on the measure of motives. For example, that interesting little book of Leffingwell showed how little influence race, religion, etc., etc., severally had on illegitimacy. What is their relative influence and what is it that governs the variety of result? Men coolly face death under many conditions—what are these conditions (this is the substance of the paragraph to which I referred)? Bribery can do so and so—*what* can it do? In all cases measuring statistically the commensurability of extremely different motives and temptations, shown by money bribes and compensations. The final interest of the inquiry and its *truest* centre lies in the fact that the old religious motives of deterrence and of reward are ceasing to be efficacious and we have to consider what can take their place. I shall have a curious variety of facts to look up—some bearing on incidents in barbarous life—some in very various civilisations—some in our own. Also the power of illusion forms one very large branch. Then again the economic laws of value and their mathematics, and very much else.

I hardly know whether this random account will convey a provisional notion of what I mean, but it is the best I can at this moment give in a small space. Sometimes I lean towards making the *illusion* the dominant idea. But it is very inadequately thought out at present.

Very faithfully yours, FRANCIS GALTON.

We shall be at 5, Bertie Terrace, Leamington, on Monday, and are going in the meantime to Lady Welby near Grantham.

42, RUTLAND GATE, S.W. *December 15, 1892.*

MY DEAR BESSY, Very many thanks indeed for your capital account of Sir M. C.'s teeth. It is particularly appropriate for quotation (of course without names), as it concerns imagination in three different senses, Feeling, Touch and Sight. Merely as a story not vouched for, it would do as an *illustration*; but we scientific men always desire to be as careful as possible about our alleged instances, and I should be uncommonly glad to get some verification of the story. Is Dr Henry Gisborne alive and resident in Derby? If he is, do you think he is a sort of person to whom I could write, with the chance of getting an accurate reply? Is there anybody you can think of who could help me with further information in respect to this? I might for example write to the Editors of the Derby newspapers (do you happen to know the names of the newspapers?), and could at least get a sight of the original article at the British Museum. Sir M. C. would be the right person to ask!!! If you can give me any useful hints I should be truly obliged. I am so glad to hear that you are out of doors at length. All fairly well here.

Affectionately yours, FRANCIS GALTON.

The story runs thus: Sir M. C. of Derby made one of a week-end party. Retiring to bed, he suddenly missed his denture, and, coughing violently, he became conscious of having swallowed it and could *feel* it in his windpipe. The nearest doctor and surgeon were summoned. The doctor looking down his throat *saw* the end of the denture, and the surgeon *touched* it. Hurried

preparations were made for an operation, and the patient was laid on a table in an adjacent room. Just as the surgeon and doctor were prepared to start, Sir M. C.'s valet came into the room and presented his master's denture on a silver salver; he had picked it up by the bedside.

Letter to Professor James Ward.

HÔTEL VALESCURE, ST RAPHAËL, VAR, FRANCE. *March 24, 1893.*

DEAR MR WARD, Thank you heartily for your careful and valuable criticism, which I have read and re-read and shall I hope profit by. The object I had in speaking about what was called the measure of the Imagination, at a Royal Institution lecture, was to invite criticism and to hear objections before taking much further pains in experiment, and to get opinions as to *what it is* that such experiments measure. (I had a good look at James' book first.) Probably we shall meet before long at Trinity, and I should be very glad of the opportunity then of talking a little further about it, and of submitting myself to your questions. It would be a great help towards clearing my own mind.

As regards a *measure* of familiarity, it does not seem to me an absurd notion. The maximum of familiarity with objects gives the complete sense of being *at home*. It is very interesting to analyse this feeling when returning to familiar haunts. Complete strangeness can also be imagined pretty easily, for every one has now and then dropped into very strange surroundings and the feeling is easily recalled. Between the two limits there must be intermediate conditions which it is possible, very rudely, to appreciate. About Weber or Fechner: I know only too well the inadequacy of the statement, but having first looked at James, Sully, and a few others, I thought that the very brief statement, reserved as it was, might pass. I wanted chiefly to show that a spiral balance might represent with sufficient approximation and in a very conspicuous manner, the narrowness of the limits of the scale of sensation. I know well that many quite disagree with the view that increased sensation is produced by accumulation of increments, but for my own part I habitually use the imagined sense of waxing fatigue (for example), from zero up to extreme fatigue, as a standard whereby to judge how tired I really am on any particular occasion.

But I must not tax your patience further and can only repeat how very grateful I am for your criticisms.

It is lovely weather here on the Riviera. I, and my wife too, had both suffered in England from influenza and came out ten days ago, with the happiest results.

Very sincerely yours, FRANCIS GALTON.

What a blank Croom Robertson's* death has left!

The Oxford Honorary Degree.

To Francis Galton. From the Rev. Bartholomew Price, D.D.

PEMBROKE COLLEGE, OXFORD. *May 22, 1894.*

DEAR GALTON, I had yesterday the great pleasure of proposing to our University Council that in recognition of your long and excellent service to science and especially of your anthropological work, the Honorary Degree of D.C.L. should be conferred upon you at the ensuing Commemoration; and I have the greater pleasure of informing you that the proposal was received and carried most enthusiastically, and with such observations as would be most gratifying to you, were I at liberty to repeat them. Will you kindly inform me, whether you will accept the proffered Honour, which is, as you are perhaps aware, the highest of its kind that the University bestows on distinguished persons, whether its own children or *extranei*, so that I may report to the Council on Monday next. The Commemoration takes place on Wednesday, June 20, at 12 o'clock. It is usual for the Proposer to entertain his candidate at the time of the Encaenia, but owing to the death of one of our daughters, Mrs Price and I shall be absent from Oxford

* Professor Croom Robertson was an old friend of Galton, and a portrait of Croom Robertson and his wife was highly valued by him. It is now in the possession of the present writer who greatly appreciated the kindness and friendly aid of one of his early colleagues at University College.

at the time and we are in consequence unable to offer hospitality. You have however many friends in Oxford, and there will be, I know, no difficulty in this matter. I can say nothing more until in accordance with our standing orders your acceptance has been ratified in council.

Believe me, Yours very truly, BARTHOLOMEW PRICE.

The sole statements I have found about the conferment of the Oxford degree are the following:

Sophy Bree* reported on June 21, 1894:

The candidates for D.C.L. all followed up in their turn. Uncle Frank came last. He was very much clapped and then the R.P.C.L. (Professor Goudy) stated that Mr Galton was a cousin of the celebrated Charles Darwin (shouts and claps), while still a young man he made a long and dangerous journey of exploration up the White Nile and afterwards undertook a similar expedition in Southern Africa, obtaining the medal of the Royal Geographical Society in respect of the latter journey. He was also described as a distinguished meteorologist and anthropologist. In recent years he had devoted his attention to the study of natural selection and the descent of man—having propounded a theory of heredity which is now becoming recognised as of the first importance. All that of course was in Latin. The newly made D.C.L.'s were in their Doctor of Law gowns. After that the Public Orator made his Oration in Latin.

And again:

"At the dinner," Frank said, "Lord Rosebery made an effective speech. Lord Justice Fry, having to return thanks for the new Doctors, was funny about my composite portraits." L. G.

The degree was conferred at the same time on the Earl of Kimberley, Bishop Mandell Creighton, Sir Horace Davey, Sir Edward Fry (Galton's old foe: see above, p. 122), Captain Mahan of the U.S. Navy, Émile Boutmy, Prof. Mendeleef, Prof. W. M. Ramsay the archaeologist, John Henry Middleton and the Latin scholar Arthur Palmer, an all-round noteworthy batch.

The *Oxford Gazette* contains no report of the speeches.

The Cambridge Honorary Degree.

(From TRINITY LODGE, CAMBRIDGE.)

42, RUTLAND GATE, S.W. *May* 16, 1895.

DEAREST EMMA, The ceremony went off this afternoon and Grace, who was there, will I daresay write about it. The Public Orator made some amusing hits in his speech. He will send me printed copies (2 or 3) in Latin, which I daresay Archdeacon Bree, or some other friend, will translate to you. It was all very nice—quite a quiet ceremony and several old friends present.

We are on the point of returning to London after a very pleasant stay at this most hospitable house. Excuse more now. Bessy will be on her way to Alwicks†, so I send no message to her. Ever affectionately yours, FRANCIS GALTON.

Frank bore his part bravely and looked very well, the red gown very becoming. It is so cold to-day, I hope Bessy will not suffer on her journey.

Much love, Ever affectionately, L. GALTON.

42, RUTLAND GATE, S.W. *May* 21, 1895.

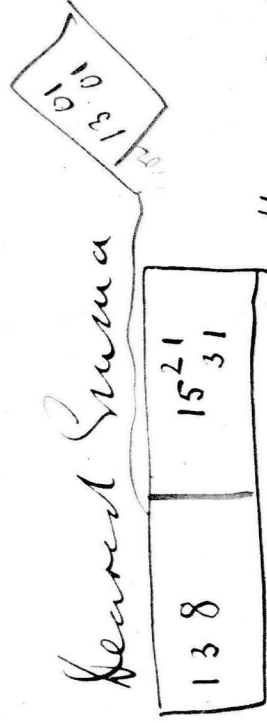
DEAREST EMMA, Here is a copy of the speech in the Senate House, of which the Public Orator has sent me a dozen. One is being forwarded to Archdeacon Bree—the ingenious *Latinity* of it will amuse him—and I said that when he next happened to be with you in Leamington you would probably be glad if he translated it to you. I will send a copy to Bessy also, very likely she will soon come across a translator.

Ever affectionately yours, FRANCIS GALTON.

* Sophy Adèle, a daughter of Lucy Amelia Moilliet and therefore Galton's great-niece; she is sister of Lucy Evelyne Biggs, Galton's companion in later years, and married the Ven. William Bree, Archdeacon of Coventry and Rector of Allesley.

† At that time the home of her son, Edward Galton Wheler (later Wheler-Galton), now of Claverdon Leys.

42 Rutland Gate SW
May 6/93



Which of these is the Home-ruled
and which is the Home-ruler?

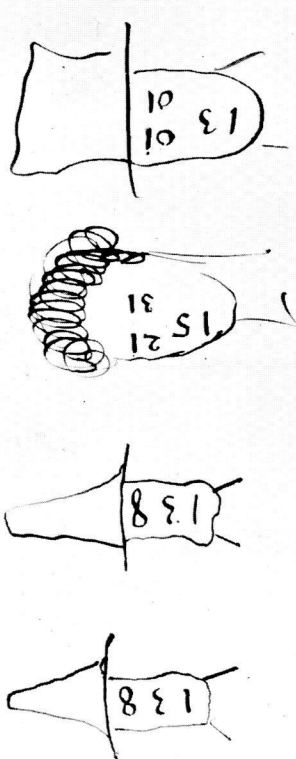
See over leaf. This and
other things of the same kind, I
got from Sir John Spans at a
Royal Society Club dinner - very
interesting indeed! By the way, the
Club reaches its 150th anniversary
next Nov., and we are to have
a dinner, consisting of just the
same dishes as at its first meeting,

the account of which has been kept.
Its price was 1⁰/₆ & the piece of
resistance was boiled pork.

I am going to meet Louisa
in 1/2 hour at the Academy, to
write this in the mean time.

Smully Butler has been with
me for a week & left this morning.
We go to Trinity Lodge next
Thursday to Monday. There is such a row
going on at the Geographical, &
there may be an explosion on
Monday at its Anniversary Meeting.
Every thing seems in confusion. The
President & Secretary, both such excellent

few days back, & I was
 glad of a long friendly talk
 with M. Boulton's son & heir.
 Louise quite well & would
 have written had she been by.
 How strangely Tertius seems
 to be mending. I hope Mrs.
 Morgan's visit was a great
 pleasure to you both. I came
 across the name of Col^l: Maling at
 Grenada, in Lord Bessy's article
 in the month fortnightly. Best
 love to Betty & all. I suppose
 Garrison will soon be coming up
 to town. We have no special
 news. With regard will soon be
 in Oxford, now. Ever affectionately
 Francis Galton



men in nearly every way, have
 got us into a thorough exchange
 & quarrel with a pack of angry
 admirals - who are right in the
 main, but we on the Council
 all suffer. I had a long
 country walk yesterday, including
 Bathing Park & Richmond Park.
 The scarlet thorns are beautiful.
 We dined with Mr. Robb a

The weather is improving here and the lilacs, laburnums, etc. will be glorious when the sun shines. There was a chilly geographical river party yesterday to see the Franklin remains at Greenwich, which I did not care to join. What is Arthur Galton's address in Sydney? I owe him a letter of thanks for a published lecture which he recently sent me (unaccompanied by an address).

The following is the Speech delivered by the Public Orator on presenting Mr Francis Galton, M.A., F.R.S., of Trinity College, for the honorary degree of Doctor in Science*.

Sedes olim sibi notas hodie revisit alumnus noster, qui flumine Nilo quondam explorato, et Africa Australi postea perlustrata, velut alter Mercurius omnium qui inter loca deserta et inhospita peregrinantur adiutor et patronus egregius exstitit. Idem, velut alter Aeolus, etiam ipsos ventos caelique tempestates suae provinciae audacter adiunxit. Hodie vero Academiae nemora nuper procellis nimium vexata non sine misericordia contemplatus, e frondibus nostris caducis capiti tam venerabili coronam diu debitam imponi patitur. Tempestatum certe in scientia iamdudum versatus, ventorum cursus tabulis fidelibus olim mandavit, gentesque varium caeli morem praediscere docuit, laudem philosopho cuidam antiquo a Nubium choro Aristophanico quondam tributam uno saltem verbo mutato meritis: οὐ γὰρ ἂν ἄλλῳ γ' ὑπακούσαιμεν τῶν νῦν μετεωρολογούντων. Longum est avorum et proavorum ingenia magna in ipsorum progenie continuata ab hoc viro, Caroli Darwinii cognato, virorum insignium exemplis illustrata percensere. Longum est tot honores titulosque ab ipso per tot annos cumulatos commemorare. Hoc autem in loco, eloquentiae eius undecim abhinc annos conscio, instituti anthropologici praesidem non corporis tantum sed etiam mentis humanae mensorem appellaverim. Inter antiquos quidem celebratum erat illud Protagorae, omnium rerum mensuram esse hominem. Inter recentiores autem notum est hunc praesertim virum hominum omnium, imprimis pessimorum, mensuram ad amussim velle exigere. Ceterum plura hodie dicere supervacaneum est; constat enim ne optimorum quidem virorum a laudibus abesse debere mensuram. Duco ad vos virum de scientia anthropologica et meteorologica praeclare meritum, caeli et terrae indagatorem indefessum, studiorum denique geographicorum etiam inter nosmet ipsos fautorem insignem, Franciscum Galton.

Translation of Dr Sandys' speech by Archdeacon Bree for the benefit of Miss Emma Galton, and possibly of some of my Readers.

The Public Orator, Dr Sandys, in presenting for the honorary degree of Doctor in Science Mr Francis Galton, F.R.S., M.A., Trinity, referred to Mr Galton's early travels on the White Nile and in the Damara- and Ovampo-lands in South Africa, adding that the author of the "Art of Travel," "*velut alter Mercurius omnium qui inter loca deserta et inhospita peregrinantur adiutor et patronus egregius exstitit.*" Like another Aeolus, he had also taken the winds and tempests for his province, and on his return to his former haunts at Cambridge he had doubtless looked with pity on the "groves of Academe," lately laid desolate by a disastrous storm. As meteorologist he had been the first to map out the course of the winds on an extensive scale, and had thus facilitated the forecasting of the weather; the high regard in which he was held in this department of science might perhaps be expressed in language partly borrowed from the *Clouds* of Aristophanes: οὐ γὰρ ἂν ἄλλῳ γ' ὑπακούσαιμεν τῶν νῦν μετεωρολογούντων. Descended from the same grandfather as Charles Darwin, he had himself written largely on subjects connected with heredity. His Rede lecture, on "The Measurement of Human Faculty," delivered in the Senate-house 11 years ago, entitled the former president of the Anthropological Institute to be called a measurer, not only of the human body, but also of the human mind. Protagoras had in ancient days taught the doctrine that "Man was the measure of all things." Mr Galton had in modern times taken a leading part in insisting on taking the measure of men in general and of criminals in particular. It was, however, superfluous to expatiate any longer on his merits; even the praises of eminent men had their limiting law and their proper measure.

* *Cambridge Reporter*, May 21, 1895.

Letters of Galton copied from the Originals by Maud Gardiner Odell.

“The first letter is an answer to a letter from my husband asking about possible observations and measurements, yielding desirable data, to be made upon infants. My daughter arrived Nov. 5 at Naples where we were spending the winter, my husband being on leave of absence from his work at the University of Colorado, U.S.A. Dept. of Biology.”

42, RUTLAND GATE, LONDON. *October 6 (?)*, 1894.

DEAR SIR, I cannot help you much. Preyer's books are probably within your reach at Naples. I have received from time to time from the United States pamphlets on the subject. There is now one on my table by a Mrs Shand (?)—California—Part III, this being on a child aet. 3, the preceding parts being presumably about an earlier age. (It is in a cover like the Smithsonian publications.) I have had so little to do with children in my life, that I have not interested myself in the inquiries about them and am therefore too ignorant to be an adviser. I should think that the observation of the increasing power of muscular co-ordination, and that of muscle with will, would be as good a clue as any to direct you. I suppose the colour-sense is developed quite early?

I heartily wish you would take finger-prints of the child at the earliest possible age, with a view of determining whether there is any alteration in the papillary ridges *during babyhood*. I have next to no data for investigating this. They are by no means easy to take, partly on account of the restiveness of the infant, chiefly on account of the very slight relief of the papillary ridges. In effect it is very delicate printing. You ought to use the THINNEST possible layer of rather fluid printer's ink, spread on a *polished* plate, and dabbing the child's fingers on it, dab them immediately after on smooth paper. Don't attempt to get any more than a lightish brown impression—Black is an impossibility. It is *clearness* that one wants. Unquestionably the most delicate impression of all, is in varnish thickly spread, that has been exposed sufficiently long to the air to have a *slight* pellicle over it. Dabbing the finger on this leaves a beautiful but transient impress, not so transient however as to prevent a cast being taken from it, if the plaster is at hand and in readiness to use. In regard to instruments for measuring the growth of the soft dimensions of a baby, I cannot tell you and doubt much if such measurements are ever to be trusted. You would have to exercise a strictly constant pressure.

Faithfully yours, FRANCIS GALTON.

P.S. I am not “Sir Francis.”

TO PROF. JOHN GARDINER.

Address to: 42, RUTLAND GATE, LONDON. *July 21*, 1895.

DEAR MRS GARDINER, Your letter and the most interesting series of prints of your baby's R II reached me on the Continent yesterday morning and I have already gone over them carefully twice, with the aid of such lenses as I have by me.

The general result is that about eight points of reference admit of being compared at different periods of growth and show in a very instructive way how the ridges become more and more sharply differentiated. I must wait till I get back, to study them as thoroughly as they deserve. They ought to be photographically enlarged—that is to say, the best prints and the most important of them. This I will do when I return home. On more than half of the days after birth, from the ninth to the thirty-fifth, on which prints were taken, namely, in the first 18 sets of prints, one and sometimes two prints are clear enough to study. *These are always the darkest* of their respective sets. From the ninth week to the thirty-first inclusive, six sets were taken, but unfortunately not one of these is distinct enough to be of use. I wonder what the cause of failure here can be? Perhaps the materials were not so good. That taken in the thirty-sixth week is quite serviceable.

What remains to be done, to thoroughly deal with this finger, is to get some really good impressions *now*, such as will show the *delta* as well as the core. For this purpose, if you cannot *roll* the finger a little, you might take some of the prints slightly from the *side* of the finger, the thumb side in this case. Also to very kindly let me have some prints, *one set in each future*

year. The result will be to create a truly valuable series, and at present a unique one. I presume that R II means the right forefinger, so that R I would be the thumb, and R III the right mid-finger? Kindly tell me the baby's full name for future reference. If I publish anything about these, should you object to my mentioning names? If you dislike this, I would identify them by initials. As regards the other digits of which you have taken prints, which you kindly offer to send me, I should be very grateful for them. Whatever is said about the R II which I have, would apply to these also. Your zeal is deserving of the warmest recognition. I can assure you that I fully appreciate and am grateful for what you have done. I would be greatly obliged if you would describe the method you adopt of getting the prints—how do you pacify the baby? How do you hold it? What printing materials do you use? I am very ignorant of baby-ways, but my assistant, who tried hard with his baby-granddaughter, found he succeeded best when it was *sleepy*. I could fancy drilling the child to a game of *pating*, and, at the judicious moment, direct two of its pats, the first upon the inked slab, the second upon the paper.

I hope to be back in England in time to receive any letter that may be written by you a week after receiving this. With kind regards to yourself and your husband and with every wish for the baby's health in whom I naturally shall always take interest,

Believe me, Faithfully yours, FRANCIS GALTON.

Note by Mrs Gardiner. When my daughter, Dorothy Gardiner, was six days old I sat up in bed long enough to take the prints of her fingers. After that prints were taken every day of all digits, for some time. Then every week—subsequently every month—and later on yearly until she was about seven years old. The prints were sent to Mr Galton—a few of them proving good enough for reference, but the majority of the early ones were not very good. I should judge from the letter above that I sent a sample of one finger only, before burdening Mr Galton with the great number taken. We returned to Boulder, Colorado in August 1895.

[Post-card.]

42, RUTLAND GATE, LONDON. *May 7, 1896.*

Just a line to acknowledge safe receipt of the *very good* finger-prints. You have quite acquired the art of taking them. In a few days I shall be free to photographically enlarge them and to send them with a duplicate of those that were accidentally destroyed, and will write then more at length. In the meantime let me say how grateful I should be for the prints of such other babies as you may hope to obtain repeated prints from, at an interval of not less than about a year, the object being to accumulate evidence for or against persistency during early childhood.

Red Indian dabbed prints of the three first *fingers* (fore, mid, and ring) of *right hand* only would be very acceptable. In that form, they would be comparable with all my other race collections. Those from school-children would be every whit as good as those from adults.

Very faithfully, FRANCIS GALTON.

[I had offered to obtain prints from American Indians, if desired, through the services of some University Students whose homes were close to an Indian School at Grand Junction, Colorado. M. G. O.]

Copied from the Original by Dorothy Gardiner.

42, RUTLAND GATE, LONDON. *June 2, 1896.*

DEAR MRS GARDINER, At last I have the pleasure of sending the photos of your baby's fingers. My photographer was busy about preparations for the eclipse, hence the delay.

Those I enclose are direct from the enlarged negatives; those I send separately by book post, are paper enlargements in the camera, from those negatives.

I have not regularly studied them yet. It will take time to go into all their details in the way I want, and I must defer it. You probably will like to examine them, and I think in doing so, you may find help from my book *Decipherment of Blurred Finger-prints* which my publisher will send for your acceptance.

A good way to mark an enlarged print is by a *fine* needle (not pin) prick and making a pencil circle ○ round the hole at the back, with a number attached to identify it hereafter. (You may prick through a blank paper underneath at the same time, so as to have a duplicate.) The prick holes do not in the least damage an enlarged print.

Believe me, Faithfully yours, FRANCIS GALTON.

42, RUTLAND GATE, LONDON. *November 7, 1896.*

DEAR MRS GARDINER, The prints of the baby, with Winifred Palmer, arrived safely, and I have carefully gone through, picked out, and mounted the most effective ones, for future photography. It is indeed difficult to take legible prints of such young creatures. The following seems the most hopeful direction for improvement. In your sets the only fairly clear ones were those taken on the 7th, 8th and 37th days, and all these happened also to be dark. I suspect that on those days the ink was in a more suitable condition than at other times; therefore that great care as to the right fluidity of the ink is an important condition of success. As you are doubtless aware the mixture of a very little "drying oil" makes a great difference in its consistency. Another point in these very delicate printings is to grasp the baby's finger *firmly* and to print from it *rapidly*. There are signs of its having moved in the great majority of the prints. The marks left by the ridges below the joint are often very sharp and clear, while those on the bulb are illegible. The last thing I would mention is the use of the same sort of smooth paper as the enclosed, which is employed in all those high class illustrated journals in which the delicate photo-process printing is used—such as *Harper's Journal*. I wonder whether the more or less dampness of the baby's hand has much to do with the success in printing? It is needless to say how much I should prize any more baby prints you may send me. A few, *well printed*, taken at an early age, and not necessarily of many fingers, would be the most welcomed. Of course with the hope of getting prints from the same fingers a few years later.

Very faithfully yours, FRANCIS GALTON.

[Winifred Palmer is the daughter of Charles Skeele Palmer, at the time of this letter and for some years Professor of Chemistry in the University of Colorado. I obtained prints of Winifred when she was (I believe) less than a day old, certainly less than two days, and continued from time to time as subsequent letters will indicate. M. G. O.]

42, RUTLAND GATE, LONDON. *July 7, 1897.*

DEAR MRS GARDINER, Thank you very much for the two sets of finger-prints. I am glad to infer from the firm, plump marks of your child that she thrives well. Both hers and Winifred Palmer's are very good records and I will put them carefully with the rest. But I cannot now have them enlarged as I am packing up for a summer on the Continent. Thank you also about the hope you hold out, of sending me next September some prints of American Indians. They will be very acceptable. I wonder if by any chance you happen to be acquainted with any authority (of a scientific bent) on American trotting horses and their pedigrees. I ask, because I have just been able to verify a law of heredity (which I proposed tentatively a few years ago) on a certain pedigree stock of hounds. If I could get the racing speeds of the pedigree stock of the trotting horses, with some completeness for three generations back, *i.e.* at least the grandparents and better the great-grandparents of the "subjects," I could make good use of them. The first notice of my paper (which is *not yet* published but will be published in the *Proceedings of the Royal Society*, in three or four weeks) appeared yesterday in *Nature*, p. 235. (That is the name of our principal scientific weekly paper.) Excuse my troubling you on the distant chance of your being able to help me. I know and have written to Mr Weston, Pittsfield, Mass., and I also know of the existence of the *American Trotter* by H. T. Helm, 1878. Also of yearly *Year Books* which up to 1896 contained the speed of nearly 13,000 trotters, but I do not know particulars about them. Mr David Bonner of New York (I do not know his further address) seems to be one of the principal authorities.

Believe me, faithfully yours, FRANCIS GALTON.

42, RUTLAND GATE, LONDON. *May 30, 1903.*

DEAR MRS GARDINER, Your letter of Feb. 23 reached my house while I was away for the winter. Now that I have returned, let me thank you very much for the enclosure of Winifred Palmer's, aet. 6 years, prints. They will do very well, but perhaps as the years go by you will kindly let me have another set when she is older and becomes more submissive to the printer. I should also be very glad of future prints of the other children so far as you can easily get them. There are sure to be *some* useful points of comparison, which can be utilised. Now to show my "gratitude" (in the cynical sense given to that word, of a "lively hope of future favours"), let me tell you my present needs. I am taking up finger-prints again, from a new and hopeful point of view and send printed papers by this post to explain. You will see that I want two things, of which the second includes the first:

- (1) Prints of the two forefingers of many adults in quadruplicate and *rolled*.
- (2) Prints as above of batches of relatives of all ages.

The circular speaks of a small outfit that would be willingly sent to those desirous of helping, but I hardly know how to send this to America at a reasonable cost. However I will make a trial, believing them to fall under the head of "Printed paper" (etc. or, ?) "Samples."

The tin box is this size. [Here follows a sketch of the box in plan and section, showing red india-rubber inker and tube of ink. Enclosed with the letter was a circular of instructions and explanations concerning a "Proposed Collection of Finger-Prints. By Francis Galton."]

It can be passed in England as a *letter*, in a "safe-transit" envelope, together with forms, and a printed envelope to return it, all for *two-pence*, in fact they only *just* exceed the $1\frac{1}{2}d.$ stamp. So I can send them readily in this country, if not abroad also. But you *have* the printing outfit, so would not want one for your own use, even if what I now send miscarries. I should indeed be greatly obliged for help in making the necessary collection. The problems, which it ought to assist in solving, are of high importance and the attempts I have recently made, with such limited material as I possess, give much hope.

Very faithfully yours, FRANCIS GALTON.

The envelope enclosed in the packet—for return—is not stamped because I possess no American postage stamps.

[Pursuant to request contained in this letter I obtained prints of a considerable number of relatives—parents, uncles, aunts, cousins, double-cousins, etc. in both branches of my own family, and sent them to Mr Galton in the books with which he provided his contributors. M. G. O.]

42, RUTLAND GATE, S.W. *July 16, 1907.*

MY DEAR MRS GARDINER, It is grievous to me that I shall miss seeing you and your daughter. I leave London on Aug. 1 for the country, my precise address there being *Yaffles*, Hindhead, Haslemere, Surrey, a house which I have rented for six weeks (the extraordinary word "Yaffle" means in the Surrey *patois* a "green woodpecker").

I have laid finger-printing aside now, as it thrives and flourishes in Scotland Yard, our centre of prison administration, but for all that I *think* something more might be done in classification.

The series of finger-prints of your daughter will remain a classic in the history of the science. It stands quite alone in its completeness from the first week of life—even from the day* of birth—to girlhood.

I *may* have occasion to run up to town for a day and *if so* will certainly endeavour to see you if you will send me your London address. Very sincerely yours, FRANCIS GALTON.

Don't call me "Dr" please—I hate the epithet, except on formal occasions.

[In my daughter's 13th year we visited for a few weeks her father's relatives in Scotland and England, spending a short time in London before we sailed for home. I hoped to be able to call upon Dr Galton, whom I had never seen, and wrote to him shortly before we went up to London, but because of his absence from town failed to meet him. M. G. O.]

* This is not quite accurate—I sat up and took the first prints of my daughter on the *sixth* day after her birth. M. G. O.

42, RUTLAND GATE, S.W. *November 18, 1896.*

DEAR MRS HERTZ, You always send me valuable information, and this about Mozart is perhaps the most extraordinary of all*. There are plenty of instances in a faint degree of the mind working independently of the executive function of the hand, in carrying out an already determined plan, but none that I know of which is comparable in degree with that of Mozart. Thus in writing a letter, the forthcoming paragraph is being planned while penmanship is going on. Certainly some people feel the effort of penmanship very much less than others, so that they think ahead while writing as freely as a person who is copying a picture may be thinking of some design of his own. The detachment from noises and interruptions is not uncommon either. We most of us feel that when full of any subject and suddenly obliged to leave it, that we can easily pick up the dropped thread when free to return to it. I wish these wonderful people would submit themselves to tests and not leave the description of their performances to biographers. You do not mention Mrs Macdonell, I trust her health is better. Hoping to call soon and to hear more, believe me, Very truly yours, FRANCIS GALTON.

42, RUTLAND GATE, S.W. *December 31, 1896.*

DEAR MRS HERTZ, Your welcome Christmas card, in the form of von Lippmann's curious and interesting pamphlet, has reached me in Cornwall where I am staying a few more days before returning to town. I will keep it for *regular* reading in the homeward train. Pray accept my best New Year wishes for you and yours. It is amusing that the young lady is already busy on books of travel and adventure. *What savages we all are, in our primary instincts!* Pray remember me most kindly to Mrs Macdonell and believe me,

Very sincerely yours, FRANCIS GALTON.

42, RUTLAND GATE, S.W. *December 7, 1896.*

DEAR MELDOLA, Thanks many for the proposals on your post-cards which suggest further the word "phylometry †."

I see in Liddell and Scott's dictionary that *φύλον* is just what we want—viz. primarily a "set of any living beings naturally distinct from others." It has been used for a swarm of gnats—for the races of birds, beasts, fishes, also in the sense of "the whole tribe of them," as applied to the Sophists. Further, as a race, a nation, or "a clan or tribe of men according to blood and descent."

* Extract from a letter of Mrs Hertz from 40, Lansdowne Crescent, W., dated November 17, 1896: "I enclose a leaf torn out (rather ruggedly) from the Programme *résumé* of the popular concert last Saturday. It struck me that the facts therein related concerning Mozart's celebration, if you have not already come across them, might be of interest to you. To me it seems little short of miraculous that he could write out that sublime composition, the *Ouverture* to 'Don Giovanni,' while his wife read aloud to him. Indeed the statement that he did so during the night before its performance excites much doubt in my mind. For he would have had to write the part of each instrument separately, and when could the members of the Orchestra have studied and rehearsed their parts? Nevertheless it seems probable that Otto Jahn, his biographer, a writer of repute and standing, took trouble to verify the main point, which is that he had the faculty of thinking out a composition in its full detail and completeness before he set pen to paper, and that he could then write it down correctly while devising a fresh composition, or while concentrating his mind on some quite different subject. Have you met with any other such surprising manifestation of the twofold simultaneous action of the brain?.....Are you on the track of fresh discoveries about the animal whose behaviour and whose motives grow more and more bewildering and perplexing, more and more difficult to control, guide and regulate?"

† Meldola's suggestion of this word as a name for what we now term "biometry" deserves to be recorded. It is about coeval with the use of the latter term. When I adopted the word "biometry" for the science which applies the modern theory of statistics to the study of variation and correlation in living forms, I was unaware that Christoph Bernoulli in his *Handbuch der Populationistik* of 1841 had termed the study of life tables "Populationistische Biometrie."

What do you think? The question suddenly presses, as I find that the Committees of the Royal Society are formed at its Council next Thursday.

Failing a better name I would propose to the Council of the Royal Society that our present title be changed as above to "Phylometric Committee." What do you say? I wrote to Weldon and to F. Darwin in the same sense. Also I should propose to ask the Council to add the words "with power to add ordinary and accessory members."

"Accessory" is a phrase in use at the Royal Society to signify, as I understand from Harrison, either non-fellows or paid fellows or both. Do you agree?

Very faithfully yours, FRANCIS GALTON.

P.S. I have looked up the Minute of Council under which we were originally appointed. It was on Jan. 18, 1894—Minutes, p. 71: "...for conducting statistical inquiries into the measurable characteristics of plants and animals." The notice of our Friday meeting is gone back for *revise* so you will not get a copy before Wednesday. F. G.

42, RUTLAND GATE, S.W. *February 15, 1897.*

MY DEAR PROFESSOR K. PEARSON, You will not, I am sure, doubt that I fully share the view that the future of biology lies mainly in exact treatment of homogeneous statistical material. The first thing is to *get it*. Now the Sub-Committee seems to me better adapted than perhaps any other collection of men that could be named, to do this. They represent between them the departments of mammals, birds, fishes and insects. They know the conditions of rearing and the existing workers, and they have the confidence of the latter. I have already a considerable list of suggested experiments such as would be statistically serviceable. The details of each would be of course a serious problem, so to be arranged that neither sterility nor disease shall interfere with it, and, again, such that will lead to no ambiguous results. After Tuesday's meeting of the Committee it will be more easy than it is now to anticipate, but at present I am in high hopes that we shall ultimately succeed in the really important task of controlling, in a useful sense, a vast amount of existing work that is wasted for want of scientific sympathy, criticism and encouragement. It must always be borne in mind that we are dealing with human workers, who have their own ideas which must be respected and humoured, if we are to gain their cordial co-operation. We have, to speak rather grandly, *statesmanship* problems to deal with. I trust we shall often have occasion to consult with you as to the best of alternative plans. Just now, we must busy ourselves in finding out lines of least resistance in pushing forward our nascent work. Very faithfully yours, FRANCIS GALTON.

I had warned Francis Galton that his Committee, extended into an "omnium gatherum" of various schools of biological thought, would achieve nothing further in the way of "conducting statistical inquiries into the measurable characters of plants and animals"—a prophecy which unfortunately was only too soon and too fully realised.

42, RUTLAND GATE, S.W. *March 14, 1897.*

DEAR PROFESSOR K. PEARSON, Pray try and forgive my troubling you with a question. It is whether the enclosed problem is a recognised one and, if so, where I can read about it? I have a big batch of very promising statistics in which it would be very serviceable, and at present I do not see my way clearly in respect to it. Any guidance from you would be most acceptable. Very faithfully yours, FRANCIS GALTON.

If, when your proofs of spurious correlation reach you, you could spare me one copy I should be much obliged.

A Problem relating to Fallible Judgments.

Suppose two kinds of balls, *A* and *B*, which differ so little as to be often mistaken for one another when viewed somewhat carelessly, though they are surely distinguishable on minute scrutiny. A rather careless examiner, No. 1, is given a batch of 1000 of these mixed balls, in which there are known to be *a* balls of the *A* kind. He has to select out of them the *a* balls

which he considers to be A . Then each of the selected group is marked with an A_1 , of so minute a size as to be readily overlooked. A second examiner, No. 2, who overlooks the A_1 marks, proceeds in the same way, and each of his selected set is scratched with an A_2 . Subsequent investigation shows that:

- I. a_1 of the balls marked A_1 are truly A .
- II. a_2 of the balls marked A_2 are truly A .
- III. a_3 of the balls marked A_1 and A_2 are truly A .

Question. What is the trustworthiness, when measured on a scale of equal parts, of the three estimates defined by I, II and III?

Mem. The scale of trustworthiness is bounded, below at a zero point, of no trustworthiness at all, when $a = \frac{a^2}{1000}$, and, above, where precision is absolute, when $a = a$.

F. GALTON.

42, RUTLAND GATE, S.W. *May 20, 1897.*

MY DEAR PROFESSOR KARL PEARSON, You were not, as I heard, at the Royal Society Soirée last night, where I had hoped to have thanked you sincerely for the book and for the exceedingly kind writing on the fly-leaf. It is one of the great pleasures left me, to know, now that I grow older and stupider, that anything I may have done has proved serviceable to others who, to misquote Tennyson, can "step from *my* dead self to higher things."

I was absent from London all the day-part of yesterday and have only very cursorily as yet looked through the book, but have seen enough to astonish me at its wide range and serious reasonings and at its substantial unity among apparent diversity. You must indeed have had difficulty in assigning a title to it. What an awful time to live in the 14th century must have been to most persons, with its plagues and endemic manias of flagellations, tarantellas and the like, and savage wars. No wonder that dances of death were popular. I look forward greatly to reading the two volumes properly. Very sincerely yours, FRANCIS GALTON.

GRAND HÔTEL, ROYAT. *August 13, 1897. 5 a.m.*

DEAREST EMMA, It is ill news that I have to send. You heard that Louisa* had been ill since last Sunday, when she packed up in good spirits and with much interest for a tour among the Dauphiné mountains, beginning with the Grande Chartreuse. But it was not to be. She was seized with a severe attack of diarrhoea and vomiting during the night, a repetition of what she, I and Mme de Falbe had all had in a lesser degree. Still Dr Petit thought little of it on Monday morning, even on Tuesday morning he was not anxious, but she grew steadily worse. The bile thrown out was exceedingly disordered and I think its presence throughout the body poisoned her. She had of course discomfort at times, but was on the whole drowsy. Yesterday she was evidently sinking. I had a nurse to sit up through the night, who awoke me at 2½ a.m. when dear Louie was dying. She passed away so imperceptibly that I could not tell when, within several minutes. Dying is often easy! I believe French formalities require very early burial, probably to-morrow, but I know nothing now. When the people are up and moving I shall hear all about necessary legal formalities, which may take time. This is written to catch the morning post to England. You shall of course hear again very soon. I cannot yet realise my loss. The sense of it will come only too distressfully soon, when I reach my desolate home. Please tell the brothers and sisters. I am too tired to write much, having had long nursing hours. Mme de Falbe is our one friend here, but she was in bed yesterday and to-day with a slight attack of the same malady. Her maid has been very helpful. The landlady is all kindness. The nurse (a *religieuse*) did her best, and so did the chambermaid, they and another woman got up in the night to do the sad and necessary offices. Dear Louisa, she lies looking peaceful but worn, in the next room to where I am writing, with a door between. I have much to be thankful for in having had her society and love for so long. I know how you loved her and will sympathise with me. God bless you. Ever affectionately, FRANCIS GALTON.

* Mrs Francis Galton, née Butler.



Francis Galton, aged 75.
Royat, July, 1897.

Address, 42, RUTLAND GATE, S.W. GRAND HÔTEL, ROYAT. August 15, 1897.

DEAREST EMMA, I hardly know how much time has really passed since I wrote, for each day has been divided into two or three by intermediate dozes or sleeps and the last week has been terribly long. Dear Louisa was buried with simple decorum yesterday in the cemetery of Clermont-Ferrand. The day was lovely, the mountains looked singularly imposing, the English Chaplain, Mr Wilcox (of Battersea Park Road) officiated, and a most kindly and tactful clergyman, Mr Jennings, the clergyman of St Stephen's in Cheltenham, who is now copying documents at my side, came with me to the grave. The landlord of the Hôtel came also, and acted as a perfect courier in managing all the numerous details and formalities. A feeling allusion was made in the sermon of to-day, and appropriate hymns were sung. I shall, I trust, see you for a day before long and can tell more and answer questions. Mme de Falbe has written a full and independent letter to Spencer Butler, describing all she knew, and filling in some needed details. She could not help, or come *herself*, during the latter part of the illness, being then, and still is, confined to her bedroom by doctor's orders, but she sent a useful maid. You will easily understand how desolate I have felt, but thanks largely to Mr Jennings' tact, consideration and manly sympathy, I have already, perhaps, gone through the bitterest period, though I look forward with dread to the most painful task of distributing her familiar personalia, etc. Dearest Louisa,—I have very much to be grateful for, but our long-continued wedded life must anyhow have come to an end before long. We have had our day, but I did not expect to be the survivor. I got for the first time in touch with England yesterday, through receiving a telegram from Spencer Butler, who is still in London. I thought he had gone to the Engadine. I have had also to-day a telegram from Gifi. These telegrams are a boon to me. People generally do not (and I did not) realise that you can telegraph in English if you please. In any case the cost is only 2*d.* a word. I hope to get to-morrow, or at all events by Tuesday, any letter you may have sent to Grenoble. On Tuesday evening I propose to start home, arriving there on Wednesday evening. I am anxious to hear about yourself; it seems to me that I have not heard for a fortnight, but, as already said, I am astray as to time, and my papers are huddled up in disorder.

Of course Bessy will understand that in writing to you I write also to her and, through her, both to Edward and Lucy*. I had not written either to Darwin, Erasmus or Milly, but have done so to-day, and enclose the two latter letters for you kindly to address and forward. Excuse more for I must husband strength. Ever very affectionately, FRANCIS GALTON.

Examination showed the cause of Louisa's long ill-health and final death to be an extremely small stomach and an extremely constricted outlet due to her illness 19 years ago. The stomach was barely one third the natural size, and the outlet leading out of it no larger than would just contain a common lead pencil.

42, RUTLAND GATE, S.W. October 13, 1897.

DEAR MRS HERTZ, An absurd piece of ill luck has prevented my yet reading von Lippmann's pamphlet. I am just now sorting accumulations of pamphlets, letters, etc., and the pamphlet in question seems to have got into one of the heaps of unsorted materials, whence in due time it will emerge, but at present I cannot find it. I should be much gratified if he does not lose but reads mine, of which I enclose a copy.

There is to me no difficulty in fraternal variation. The wonder would be if brothers did *not* vary considering the multitude of unseen disturbing influences on the general tendency of like to produce like. In my theory, the prophecy is that so many *per cent.* of individuals having like progenitors, will be this or that, and it is the nearly exact fulfilment of the prophecy that the memoir is intended to show. The Basset hounds of the same family are by no means all of the same colour, but the *per cent.* law holds good notwithstanding. Imagine a pair, whose ancestors are all known, to produce 100 puppies; then, what I prophesy is that from knowledge of the ancestry I can tell how many of them would be *T* and how many *N*†. The "coefficient" expresses that number. It varies according to the case from 96 to 52 in my Table VI.

Very truly yours, FRANCIS GALTON.

* Mr and Mrs Edward Wheler-Galton. The latter appears as "M. L." in later letters, probably to distinguish her from other members of the family with the same Christian names.

† *T* = Tricolour, *N* = Non-tricolour.

42, RUTLAND GATE, S.W. *January 4, 1898.*

MY DEAR PROFESSOR K. PEARSON, You have indeed sent me a most cherished New Year greeting. It delights me beyond measure to find that you are harmonising what seemed disjointed, and cutting out and replacing the rotten planks of my propositions. We shall make something out of heredity at last; all the more, when new and more abundant data arrive for testing the soundness of each advance. I wish many more mathematicians would attack the subject. A mere statement of your results—what *can* be done—would perhaps help to make people understand that there *is* a science of heredity, approximately understood at present, but sure to be developed. Let me please keep the MS. for two or three days. I have gone through it superficially twice, but want further time to do it more thoroughly. I will write again. You are very flattering to me. Very sincerely yours, FRANCIS GALTON.

42, RUTLAND GATE, S.W. *January 10, 1898.*

MY DEAR PROFESSOR K. PEARSON, You overwhelm me with sentiments of gratitude. I cannot help feeling them partly in respect to your most flattering references to myself, but really and honestly chiefly in respect to your furtherance of the just understanding of the effects of heredity. The subject is so enormously important that my own personal interests in it are quite secondary. It is indeed a big work that you are carrying on and which you have advanced to a point at which the results cannot but impress the scientific public, being large and palpable, simple and consistent. I hope on those grounds that you may see your way to publish it soon. It will be a vast encouragement to those who collect and to those who furnish data, to be assured that there is a clear and very important object in view, in collecting them, and that their efforts will not be wasted. Such remarks as I might venture to make, would be of little importance to you. I wish however that you would not mind the appearance of prolixity, in expressing the first paragraph on p. 3 at greater length, so that its meaning should be unmistakably clear. Also, if you use the word "mid-parent of the 5th order" instead of "mid-ancestry of the 5th order," the word "parent" in that context should be defined. It is true that we say grand-parent, etc., but "parent" strictly means either a father or mother. I am stupid in *realising* the meaning of the new values of r' , r'' , etc. (p. 8). I wish you could somehow make the *rationale* of it clearer, as distinguished from the mathematical proof. In the comments, p. 22, on the contents of p. 21, would it not be well to be somewhat more diffuse, in order to do away with the mistaken idea that first presents itself to the mind, that they contradict the well-observed fact that pedigree stock are very "even," i.e. they vary little among themselves. It is the $\frac{\text{fraternal}}{\text{general}}$ regression that you speak of, and therefore the ratio may well be maintained, all the same. Your coefficient of stability will be of great use and importance. But *all* is so valuable. Very sincerely yours, FRANCIS GALTON.

The cross-heredity is a charming piece of work. It has just reached me.

42, RUTLAND GATE, S.W. *January 25, 1898.*

DEAR PROFESSOR K. PEARSON, The memoir you send, and which I return, is full of interest to me. The cephalic index seems an admirable subject for hereditary inquiry, making observations on school-children available, and it is excellent too for Christmas family gatherings. The index of conjugal fidelity in a race is delicious! I am very glad to see how closely theory and observation run together in all Indian kinships except the paterno-filial. Not the least of your many achievements is that of "enthusing" (as Americans say) such competent workers as you do. I hope Miss Cicely Fawcett will continue her investigations.

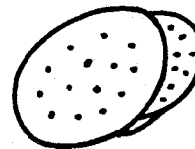
Very faithfully yours, FRANCIS GALTON.

Of course I shall be at the Royal Society on Monday. I am grieved that influenza still grips you.

42, RUTLAND GATE, S.W. July 1, 1898.

DEAR GEORGE DARWIN, Your small son has, I hear, a faculty about which I have been particularly interested in another child, namely the aptitude of identifying the perforated discs used for musical boxes. I wish you would talk it over with your wife, and perhaps make a few experiments and tell me the result on Wednesday. The experiments I mean, are by taking the pile of discs and pulling out one of them very gradually from among the pile until he recognises it.

Does he know them with equal ease, face upwards or face downwards? How many does he distinguish? At what age did he begin to do so? Am I right (do you think) in supposing that it is a similar act of memory to that of recollecting a hieroglyph or a scroll pattern, or the like, or is there any possibility of suggesting the tune, in the distribution of the holes? I should be very glad of some verbal information about this, as the case I have heard of in Northumberland seems to be a very curious one, hard to explain except on the hypothesis of a portentous memory of patterns. Do you think that *you* yourself could easily recollect and distinguish the discs? Can the other children? Ever yours, FRANCIS GALTON.



42, RUTLAND GATE, S.W. November 16, 1898.

DEAR PROFESSOR KARL PEARSON, Possibly you may intend going to the Royal Society "at home" on Thursday (to-morrow). If so, or otherwise, will you dine as my guest at the Philosophical Club? It is not necessary or even usual to dress. It would, I thought, have been possibly a breach of etiquette, had I written, as soon as I knew it was settled, to congratulate you heartily on the forthcoming award of the Darwin Medal of the Royal Society. It seems in every way most appropriate. I am delighted at the wisdom of the choice.

Very sincerely yours, FRANCIS GALTON.

The enclosed card will give needful particulars as to the Phil. Club.

7, WELL ROAD, HAMPSTEAD, N.W. November 30, 1898.

MY DEAR MR GALTON, I quite realise the difficulty about the term *Reproductive Selection*, but I sought in vain three years ago for a better, and failing to find one have used it ever since in my papers. I think also that it has something, not very much perhaps, in its favour. Evolution takes place by taking out of the community *A, B, C, D, E, F, X, Y, Z*, certain members *L, M, N*, and putting them into a position of advantage for propagating their kind. Anything which contributes to this advantage is *selection*, a differential death-rate is Darwin's *natural selection*, it should be *Selection of the Fitter* as all selection in wild life is "natural." Selection by a differential birth-rate is my reproductive selection; it is selection of the most fertile. There is a third kind—selection by a differential pairing rate, individuals *L, M* and *N* pair, or on the whole pair, more frequently than *A, B, C, . . .*. This is also a possible progressive source of change. It can be demonstrated to exist in civilised man, I am uncertain whether it is actual as well as potential in wild life. All these three kinds of *selection* are factors in potentia of evolution, but the last two involve *no destruction*. A uniform, *non-differential* death-rate will still cause progressive change. Thus a selection of Celtic over Teutonic elements in a population might arise without any survival of the fitter, if (i) the Celts married equally frequently with the Teutons, but were more prolific, or (ii) if the Celts and Teutons were equally prolific, but the Teutons married less frequently than the Celts. In both cases we might speak of *selection*. In the former case we have selection by differential fertility, in the latter case by frequency of pairing. In both, to be effective, the fertility must be inherited or the relative tendency to pair, inherited. The former is what I term *Reproductive Selection*, the latter is—what? Please send me a name for it, before I find it absolutely needful to coin one.

Yours always sincerely, KARL PEARSON.

42, RUTLAND GATE, S.W. November 30, 1898.

MY DEAR PROFESSOR K. PEARSON, It is not so much the word "Selection" that seems to be a stumbling block, as *Reproductive*. I did my best to think it out, owing to the fact that the Royal Society paper was sent to me as one of the Referees, and it was a duty to do so. What I then wrote was somewhat to this effect: (1) The termination of the adjective should accord with *natural, artificial, sexual*, and therefore be "*-al*," or its equivalent "*-ic*," for

PLATE LIII



Francis Galton's Great-Niece Evelyne Biggs—Mrs Guy Ellis. Compare Plate XIV, Vol. 1, and Plate XLVIII of the present volume.

“-ical.” Reproductive Selection conveys the idea of a Selection that reproduces itself, which of course is absurd. The termination “-ive” seems quite misleading.

The *Re* in “Reproductive” also, as it seems to me, misleads. It implies the substitution of a unit by a *similar* one. There is no advance, but it leaves things, statistically speaking, as they were. “Production” is much less objectionable. What is wanted, is to express production to more than the average amount, such as a prefix like “pre-” or “super-” might imply. But this might be dispensed with for the sake of brevity.

Two words occur to me as worth consideration:—“Progenic Selection” (I won’t say Pre-progenic), “Genetic Selection” (I won’t say Hyper-genetic). I am afraid that “superior fertility” cannot be expressed by any tolerable word that has “fertile” for its base and ends in “-ic” or “-al.” “Proles” is a good word to *force* into an adjective, “Prolic Selection.” I am afraid “Prolifical” would be too cumbersome, and “prolific” is too differentiated a word to use. Your idea, as now expressed by the words “Reproductive Selection,” will hereafter become so important an element in all questions of Evolution, that before they are too firmly established I really think it most advisable to change them. It will be otherwise a continual stumbling block to new students. Pray forgive me for all this. Very sincerely yours, FRANCIS GALTON.

42, RUTLAND GATE, S.W. *November 30, 1898.* (2)

DEAR PROFESSOR K. PEARSON, I was stupid about “fertile,” for, looking into a Latin dictionary, I am reminded of the word “fertus” for fruitful (*ferta arva*—fertile fields), so perhaps “Pre-fertal Selection” would be the best of all. I will think over your other question.

Very sincerely yours, FRANCIS GALTON.

42, RUTLAND GATE, S.W. *December 4, 1898.*

DEAR PROFESSOR K. PEARSON, The phrase “Prefertile Selection” does not sound right to me. Why not drop Selection and use a phrase, which *in full* would run “effects of differential fertility on race”? It would *currently* be shortened to “effects of differential fertility” (30 letters) or even to “Differential fertility” (21 letters). I left London on Friday for three nights in the country and left behind your last memoir by accident, which prevents me from judging how far some such phrases as the above could be substituted for “Reproductive Selection” without bungling the sentences. I cannot think of a couple of technical words that should express “the effects of early marriage on fertility,” but are they needful? Yet that may not be what you want, rather “the effects of differences in age of marriage on race.” What you say about a Committee to discuss and pass new words is *prima facie* very attractive. Some few men have a great gift in striking out good words. Huxley had it in an eminent degree. Sir John Lubbock used to take immense pains in giving names to species that would suit the genius of the French and German languages as well as our own. I return to London, to-morrow, Monday. Very faithfully yours, FRANCIS GALTON.

42, RUTLAND GATE, S.W. *March 9, 1899.*

MY DEAR EMMA AND BESSY, Thanks, Bessy, for your letter. It gives a very painful account of the Lloyds*. There is much to tell:—On Monday I called at Chester St and saw Evelyn Cunliffe. The fact appears to be that Douglas† is by no means in so exhausted a state as I had understood, but is able to sit up in bed and take food and even to get partly out of bed himself. Also that the ear and the lung have both got well. On the other hand, phlebitis has set in, which is of course very serious and the swelling of the wrist continues very painful. It may prove to be an abscess. This was on Monday. I have not heard since.

The Horse photos and measures ended very successfully. Thanks wholly to Sir Jacob Wilson a number of big and little difficulties were smoothed away, any one of which would have been fatal. On Monday evening I met him and the photographer at the yard in the Agricultural Hall. A level platform of three rows of flag-stones was laid down on sand shovelled in for the purpose alongside a temporary structure that served as a background. The camera was 30 feet off and a dark room was improvised for changing plates. Mr Reid, the photographer, brought 36 slides and during the process refilled 24 of them. Tuesday morning

* On the relationship of the Galtons to the Lloyds: see our Vol. 1, Plate C in the pocket at the end.

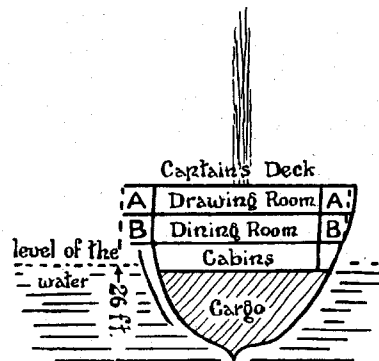
† Sir Douglas Galton, the engineer; he died from blood poisoning in the same year. Evelyn Cunliffe was his elder daughter.

was fair in Rutland Gate but as I approached the Agricultural Hall the fog began and worsened until at 9 a.m., the time for beginning, nothing could be seen at a short distance! However, in time, the day cleared, with the result that all the horses selected for making the final judgment were taken. The only mistake was in not securing a lighter background. My staff consisted of the photographer, his son who did the main part of the work, and a most intelligent stud-groom (whom he borrowed from Lord Arthur Cecil to help him) and two colleagues sent by the Veterinary College to make the measurements. There were others in the yard, besides the groom that led in each horse in turn. I was surprised at the facility with which they placed them. Of course some of the beautiful brutes stood on their hind legs and pawed in the air, and others kicked fore and aft, but on the whole they were hustled into place, and in every case stood on the middle row of flags which was only 25 inches wide. So all the photos are in *standard* position. I wanted to mark the position of the hip bone and did so with paper wafers, each the size of a shilling, with a dab of very thick paste in the middle, which was laid on with a little spud, that I cut from a pencil. It was held by its edge, clapped on the right place, and adhered firmly. They told me that the grooms were puzzled as to the object, but on the whole thought it was a mark of distinction, so they left them on and in the afternoon parade there were the spotted horses! It must have puzzled the spectators. I was standing about helping, on a coldish day from 9 to 2; then there was lunch, and afterwards the final judging, but by 4 I began to feel cold, and left before being formally introduced to the Duke of Portland, etc. It certainly *was* cold (to me). A friend of Edward's, Sir John Gilmour, to whom I was introduced, asked me for some particulars, but at that moment my teeth were chattering so that I could hardly reply intelligibly. The upshot is that I have got material for a useful little paper, but time will be needed to work it up. I shall have the photos* sent to me abroad, to work at when otherwise idle. Yesterday Frank Butler came for final instructions. He will act altogether for me, in emergencies, and will answer my letters, which will be forwarded to him. His address is A. Francis Butler, Esq., Haileybury Cottage, Hertford. I will take every care of Eva Biggs†. She comes to me on Monday. I want to tell Edward Wheler about the photography but have little time just now to write more. Will you send this, therefore, to him? Ever affectionately, with much love, FRANCIS GALTON.



AT SEA, PAST LISBON. *March 21, 1899.*

DEAREST EMMA, I begin now, as there will probably be hurry and sight-seeing to-morrow morning at Gibraltar. The sea has been unexpectedly favourable, but weather is so cold that I have used all my wraps the whole day and over the bedclothes at night. Eva and a very few other ladies have been squeamish and sick and she is not yet quite right, though sitting on deck. It is a wonderfully well-arranged steamer. We each of us have had the good luck of having a cabin all to ourselves, which, as a cabin is 6 ft. 3 in. long, the same or a little more in height and 6 ft. wide, is luxurious. With two in a cabin it would be rather hugger-mugger, at the best. The ship rolls so slowly, it takes 17 seconds to roll to one side and back again. There is no jar or smell of steam engines whatever; the ship seems propelled by attraction or some other smoothly acting force. This is the section as I understand it. Nobody but the ship's officers are allowed on the upper deck, but we walk and sit mostly at A, which is under the cover of the captain's deck and very pleasant to be in. We can walk along B but it is much narrower than A. The first class passengers are separate from the rest and walking all round their part at A is just $\frac{1}{10}$ th of a mile, as I find; so 10 "laps" are 1 mile. They feed us over abundantly. Eschbach (the courier) makes a capital lady's-maid for Eva, and evidently knows all a courier's duties very perfectly. There are about 100 first class passengers, some pleasant to talk to. I think much of you all, also of the great sorrows left temporarily behind. So much for the present.



* These photographs have disappeared entirely, and Mr Reid informs me that after taking two sets of prints he destroyed the negatives. Alas!

† Galton's great-niece was about to travel with her uncle for the first time, and Spain and Tangiers were to be visited.

Wednesday midday. *March 22.*

Yesterday was calm, warm and enjoyable. We reached the neighbourhood of Gibraltar during the dark and got up quite early to see the grand outlines of the hills and a brilliant planet. Some time after the day broke and ultimately we landed at 7 a.m. Then we took a walk and afterwards a pleasant hour's drive under the big rock, then to breakfast at 9½ and a sleep after. It is quite warm, flowers in masses and green all about. To-morrow (Thursday) we reach Ronda late, sleep two nights there and reach *Hôtel Madrid, Seville*, on Saturday to stay there nine days, that is over Easter Monday. Eva is very bright and has been practically free from sea-squeamishness since yesterday afternoon. We both left the ship with some regret, having begun to enjoy sea life and having made various acquaintances. I quite see how pleasant it might be to take summer cruises on these big ships with a party of friends. Good-bye now, with best love to Bessy and to all. Ever affectionately yours, FRANCIS GALTON.

Note the 1d. Gibraltar stamp on the envelope.

Address up to April 9, *midday* post, *Hôtel Washington Irving, Granada, Spain.*

SEVILLE, morning of *April 3, 1899.* (Your letter of Tuesday, March 28, arrived last night, Easter Sunday, 5 or 6 days on the road.)

DEAREST EMMA AND BESSY, It seems so odd to have only just received a reply to my Gibraltar letter, for though we have been only 12 days in Spain, it seems to have been months, and we have been eight days at Seville, doing something fresh every day and getting a more complete change of ideas in a short time than I had thought possible. Eva is a capital companion and Eschbach is quite a first-class courier. Though old and half-blind, he always knows everything or finds out everything we want. He is always at hand and ingratiates himself everywhere. I would back him and Gifi, each in their way, against any men in their profession whom I have seen. The religious processions and church services were almost constant in the late afternoons of Thursday and Good Friday, and in Saturday morning's service the "veil was rent," pistols fired, bells rung everywhere and Lent was over. We drove out to see the bulls, which had just arrived and had been driven along with belled oxen to keep them quiet; they were in a paddock beyond the suburbs. All fashionable Seville was there, and the bull-fighters too. Nay more, Eschbach made friends with one of them and suggested that we should take him inside our little open carriage, to explain everything, which we did, to our mutual satisfactions. He chattered away and was most amusing and gave us a good lesson in elementary Spanish at the same time. He was quite a natural gentleman. Of course I went to the bull fight, which did not horrify me as I had expected; I found it full of interest. I won't go into details, though they differed in importance, as it seemed to me, from what others have said. The six bulls between them tossed and killed at least a dozen horses and the riders got ugly falls, but none were hurt. The bull heaves them in the air, rider and all, with his great force. It is not a rapid dash that he makes at them, but a murderous business-like push, working his horn deeply in. I don't mean that all four legs of the horses were lifted off the ground at once, but three of them were sometimes, and always two. Every one of the six fights had its peculiar features, and it is this variety of incident that makes it so attractive to Spaniards. Moreover there is no *cry* of pain, no visible sign of pain to curdle one's blood. The badly wounded horses still obey the bridle, showing that they are not in any *agony*. One must not read one's fancies into facts. The squeal of a scared rabbit affects my own nerves more than anything I saw in the ring, and the feats of cool daring and agility were marvellous. I am glad though, that Eva did not care to go. She had her experience, by lighting her mosquito curtains by accident, while dressing for dinner. The blaze was furious, but there is so little material in them to burn, that the body of heat was really small and insufficient to set a house on fire. It is like those futile attempts to light a coal fire with a newspaper only. She was neither hurt nor frightened, but was wet through by pouring the contents of two big cans of hot water and two jugs of cold water upon the blaze and partly on herself. She sketches much and makes many studies of heads, and goes about to churches in Bessy's beautiful black lace shawl as a mantilla, having been well instructed in the art of wearing it by an Anglo-Spanish lady, who vastly admired the lace. We have both been quite well, except that I was slightly out of sorts with a usual traveller's ailment for two or three days. As to my old cough, it has gone away, though the throat does not seem *yet* to be *quite* strong again. It betters every week. We leave here to-day (Monday) for Cadiz, cross to Tangiers

by (seven hours) steamer on Wednesday, and then plans are uncertain for a few days, but we ultimately get from Morocco somehow to Malaga and thence on to Granada, which, as our timetable now stands, we should leave on April 14; but I dare say we may find it wiser to give more time to this forthcoming and most interesting bit of travel. It is perfect English summer here. I began writing this letter at 6 a.m. this morning, with the windows wide open. The sky has been cloudless for many days and we read with wonder about snow, not only with you, but at Nice also. It is a grievous affair about the Earl of Warwick's property. I will give your messages to Eva, but must close now for the post. With best loves to all.

Ever affectionately yours, FRANCIS GALTON.

Tell me about your own health when you write; please do.

Address next to: Hôtel de Rome, Madrid, Spain, but I shall not get there till about the 18th, and propose staying till the 25th, at least.

DEAREST EMMA AND BESSY, Your joint letters of April 1 reached me to-day at Tangiers, Thursday, April 6th. We were called out of bed yesterday when in Cadiz at 4½ a.m. and finally, in such a bustle and clamour, landed here about 2 p.m.; since when we have been busy sight-seeing. It is such a very Oriental-looking town with crowded streets of costumed natives; a most complete change after Spain. We passed Cape Trafalgar, and Eva made sketches as we did so, and has copied and will send herewith one for you, Bessy. What a historical part of the world we are in! Cadiz is a flat Portland Island, connected with the mainland by a long narrow strip of land, corresponding to the Chesil Bank. We had a breezy passage, calm sea at first and then abundance of "white horses." Among other things here, we saw a snake charmer who put out his tongue for the snake to bite, which it did very thoroughly, opening its mouth very wide and fixing on to it. Then he put out his tongue for us to see and sure enough there were the two bleeding punctures made by the two teeth. Then he chewed straw for a while, and putting out his tongue again—hey presto—it was healed.

I called to-day on the wife of the British Consul, Lady Nicholson, to whom Mrs Robb gave me a letter. He is the son of an old acquaintance of mine, Admiral Sir Frederick N. (no relation of Marianne's*)—such a beautiful situation and gardens. Sir William Dalby, the aurist, turned up to-day, and gave me a full medical account of Douglas's last illness. The details were much as I had heard from Marianne, but he did not think his sufferings had been so terribly great as she seemed to think, when speaking to me about them. He, his son, Eva and I have been to a Moorish coffee-house with singing, and in the middle of our cups were rushed out to see a Moorish bridal procession. The paving of the narrow streets is atrocious, but I have not yet had a tumble. My cough came on a very little in consequence of a draughty railway carriage from Seville, and it was fortunate for me that it did, for I was hesitating about accepting a very flattering invitation to the jubilee in July of a university in America. They wanted me to give three lectures or conferences, said their usual fee was £100 but begged me if I did not think that enough to ask for more, and assured me of various honours. The writer is a man I highly esteem, he is the President, but I am not strong enough; my voice might fail and I should disappoint. But I am sorry to refuse, having some new things to say that appear suitable for the occasion. Anyhow I *have* refused. I must close the letter now for to-morrow morning's post, and send Evelyne's sketch with her best love. The yellow in the sketch seemed to be pure sand. There is of course much more to tell that has interested us greatly, but it is hard to explain briefly. We are both in excellent health. Good-bye, best loves to all.

Ever affectionately, FRANCIS GALTON.

I am glad, dear Emma, of the fairly good account you give of yourself and hope you are now regularly in for spring at last. It is too hot here in the middle of the day for out of doors and we always have taken a long siesta then. It has been a very healthy life. You must not risk measles, though the risk may be very small.

* Marianne Nicholson, wife of Sir Douglas Galton.

HÔTEL WASHINGTON IRVING, GRANADA, SPAIN. Friday, April 14, 1899.

(But please address up to midday post of April 20 to Hôtel de Rome, Madrid, Spain. If a little later, I *think* the letters will be forwarded, I will certainly *tell* them to do so.)

DEAREST EMMA, Your letter of April 8th welcomed us on arriving here last night. We have continued to have great variety of interest and pleasure in the journey and are both quite well and happy. At Tangiers we stayed five days and made several acquaintances, among them an English lady whom I had long greatly desired to see, the widow of the late Sheriff of Wazan. My friend, Dr Spence Watson of Newcastle, wrote a book about her, long ago. She was a handsome girl (? a governess) some 18 years ago and the Sheriff of Wazan, who is a sort of rival Emperor of Morocco and of most holy Mussulman origin, but who affected European ways, met her. They mutually fell in love and married, she going to Wazan, continuing Christian and wearing European dress, but of course much shut up, and he remaining the religious and temporal head of a large and fanatical community there. She did her part with great tact and got on excellently. At length her husband died at Tangiers, and left her with two sons and an adequate property. She is now a plain, sensible, rather brusque but very kind, middle-aged and fattish woman. We quickly became great friends and she told us any amount of her experiences. The people kiss her hand and her *shoulder* which is the correct homage from an inferior, and she showed us the house and room where the Sheriff died and which her eldest son, for whom she has just found a correct Mussulwoman to marry, is to occupy. The trousseau box was gorgeous to look at. All this was quite a feature in our stay. On Monday we sailed to Spain again, opposite to Gibraltar, and went in seven hours to Malaga, where there are wonderfully beautiful gardens to be visited, all sorts of tropical trees and clumps of bamboos, but I thought them as muggy as they are beautiful. Yesterday, ten hours railway brought us here, to stay for three or four days. Then we go to Cordova where (at the Hôtel Suisse) I may possibly find some letters. After that to Madrid till the 25th, then to the South of France, then to Hôtel de la Poste, Clermont-Ferrand, Puy de Dôme, France, which I hope to reach about May 3, and home by about May 7, or a few days later. Eva is a capital companion, always cheerful and punctual and interested; moreover she always sees the good side of things and of persons. Eschbach continues to be perfect. We are idling this morning, as I have many letters to write, and the weather is a little dull and unsuitable to give an excellent first impression of the Alhambra, to which I am now close by. You will have missed Bessy during this week; give her my best love, of course. I am so glad the bicycle tour was a success. What a scandal it is about the Warwick and the Beaufort properties, and to think too of the Stoneleigh pictures! I gave your letter to Eva to read, so she knows of your messages and will write. I am very glad that Guy has a free passage to England and another chance for his career as a soldier. Amy Johnson's is a sad case. I trust she will be guided by her lawyer's opinion (Wm. Freshfield) before going to law. She told me the whole matter. What fun about Lady Harberton! I hope *Punch* will make something, good-naturedly, of it. About Lady Stanley, she was a kind friend. Louisa and I stayed some days with her, near Holyhead. Your "ups" will I hope increase and the "downs" diminish as the weather gets warmer. It was like midsummer in Malaga, but this place is 2000 feet high and cooler. Best loves, ever affectionately, FRANCIS GALTON.

[Enclosed with previous letter.]

HÔTEL WASHINGTON IRVING, GRANADA.

MY DEAR AUNT EMMA, Your letters are such a pleasure, Uncle Frank gave me the one of last night to read. I don't suppose he ever mentions his cough, so I will tell you about it. It has never actually gone yet, but is much better and he looks very well and is tremendously energetic, the Spaniards all ask me his age, and won't believe it when I tell them; you should see his complexion when he is on the sea, it is splendid, just like Sophy's when she is very well. He is really a perfect person to travel with, because he never fusses or gets impatient or grumbles if we are kept waiting ever so long for food or luggage! I hear from Sophy as usual with accounts of you; a letter from her last night tells me you were "in your tea gown and very delightful" when you last met. Poor Mr Lloyd, I am so sorry he is still so ill. I wrote to Gwen from Cadiz, I felt so very much for her and was truly fond of Mrs Lloyd. I am so happy out here, I love the Spaniards, they are so kind and polite to us, but all the same they are poor creatures and not a bit strong-minded or intellectual, but so picturesque. We hardly

ever see any English, if we do they are men and rather second-rate. Plenty of fat overfed Frenchmen! Very much love to you and Aunt Wheler, Your ever affectionate niece, EVELYNE.

Uncle Frank was a saint over my fire, wasn't it dreadful! I am ashamed of myself. I did not burn Aunt Wheler's mantilla, but my evening bodice and night-dress and dressing-gown.

Extracts from Letters of his Sisters to Francis Galton.

5, BERTIE TERRACE, LEAMINGTON SPA. Friday, April 14th, 1899.

Erasmus goes to-day to Ryde, and will stay there till June—He says—Vessels without sails to *steady* them, must roll—In his day, a three-decker scudding in a gale of wind, having so much top hamper, caused by three tiers of guns, took he believes nearly 30 seconds in recovering herself—I wrote him word, what you said, about the Packet rolling*..... E. S. GALTON.

Tell Eva that Gussie went with Sophy Bree † to see the Twins. It appears they can't speak English, only Hindustani. Margot sat on the rug listening to the conversation and hearing Gussie say "Sophy Bree and the Archdeacon..." Margot with a face full of fun mimicked her, saying "Soapy Bree and Archchicken" to their great amusement..... E. A. WHEELER.

Address up to April 29 inclusive, to Hôtel de la Poste, Clermont-Ferrand, Puy de Dôme, France.

MADRID. April 21, 1899.

DEAREST EMMA AND BESSY, Your letters of Friday 14th were here on our arrival last night, which had been delayed two days by our taking Toledo by the way, instead of doing it, as was intended, during our stay at Madrid. Nothing can have been more successful than our tour thus far; perfectly healthful, full of interest, while Eva is a model companion with abundant artistic pursuits of her own; so, on the few dull days, I take to my arithmetical figures, and she to drawing human figures, and we are both happy. In an hour or two, we go to the grand picture gallery which is the last *great* sight left to us in Spain. It is grievous to come north already. The glorious vegetation of S. Spain is now left quite behind, and Madrid has a northern and Parisian look. But all good things must finish, and so must this long-looked-for journey. I gave both your letters to Eva to read; it was she (not I) who drew for you the sketch of Cape Trafalgar. What a budget of news you send.

* * * * *

I chanced to see Lady Frere's death ‡ in one of the few English papers that I have lately come across. It was very suitable that she should be buried in St Paul's. I am very glad that Darwin § seems distinctly better. The coming summer will bring pleasure to you all. Eva asks me to say how interested she is to learn that the "bat" pattern, which Lucy is working, comes out well. If a *bat* is a symbol of sleep, a *mosquito* should be one of wakefulness. We have not however been much teased by them. There are none here, not even mosquito curtains, nor at Toledo, which has the repute of being the centre of Spain. We shall stay some four days here in Madrid (Hôtel de Rome), then a hateful railway journey of some 18 hours to Barcelona, after which all will be straightforward. There are two ancient feudal towns in France that I have always longed to see and which are on our way to Clermont-Ferrand, viz. Carcassonne and Aigues-Mortes. Very amusing about the "twins and Archchicken."

With best loves, ever affectionately, FRANCIS GALTON.

So glad that Bessy enjoyed the outing.

Address up to May 1 inclusive to Hôtel de la Poste, Clermont-Ferrand, Puy de Dôme, France. I propose leaving Clermont-Ferrand early on May 5th and to be home on or about May 7th (Sunday).

MADRID, on the *point* of starting. April 26, 1899.

DEAREST EMMA, We have *done* Madrid and leave in three hours for Barcelona, thence by Carcassonne, etc., to Nîmes and to Clermont-Ferrand. Nothing could have been more successful

* See our p. 507 above.

† See the first footnote p. 494 above. Gussie, Augusta B. Stewart, Herman Galton's second wife.

‡ Wife of Sir Bartle Frere.

§ Galton's brother.

than our journey. Eva's many good points as a companion have made it very pleasant throughout, and Eschbach takes off all trouble. He trots us about and arranges everything and I believe would be prepared to wheel us like two babies in a double perambulator. We have been at least four times to the picture gallery, mainly to see those by Velasquez. Moreover we have picked up pleasant acquaintances, and a half-English lady, who is married to a high Spanish official, to whom I had a letter of introduction, has been most friendly. We gave her a drive in a smart carriage yesterday into the Queen's private park and she comes here to tea at 4 to-day; we start for the railroad at 5. I have a little really good English tea, which we learnt that she prized. She knows numbers of English persons whom I also know, and we much enjoy each other's company and talks. Moreover she tells Eva about art matters and parasols, boots, etc. The finances of the Spanish upper classes are seemingly greatly reduced through the war. An English sovereign changes for 30 Spanish francs (pesetas) instead of the customary 25, so the purchasing power of their incomes is reduced one-sixth by that 'cause alone. We failed to see either the Queen or the King, but have *done* the palaces and all very thoroughly. The Premier had had a long call at our friend's (Señora G. de Riano), just before we arrived to take her for the drive; she was however reticent on Spanish politics. We have a long railway journey before us; the train starts at 6 p.m. and does not reach Barcelona until 11 a.m., where we shall have dipped down from the highlands of Madrid, above 2000 feet, to the level of the sea and to mosquitoes, of which we have not had one specimen since leaving S. Spain. Of course I have engaged sleeping berths. Barcelona is said to be a beautiful place. In the bull fight here, that I saw, one of the six bulls leaped over the barrier twice, among the people behind it. Also two of the bull fighters were knocked over and one of them hauled himself clear of danger by laying hold of the animal's tail and coming out between its hind legs. It was a terrible looking business, but neither were really hurt and both did some very plucky feats after a little rest. Two of the horses were lifted wholly in the air with their riders, *all* four legs being in each case off the ground at the same time. A bull when he has been tired is not so quick as the *quickest* of the men, who will let him rush at them without any red cloak or other thing to distract his attention, but he seemed to me quicker than most of the men. Many bulls jump and bound in the air like buck rabbits. It is a very strange scene altogether, and certainly a fascinating one. I have ever so much to tell, but it would be tedious to you to hear details about places you do not know. How I wish you had health and strength still to enjoy travel. Eva begs me to send her very best love with mine to you and Bessy. I trust that Darwin's betterment continues. What a pleasant outing Grace* seems to have had.

Ever very affectionately, FRANCIS GALTON.

42, RUTLAND GATE, S.W. *May* 13, 1899.

DEAREST EMMA AND BESSY, It was so very pleasant getting your letters when I arrived here on Monday evening, but I wish, Emma, that your account of yourself was better. I have waited writing, wanting to propose a day to come to Leamington, but things do so press and I cannot even yet get through arrears. Besides, Eva goes home with her brother, Walter †, on Saturday. I want her father ‡ to lend her to me a good deal, and she wants to come. I wrote, and so did she, a week or more ago to Sophy about it. Of course they are short handed at Ettington, and it will be difficult for her father to spare her, but if she could make my house a good deal her home and be with me again when abroad, it would help me a great deal. The people I have talked to, insist that I ought to spend future winters in sunny lands; that my throat and cough are well-known ailments of advanced life, and that there is no option but to go.

Of course, I shall inquire further, but this prospect has to be faced, so I have arranged gradually to drop my only two scientific ties to London, and to keep myself free to go next winter. Then again, of the brief six months between now and then, I may be ordered to Royat to give the throat more strength, for though all regular cough has long since gone, I feel the

* Tertius Galton's wife.

† The Rev. Walter Bree Hesketh Biggs, brother of Eva Biggs and of Sophy Bree, and Vicar of Ettington. See our Vol. I, Pedigree Plate A in pocket.

‡ The Rev. George Hesketh Biggs.

tendency is still there, and I might have a bad attack of it if I got a cold. One must submit. Forgive this long story. I am quite well *now* and full of engagements. We go to-day to lunch with Lionel Tollemache at the Crystal Palace Hotel. Next Sunday I go to Mrs Simpson (*née* Senior) who now chiefly lives near Guildford (I think you know her). Then there is to be a grand affair of three days, beginning on May 31, at Cambridge—"the Stokes' Jubilee." Then comes a big dinner in the City, at which the Duke of Northumberland presides. It is the Centenary of the Royal Institution and is given, I fancy, by the Secretary, Sir F. Bramwell.

Eva is a capital companion and I shall miss her much. She is exceptionally good-tempered, prompt, and inclined to see the best side of men and things, and she takes her part well in entertaining. Mr Henry, the Chief Inspector of Police in India, dined with me on Tuesday. He uses finger-prints in India (all India and Burmah), exclusively as a means of finding out whether prisoners have been convicted before, and he has got a law passed in India to allow the evidence of experts on finger-prints to be accepted in Courts of Law. He will read a paper at the British Association (which meets at Dover on Sept. 16) upon it. Hubert Galton's brother-in-law, H. Clifford of the Malay Peninsula, is in town. They two, and their wives, come to dinner on Tuesday. My news is much scattered; many small things difficult to bring into one. Lady Galton has gone to Himbleton for a fortnight or so, but will return in a week. Mrs Robb is as gay as ever. Eva and I went to pour out heart-fulls of gratitude for her useful introductions. I was sorry to miss Grace. I look forward to a Monday morning letter. I trust Darwin continues as well as he was when you wrote.

Best loves, ever affectionately, FRANCIS GALTON.

Address to: 42, RUTLAND GATE, S.W. June 3, 1899.

DEAR EVA, The grand doings are just over here at Cambridge. I talked to Miss Pertz (the artist) who asked much after you. Previously, in London, I happened to meet your friend Miss Julia Young, who did the same. I asked her to come and see you when you are with me. You must arrange to see both. The amusing thing was discovering a man whose face I knew and who kept looking at me. He was a chance acquaintance at Castellammare when travelling last year with Frank Butler, and he turned out to be Herkomer. I talked to him about you. We sat near together at dinner last night, and I asked him if there was any truth in the tale current about him and the posthumous portrait of the Hungarian baron*. He exploded with negatives, and I asked him to tell the story, which he did with admirable emphasis. His explosive denials had attracted attention some way up and down the table, and his tale excited roars of laughter. You recollect the story? He said it was told of many painters, especially, as I understood, of Bowles (am I right in the name?). Lowes Dickinson, the old portrait painter, was next to me and three good pictures of his (portraits) were hanging against the wall of the great Hall of Trinity just in front. The ceremonies and the swards and the trees and the red and all sorts of bright-coloured robes and the niceness of the people have been charming.

I shall be so glad when you come. L. Tollemache comes to town for an afternoon and holds a party on June 12, to which you must go with me.

Affectionately yours, FRANCIS GALTON.

M. de Falbe goes to Royat at about the same time as ourselves. Leonard and Horace Darwin go this month. We shall hardly overlap them.

42, RUTLAND GATE, S.W. September 9, 1899.

DEAR PROFESSOR K. PEARSON, I have been back three weeks, and on my road northwards saw Weldon at Oxford, and heard of a hitch in the way of granting Miss Lee the doctor's degree. A few days later a batch of papers reached me from the Registrar. The Joint Report of

* A Hungarian baron asked an artist to paint a portrait of his deceased father, sending him photographs and verbal descriptions. When the picture was completed, the son came to the studio to see it; and, looking for a time very sad and silent, said: "My poor dear Father, how you have changed." The story, perhaps, is of small humour in print, but it was otherwise, when Galton told it with the proper emphasis.

Sir W. Turner and myself had been referred to the original examiners and the whole matter on receiving their report was discussed by the Senate, who sent all the material to myself and I presume to Sir W. Turner also, asking certain questions. (They don't want to hear in reply before October.) I thereupon drafted what I had to say and, on returning to town last night (on the way to Dover), posted it to Sir W. Turner. Half an hour after this was done, your letter arrived!!

About the reaction time idea*; I send the only account on which I can lay my hand of the pendulum apparatus that I used regularly at South Kensington, and which Groves of 79 (?), Bolsover St made for me. We called it, from its shape, the "A" machine. The jar of sudden stoppage is there prevented by nipping a thread kept parallel to the rod of the pendulum by an elastic band. For your case, I should propose a heavy *frame* for a compound pendulum. The working part being threads with attached weights, whose periods of oscillation are a little shorter than that of the framework, so that for all the useful part of the oscillating they should never leave the frame. The frame should *retard* them. The nipping would be either by parallel-rule fashion, one pair of them for each string pushed separately, one pusher to each person, or by a vertical arrangement on some simple double-lever, pianoforte-key, plan. I find it most difficult to draw what I mean intelligibly, but it appears to work out quite simply and to require no skilled workmanship. You will know the formula for graduations. I have forgotten all about it, except that I got hold of some useful tables of Elliptic Functions to calculate them by. Please let me have my printed paper back as I have hardly any copies left.

I am writing at a strange Athenaeum is in the builders' of the Royal Commission on a Report for Dover. Also I very simple but rather pretty It was only sent in three or

I heartily hope you are strong and well again. I have been first for three weeks at Royat in France and then for two weeks in Switzerland, which were marvellously health giving.

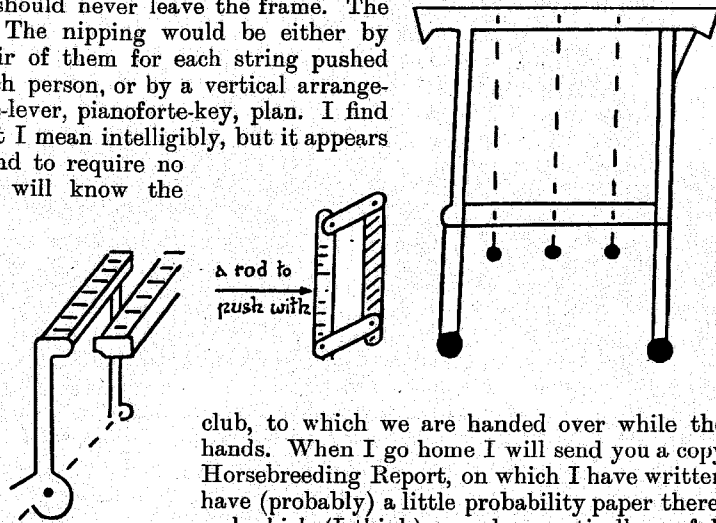
Yours very sincerely, FRANCIS GALTON.

42, RUTLAND GATE, S.W. October 22, 1899.

DEAR PROFESSOR KARL PEARSON, I cannot suggest anything useful in respect to your paper (which I return), though if you were about to write afresh I should have been inclined to wish the "Logic of Chance" could be more developed. What a difficult subject it is to treat otherwise than technically! As to the forthcoming lecture at Leeds, let me suggest a diagram † such as the enclosed (see *both* sides of the paper). It would take people from abstractions down to realities. Also the topic of "nearness of relationship" would interest everybody. To show it off, the string might end in a little longish bag or bucket, into which the tip of the pointer could be slipped. You could then work the string high above your head and all the audience would see it. You will have a very intelligent audience at Leeds, judging from what I saw there some time ago. Very sincerely, FRANCIS GALTON.

* See our Vol. II, pp. 219-220. We have one of Galton's old Reaction Time pendula in the Galton Laboratory, which I purchased since his death from an instrument maker.

† A very rough model of a genometer: see Vol. III^A, p. 30 and Plate I.



42, RUTLAND GATE, S.W. October 27, 1899.

DEAR PROFESSOR K. PEARSON, Sir H. Roscoe told me last night that Miss Alice Lee had got her degree. The mathematicians were however troublesome.

In your paper the wording of the most interesting experiment with the poppy capsules seems to me obscure. I am not sure that I even now understand it correctly. I have pencilled "obscure" on p. 33. Would it not be well to use some totally different word for the phrase *net fertility*? The word "zygote," though a direct derivative from the strict sense of conjugation, seems to me unhappy. I have been seeking for occasion to protest against its use by Sedgwick in his British Association address. To speak like St Athanasius might have done, a *yoke* divides the persons and does *not* confound their substance; it applies to the stage when the spermatozoon approaches the ovum that is pouting to receive it, but not to the stage in which the nuclei of the two have become fused together, and which is that which it is desired to express. I have a parental weakness for my old word "stirp."



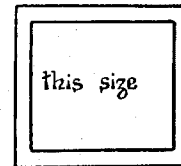
Enclosed I send a copy of my little British Association paper, just received, which may amuse you. Very faithfully yours, FRANCIS GALTON.

HÔTEL KARNAK, LUXOR, EGYPT. December 15, 1899.

DEAREST EMMA AND BESSY, Your letters have come like the wind and have just reached me. I sent a provisional post-card yesterday and now send a proper letter. Particulars of Lord Methuen's serious repulse and heavy losses have just come here, not names of officers, only the numbers of them. He *seems* to have been out-generalled, and in other battles also the Boers *seem* to have shown more generalship than we have done. The Army is doing its best and we can't expect more. It is very very sad; inadequate intelligence of what the power of the Boers really was, and much else. May this terrible experience lead to good. I am glad that Lord Kelvin wrote his letter to the *Times*. It exactly allots due share to all concerned and emphasises what had already been expressed elsewhere. I am so sorry that Leonard Darwin failed in getting into the London County Council. Lucy* must be very pleased at her prize and commendations. How unlucky both she and you too, Bessy, have been with colds. As to the prize-winning cat, on this the third occasion congratulations are effete, so I send a reminder of the serious aspect of cat life. Cats must die. When they died in Egypt, at all events at Denderah, they were mummied with reverence; so were dogs. I was at Denderah (D on map) three days ago, and there picked up the mummied leg of a dog, but it might have been that of a cat, and cut off a scrap of the mummy cloth, which I enclose. It might be put between two bits of glass gummed round the edges. The map and pictures, which I enclose, will explain. Our vessel, the "Mayflower," is very like the "Puritan," there represented. It is comfortable having a big vessel with plenty of attendance all to oneself.

Some of the people, indeed most of them, are nice or fairly nice. To-day we had an excursion of seven hours including about 14 miles of donkey ride. I was lucky in beast and in saddle, and enjoyed it as much as any horse ride that I can recollect. The wonders are just unspeakable. All I can venture to say in addition to guide books is that the clearings of the very few last years have added immensely to what was to be seen before, especially to the many bright-coloured wall paintings and hieroglyphics. The unearthed bases of many columns have made them much more stately.

The only drawback here is that we are aloof from the natives. In a dahabieh one lived among them. On the other hand the convenience of river steaming is great. We start for Assouan to-morrow and get there in two days. Then wait four days there for a little steamer that plies between the 1st and 2nd cataracts, and ultimately return here to Luxor on Jan. 1. Then we go to Petrie for a week or so, and then return to Luxor for a stay of at least a week, probably more. I have made friends with a geographical Pasha, who promises to introduce me to people when we return to Cairo. You shall of course hear from time to time. It is rapidly growing dark, so I must stop. With all loves, ever affectionately, FRANCIS GALTON.

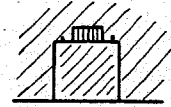


* Galton's niece, his sister Bessy's daughter, Mrs Studdy.

HÔTEL KARNAK, LUXOR, EGYPT. *January 14, 1900.*

Address now to Hôtel Angleterre, Cairo, Egypt.

DEAREST EMMA AND BESSY, We returned late last night from our most interesting stay of a week with Mr and Mrs Flinders Petrie. We had each a room with mud walls, nine feet long, seven feet wide and eight feet high, and a bedstead and empty packing cases for furniture. There was no regular door, but a mat, hung in front of the doorway, kept out the prowling dogs. It was on the desert sand, 150 yards from the palm trees, etc., and the floor of the hut was made by that sand. Every one had to throw away their own slops. A well was dug close by, to supply water. Besides our hosts there were three Oxford men who had grants for making researches, and a Miss Johnson (a lady doctor), the image of Miss Cobb in her early days, I think you saw her then, stalwart, merry and capable in every way. We dined on a table made of three rough deal boards and we ate tinned meats and jams, with bread made in the native way. No milk, butter, wine or spirits, nor potatoes nor onions. But every one seemed in the pink of health, and was at full work from day-break to at least 9 p.m. The quantity and variety of work were quite remarkable; the diggers had to be superintended, there were 130 of them in three parties; everything found was assessed and paid for to the workmen; it was drawn, catalogued and often photographed; bits had to be pieced together and every day some interesting "finds" took place. We had a very pleasant and instructive time of it, but life was very rough. No one wore stockings in the day time, on account of the sand. We were $2\frac{1}{2}$ to $2\frac{3}{4}$ hours from the Railway Station (7-8 miles). All our luggage went on one donkey, who carried the donkey boy as well. Finally we started yesterday from the station in bright moonlight at 7.26, and reached Luxor (104 miles off) at 10.40, dusted through skin deep. But a *good* washing last night, repeated copiously this morning, has made us normally clean. Far more occurred than I can put down here. It has been to both of us one of the most interesting experiences of our lives. I am more than ever taken with admiration of Petrie, and his wife is as nice as possible. The costumes were astonishing at first, but soon the eye became accustomed to them. The Marquess of Northampton, who is cruising on the Nile with his hopelessly sick wife (Lady Ashburton's daughter), rode over on a donkey to see Petrie for a couple of hours, and there was much good talk. I had met him when staying Saturday to Monday with Sir John Lubbock (who I am glad to see is to be a peer), and have arranged to call when his boat reaches Cairo. He knows Egypt well.



Mat before door.

As regards future plans, we have the choice of two steamers to return to Cairo, they leave here Jan. 26 and Feb. 9. You will receive this letter about the end of January and I shall get your reply somewhere about Feb. 15 at Cairo, at the Hôtel Angleterre, which will (I think) be about the time of arrival of the Feb. 9 steamer from here.

The Nile is so low and shrinking so fast, that it will possibly stop the running of the steamers soon. It has shrunken in width, since we left a week ago, to about that of the Thames at Westminster, if I judge rightly; during the inundation it must be quite seven miles broad. Such a difference! There are very few English tourists on account of this terrible war, very few Americans and hardly any of other nations. The church to-day was not $\frac{1}{4}$ full. Doubtless more will come later. There were only four persons at lunch at this hotel, which has table-room for 60. We are sitting out of doors in its very pleasant garden, half orderly, half disorderly. Eva is painting studies of the changes in colour of the only remaining chameleon*. It was the biggest, the tamest and the most interesting. The other two escaped at different times when with the Petries, and were lost. I told you in my last letter that we had met the famous African-hunter, Mr Barber. We talked then a good deal about Seton-Karr, who is his equal in that way, but whose adventures are in other lands. Oddly enough, I met Seton-Karr to-day, who had returned two days since from Omdurman and is on his way back by Cook's steamer. I have just waved a parting adieu to him. So much for ourselves.

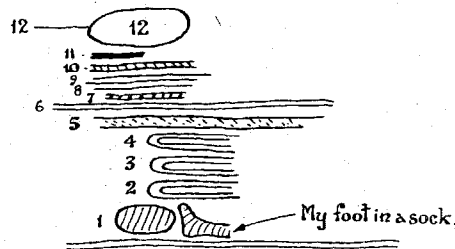
Your nice letters dated Dec. 29 reached me when at the Petries (I think, but am confused). Mr Forsyth's death is another break with old days, and so in another way is that of Sir J. Lennard†. How well I recollect him at old Mr Hallam's. So the Cameron Galtons have left

* This chameleon was brought home, but died soon after. Its skin and some eggs it laid are in the Galton Laboratory.

† He married Miss Julia Hallam referred to in our Vol. 1, pp. 179-80.

Paris. I am not surprised. I wish my house could be of some use to them, but until Chumley* has been operated on and is cured, it would be impossible to offer it. I will certainly call on the Miss Horners when I return. I trust Milly and her household have got over their influenzas and that Guy may be finding some opening. I will write to her. In the scanty newspapers I have seen there is no ill news of Bob. It is very good and plucky of M.L.'s brother to go out with the yeomanry. I feel very painfully the contrast between my enjoying myself lazily in this glorious climate and the sufferings of our countrymen at the Cape, but cannot think of anything I can *now* do usefully, except get thoroughly well. I am very glad that Darwin's cough is not worsened by the horrid weather you are having in England. Ours is sunshine from sunrise to sundown, but it can be *bitterly cold* on a still and cloudless night. It was so on three occasions at the Petries. I heaped everything on my bed with Eva's assistance, and next morning made a list of what I used. It was necessary to sleep between the blankets because the sheets struck cold; so a sheet was placed on the outside, tucked in at its top round the blankets to keep the fluff off. This was the section of myself lying in bed taken at my feet:

- 12 a pillow
- 11 overcoat
- 10 Ulster coat
- 9 thin Jaeger shawl
- 8 dressing gown
- 7 thick morning coat
- 6 the sheet
- 5 thick Jaeger rug
- 2,3,4. doubled blankets
- 1 hot bottle



Besides this I slept in thick socks, in a jersey, drawers and in complete pyjama suit. Thus I felt warm, but by no means stuffy. The air is so nimble that it gets through everything woollen. Here, as in South Africa, skins and furs ought to be the best. I love your letters.

Ever affectionately, FRANCIS GALTON.

† We have had a very nice queer time in the desert, very healthy! Uncle Frank just a little pleased to give up teetotal ways and have a glass of wine! My best love to you both. E. B.

KARNAK HOTEL, LUXOR, EGYPT. *January 22, 1900.*

But address to Hôtel Angleterre, Cairo, Egypt, please.

DEAREST EMMA AND BESSY, Your letters of the 13th arrived, as I had hoped they would, to-day. We are all right, and have taken a bit of a walk this morning; only four miles, but the roads are *very* dusty and tiring. Donkey riding is the correct thing, but we wanted exercise. You doubtless got my letter (followed by a post-card) a week ago. Nothing particular has happened since. Of the few people here are Professor Macalister the Cambridge anatomist—he has gone to Petrie—Professor Sayce in his large house-boat (he comes every winter to the Nile on account of his chest), and Lord Northampton. Lady N. was at church; carried there and back in a chair by magnificent sailors in gorgeous dresses and sat in it by the door all the time. It is most piteous, having had fortune, beauty, rank, and high spirits and nice children, and now to be hardly alive except in the brain. She is powerless to move and her head is continually agitated by a shaking palsy. Her state is said to be hopeless. Sayce is the great orientalist and has been a thorn in Max Müller's side (who has been long very ill, but is now better). Macalister started on Saturday as we did last week, early in the morning, for Baliána and Petrie. His wife and daughter were left behind to join him at Baliána this morning on their return steamer, but a telegram came yesterday to say that the steamer has broken down, so they are at sixes and sevens. There is nothing like an hotel at Baliána and Petrie's camp is a good seven miles off. How they will meet, I can't guess. A beautifully ornamental tomb, as fresh as if newly painted, has lately been got at here. It is not yet open to the public, the air inside

* A maid of many years' service at Rutland Gate.

† Postscript added by Galton's great-niece, Eva Biggs.

being very bad. Macalister, however, saw it and says it is more gorgeous than any other he has seen. But it is of late date, only as far back as Rehoboam; Abraham's time is thought here to be rather late. The interest now is in the people who lived here *before* the pyramids were built, ending with about 4000 B.C. There are beautiful flint knives of far earlier date, the most beautiful I have ever seen in workmanship and in art. The Nile is very low and is running out fast. One of the people connected with the irrigation told Lord Northampton that he expected it might become a mere chain of pools before the next freshet. Maud Butler returns to-morrow from Assouan, and will stay a fortnight at our hotel, which will be pleasant. I did to-day a somewhat silly thing. They imitate ancient Egyptian things, sometimes very well, at Luxor (mostly to sell as originals), so wanting a small seal I gave them my hieroglyphic to cut on an imitation "scarab" for 4/-. The man proved to be a poor hand and has made for me the enclosed, which is legible but very badly cut. However it will serve its purpose. Both Petrie and an Egyptologist (Dr Lieblein) approved it. I have no right to a cartouche,

not being a king, but Maud Butler, whose pet name was "Queenie," might use one. We have had no war news to-day. How glad Bob* must be that he was not fatter, else the bullets that went through his clothes might have gone through his body. Nelson's cocked hat was once shot through; had he been a taller man, he would have died long before Trafalgar. I am glad that Gascoigne Trench is going out. He knows the work that is needed, and is still young enough. Guy's* recurrence of Indian fever will make it unlikely that he should be passed as fit for service now. I am glad that you all keep fairly well notwithstanding the wretched weather you have had. Give my love to Darwin and to Erasmus when you see them next. I am very glad that George Darwin receives those family mementoes. He is the best representative of the Darwin family, and had great affection for the Admiral, of whom he saw much at Malta (I think) when flag-lieutenant to the Admiral's ship. Edward Wheeler must feel the war fever in his veins, from his brother-in-law's going out so pluckily and from his many neighbours doing the same. I see in the newspapers a quoted chorus of disapprovals of Arthur Balfour's speech, which I myself like very much.

Professor Sayce has just called and taken us off to tea in his boat. It is the largest and broadest on the river, its yard-arm is $13\frac{1}{4}$ feet long, so three of them end to end would reach far higher than any English Cathedral; I think Strasburg is only 400 feet high.

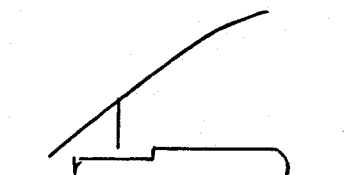
Eva sends you a drawing of her only surviving pet, with her best love. It is about $\frac{2}{3}$ scale.

Ever very affectionately, FRANCIS GALTON.

Address still to HÔTEL ANGLETERRE, CAIRO, EGYPT. Sunday, *March* 4, 1900. Posted *March* 5.

DEAREST EMMA AND BESSY, We are still at Helouan (Tewfik Palace Hotel) but the above is our address. The last letter I had from you was dated Feb. 16; it was received Feb. 22, and was answered the same day. We are quite well, but are bothered by the difficulties in the way of simply camping out in the Desert, which I thought had been overcome, but are still going on. According to what an excellent dragoman now assures us, there is always a risk with the Bedouins unless elaborate and costly arrangements are made. We shall hear more from him after his inquiries. There has been something of interest nearly every day since I wrote. On Friday I drove with Professor Schweinfurth in one carriage, and Admiral and Mrs Blomfield in another, across the desert and along valleys for two or three hours. Then we picnicked, botanised and geologised for four hours and then returned, after seeing (1) an ancient barrage, built of stones, in the time of the Early Pharaohs, to dam the water when it ran down the creek, (2) some *true* Jericho roses, of which I send a few (see further on). If you dip them in water they begin to expand, almost instantly, into a true flower. The *false* Jericho rose is the one usually so called, but it is merely a seed-vessel with dry fibres grasping it, and which expands imperfectly and slowly.

* Sons of Galton's niece, Mrs Lethbridge.

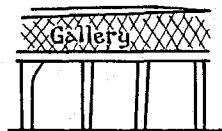


(Professor Sayce's boat.)

On Saturday, the 24th, my short geographical speech* came off, quite successfully. I will use the letter in French received to-day from the Secretary (in evidence) to wrap up the Jericho roses in. Sunday and Monday were days of *heavy* rain. Cairo was flooded and the desert was quite wet. We had tea with a Syrian, by name Makarius, who is a literary man and a printer, both in Arabic and in English, and whose acquaintance I made last autumn at the British Association. He showed me an Arabic periodical that forms a fat annual 8^{vo} volume, and which describes what goes on in the scientific world everywhere. There was a chapter in last year's volume about my latest work (the "Ancestral law," as people call it). We go with him to-night to hear some Arabic music. Tuesday we walked to see some big quarries of white stone, whence files of camels take the stones all day long to the Nile. On Wednesday I had a lunch and a tea party; Maud Butler and her companions came, also Eva's cousins with three children, and Mrs Procter. On Thursday we (Eva and I and a friend) went on donkeys about six miles, to see the wonderful quarries from which the stones were cut, which formed the Pyramids. The stones must have been rafted across the Nile, when flooded. From my window I can see at least seven large Pyramids (including those at Gizeh). I am told that it is possible to count seventeen of them. On Friday Eva and I made a desert expedition by carriage, and then onwards on foot. Yesterday we went for the day to Cairo, to do things, and to-day is Sunday. Schweinfurth and Professor Sayce (whose boat is 2½ miles off) come to lunch with me to-morrow. The weather has now turned hot, with a southerly (sirocco) wind, of which this month of March is sure to have plenty. They call it the *Khamsin wind*.

Those Jericho roses—they will make a letter unsafe, as the post office people may think they are something valuable. So I have enclosed them in a separate packet, which may or may not reach you, and I send the crumpled letter of the Secretary in this—tear it up.

The above was written yesterday. We went in the evening to an Arab concert. The singers were five Syrian Jewesses. The room had a gallery round it with muslin draperies, behind which the native ladies sat. The few European ladies and all the men sat below. Eva was taken up to see the native ladies and says they had very good and pleasant manners and some were very picturesque. They were all powdered on the faces, and the eyes and eyebrows were much painted; not much perfume. Yesterday Mr W. Bearcroft introduced himself. His father was the clergyman at Hadzor †. He is on the engineering staff of the railroad. He had heard that the Cunliffes (Evelyn ‡) were on the point of going, perhaps had already started for Cairo.



I am anxious for home news of all sorts, for Gifi also is a little later than usual with his letter; so also is Frank Butler. I only know that Chumley *has* been successfully operated on. I hope that Darwin is recovering steadily, and that you, Bessy, have lost your cough at last. Mine is practically gone for present purposes, but I know that bad English weather would soon bring back that peculiar abomination. As for you, dear Emma, you do not often tell me about yourself, so I imagine ups and downs. I hope Erasmus is now quite right. Bob Lethbridge has not apparently been in the late heavy fighting. I wonder how soon the regular fighting will be over, and armed occupation begin. This is only a sort of diary, you must please interpolate many affectionate thoughts in my bald matter-of-fact story. Ever affectionately, FRANCIS GALTON.

The following Postscript from a letter indicates that Galton had by mid-summer exchanged the desert for Pall Mall.

THE ATHENAEUM, PALL MALL, S.W. June 29, 1900.

P.S. I am enjoying this afternoon at the Club, and my favourite (but unwholesome) afternoon provender is just set down at my elbow, viz. tea and muffins, with a muffineer and a *large* napkin to wipe buttered fingers on.

* See our Vol. III^A, pp. 158 and 159.

† See our Vol. I, p. 53 and Plate XXIX.

‡ See p. 506, second footnote, above.

42, RUTLAND GATE, S.W. *October 29, 1900.*

MY DEAR "CHATELL" EVA, I am delighted that you are now to be altogether transferred to me and to take charge of my household henceforth. You weren't transferred *quite* as a "chattel" (I don't know how many *t*'s or *l*'s there are in the word) as I said in my letter to your father "if she acquiesces...." So you will now have "42, Rutland Gate" at the bottom of your visiting cards. I am very glad we shall meet so soon.

Violet left this morning. It was pleasant having her. She will get a sight of the C.I.V.'s to-day. I have not been sight-seeing. It rained heavily till near two, and the ground in the park must now be sloppy. I forgot to tell you that one of the first persons whom I met after you left me, was James Knowles (the Editor of the *Nineteenth Century* and originally an architect); it was he who built Tennyson's house. He told me much about it, which I will tell you. He was staying some weeks at Hindhead this summer and was curious to learn about the Townshends. Knowles was a great friend of Tennyson, and of many notabilities—rather *Boswell-y* in his disposition.

Guy Lethbridge made his appearance yesterday, looking very nice and gentlemanly. He has been horse-buying on commission, in Ireland. *Tommy and Grizel* is wonderful. I finished it last night, after eleven o'clock. The characters "grow up" quite naturally, so it is an exact sequel to the other book. I took Milly and Amy to see Julius Cæsar (last representation) on Saturday, and learnt immensely. 1. Julius Cæsar is made so egoistic and vain as to be odious to the assassins, or to most of them, and to be insufferably arrogant. So they *hated* him. 2. Cassius is *not* a pale thin student-like man, but vigorous and powerful (which his story of saving Cæsar from drowning justifies). He is a lean, bilious man, full of energy and hatred, and a very d—l as an enemy. Ever affectionately, FRANCIS GALTON.

Poor Walter Butler is at death's door, but his state is not hopeless, quite.

BRITISH MUSEUM, LONDON, W.C. *July 19, 1901.*

DEAR MR GALTON, Here is the result of our experiment. How do you like it? I do not doubt that with more careful preparation one could increase the area of sharpness a little, but probably not very much. The developed neck irresistibly suggests shoulders, and the best way of restoring it to intelligibility is to bend the print backwards into a cylinder. It is curious and pretty the way in which the square pedestal has come out.

Yours very sincerely, ARTHUR H. SMITH.

Photograph enclosed.

As by the aid of a panoramic camera the whole view round a hill top may be photographed on a single plate, so the idea in the above experiment was to take on a single plate a continuous picture all round a statue or bust. The result is shown on the accompanying plate.

HÔTEL DES ANGLAIS, VALESCURE, PRÈS ST RAPHAËL (VAR), FRANCE.
Nov. 28, 1902. (We stay on here for quite a week longer.)

DEAREST MILLY, If you can only let your Knole Lodge and get the pretty Prestbury! I am so glad you are strong again.

I am *quite well* too. The asthma left me more than a week ago and the bronchitis went a little later, so that—pity my sense of *loneliness*, at missing the habitual cough! Even a grumbling farmer could hardly beat that. My room was stuffily carpeted, so notwithstanding the pure outside air I had violent bouts of asthma every night. So I had the carpets taken up, and a large sackful of straw that had been spread beneath them for warmth went with them. I feel sure on reflection that all my worst coughs have been connected with well warmed and stuffily carpeted rooms. So I am about to take strenuous measures at Rutland Gate. The floors of the dining and drawing rooms and of my bedroom are to be parqueted. The very old paper of the drawing room is to be stripped off and the walls painted white, like the staircase, and carpets abolished in favour of rugs. So I hope to be able to spend more months out of the 12 in my own house than hitherto. "Hope springs eternal....."

PLATE LIV



Experiment of Francis Galton and Arthur H. Smith on the exhibition of all aspects of a bust on a single negative. The "all round" photograph of a bust in the British Museum.

Tell Bob* I am sorry not to be in England to welcome him and his wife when they call. It is glorious weather here for the most part, and there are nice people in the villas about, but it is early for the visitors and we are the only two in this big hotel. There have never been more than two others, of which we are glad. Eva does much painting and seems as happy and as well as can be. I have as much work as I can do (which is very little), and am quite happy too, and can accomplish a good four miles walk without fatigue. (Alas, I *have* accomplished a measured 40 miles, but *with* fatigue, in old days.) Hearty thanks for your congratulations. I am particularly pleased with the Hon. Fellowship of Trinity College, Cambridge.

Ever very affectionately, FRANCIS GALTON.

With Eva's love, and both our loves to Amy †.

HÔTEL DE L'EUROPE, ROME. *January 8, 1903.*

DEAREST MILLY, Twelfth day is past, but it is not too late to send hearty New Year wishes. On Twelfth day just 50 years ago I first made the acquaintance of Louisa and of her family party. We were married in the autumn of that year.

The post has this instant brought me tidings from Emma of Darwin's death †. It is more of a shock to me than I could have expected, for many happy incidents of early days crowd the memory. His was a complex character, veins of clay and veins of iron and gold. He was loved by many and admired by many—not, as you know, by all. The most pathetic figure in the funeral cortège would be William Yeates, if paralysis enabled him to attend it. Darwin used to have a terror of death and was extremely moved if he heard unexpectedly of the death of any one he knew. Now he is initiated into the secret and has passed the veil. He is well out of suffering and the sense of incapacity with absence of hope for a better bodily condition. If his infant son had lived and grown up healthy in mind and body, how different his life would have been. I am sure that a candid retrospect would judge his to have been an exceptionally useful one. I can't write more on this sad event.

We are most pleasantly situated in Rome and most healthy. Two days ago we had a glorious afternoon on the Palatine among the recently exhumed foundations of the vast palaces of various Cæsars. The overwhelming might and magnitude of ancient Rome struck me more than it has ever done before. I hear that your desired lease is not yet signed, that Frank has gone to Durban, but no news about Guy's suffering nerve. When you write—after Darwin's funeral is over—please tell me what your own family news is, and what seems to be the consensus of opinion about Darwin. Emma will I am sure send me Leamington newspapers. I should think that Eddy would much regret his death. Love to Amy from both of us as well as to yourself.

Affectionately yours, FRANCIS GALTON.

I address to Blenheim, but believe you are with Bob.

GRAND HÔTEL ROYAL DE SIENNE SUR LA LIZZE, SIENA. *April 8, 1903.*

DEAREST MILLY, (En route) Alas, your letter of the 12th, or which Emma forwarded to me on that day, and which I am sure was a particularly nice one, is *lost*, utterly gone astray. Where it now reposes, I have not the slightest idea. We were in two hotels in Ischia and our letters had been addressed to a third, which was not then open, and I suspect that the letter came to grief between those jealous three. And I have been so anxious to hear of you, more especially of late, now that your African sons are probably back. But I am on my way homewards, hoping to be in London on the 20th, *via* Bologna, Milan, Cologne and Brussels. We spend Easter Sunday in Milan. Our tour has been most interesting, with interludes of ailments from sewer gas both in Rome and Naples. Our rooms were high up at both places, and the foul air came up the rain-pipes under our noses. But we are fit now, and look forward to the grand Easter music in Milan Cathedral. It was to have been Cologne, but Eva had to spend four days in bed. The glories of the South are great, when there is sun to show them. I have never seen greater beauty of rock, sea and sky than on this journey. Panoramas from the mountain tops both of Capri and of Ischia. Rows and sails round cliffs and a drive on a marvellously beautiful new road, round the peninsula from Amalfi to Sorrento. Also, we have had some simple life

* A son of Mrs Lethbridge.

† Galton's eldest brother.

† Amy Lethbridge, Galton's great-niece.

and pleasant friends; also Vesuvius erupting. It has been an Indian summer to my life. Now it is time to be home to greyer skies. I hear that you sent a sketch of the new house, Prestbury or Edymead. I shall hear much when I return. But I share your anxiety about the boys. I trust all has ended better than you seemed to have feared. The Italian papers are alarmist about strikes everywhere, at Rome and in Holland especially. I suppose we shall get through. The last and only time that I was in Siena before, there was a threat of a universal railway strike, during which, and while reinforcements of soldiers could not be sent, the mob were to sack Milan. But the scheme got wind. Siena was put under martial law while Frank Butler and I were there, and the riots at Milan were quelled, but not without blood. It is curious how soon an army of conscripts feel themselves detached from their countrymen and become ready to fire on them, if ordered by their officers. I have nothing of interest to tell you, but am burning to learn more of *Radium*. What with it, with air-telegraphy and with Röntgen rays we have suddenly become impressed with the magnitude and prevalence of unseen agencies. It will greatly change the view-point of ordinary materialists. As I understand it, if you constructed a suitable carriage for radium, radium could climb a hill. Fancy self-acting locomotives. Expensive though to make. Love to Amy and to you all at your home.

Ever affectionately, FRANCIS GALTON.

Correspondence with F. H. Perry Coste.

42, RUTLAND GATE, S.W. July 20, 1903.

DEAR SIR, I have spent 2½ hours in *partly* deciphering your letter, and as I cannot easily spare more time now, have sent it to a typewriter, who will probably make out some phrases that still puzzle me. I was too boastful in saying that I had mastered the art of decipherment; when the typewritten copy reaches me I will answer it in full, but some things I can say now.

I feel thoroughly your difficulties and your zeal in overcoming them, as regards catching the subjects to print from whether fathers or children, and am heartily obliged for your pains. The new Olivers shall be underlined with red in their pedigree. I will study the latter carefully to-morrow. All your pedigree work has thus far seemed very good to me. I fear that I am not likely to find any one at Penzance, who would take trouble for me about the Olivers there. The suggestion as regards Scilly is valuable. I will bear it in mind.

Partly from difficulty of decipherment I fear that I have not rightly caught your question as regards the finger-prints of the "odd" parents. Every family pedigree must have an alien fringe, but the odd parent ceases to be alien *if* he has children, but only then. It would be indeed interesting (if easy) to compare the surnames (as from parish registers) at 50 years interval in some small but conservative place. In those I have seen they change much. You may recollect Doubleday's book, written three-quarters of a century ago, in which he declares that all the families of parishioners, who occupied any notable position, as a rule die out. But the laws of fertility puzzle everybody.

Pray tell me in good time whenever you want forms or schedules. I shall be from home on Wednesday, Thursday and Friday next. The typewritten copy will I hope be ready by my return, when I shall be able to answer further. Very faithfully yours, FRANCIS GALTON.

F. H. PERRY COSTE, Esq.

42, RUTLAND GATE, S.W. July 22, 1903.

MY DEAR SIR, The typewriter (Dickens's grand-daughter) has performed miracles of decipherment and placed your valuable letter on clear record. Will you very kindly correct it where necessary and insert a few omissions. I return your letters for the purpose. Please let me have all back. I shall not have returned home till Friday evening. Let me tell an anecdote. The late Sir George Gabriel Stokes was a member for many years together with myself of the Meteorological Council. We protested against his handwriting which was perhaps half-way as cacographic as your own. One day he informed us with a mysterious air that his writing would henceforth become remarkably improved. And so it was! He bought a typewriter and used it ever afterwards.

In great haste for an early train. Very faithfully yours, FRANCIS GALTON.

F. H. PERRY COSTE, Esq.

42, RUTLAND GATE, S.W. July 29, 1903.

DEAR SIR, The packet of 50 Puckeys has just come, together with the very legible letter for which pray thank Mrs Perry Coste most sincerely on my behalf. I will bear your suggestions about scrutinising pedigrees well in mind. As yet I have not found time to begin a careful revision, etc., of them, but shall be free very soon to do so. I find your notes of relationship, thus far, perfectly clear. Thanks for the hint about the chamois leather dabber. I *dab* with the india-rubber, which I keep scrupulously clean. The small children make beautiful prints when the ink is spread *thinly* and evenly and when the children are submissive. It is a good plan just before pressing the child's finger on the paper to direct its attention to the window, then its curled-up finger relaxes at once, and a good print is taken.

The "odd" persons are acceptable. As I said in my circular (or in a revised re-print of it) I am just now glad of a large collection of unrelated persons in addition to the related ones. They are wanted for the first purpose to which I alluded, of getting a *natural* classification. You are indeed carrying through a big work*; it is most useful to myself. It is impossible not to see evidences of finger-print relationships when outlining the patterns prior to a more exact study of them. I have now greater hopes than ever of extracting *much* good out of this inquiry.

Very faithfully yours, FRANCIS GALTON.

F. H. PERRY COSTE, Esq.

42, RUTLAND GATE, S.W. August 21, 1903.

DEAR SIR, I had written to the Vicar of Lizard before your second letter arrived, and have had a very courteous reply from him, but he declines for want of leisure. I shall treat Polperro folk as a much intermarried group, and this fact comes out conspicuously in the much greater frequency of arches in their finger-prints, than occurs in the prints have not yet been strictly isolated in though they will be. At present, a large infusion the arch-frequency of a mixed lot.



Enclosed I send more schedules and forms. On Monday we move to a house I have taken for four weeks certain, viz. "Manor House, Peppard Common, Henley-on-Thames." It will be better to address letters there for the present. One reason for my going there is to be in the neighbourhood of Prof. Karl Pearson who also has taken a house there. Moreover Prof. Weldon comes down each week-end, Friday to Monday, so biometric affairs can be discussed and especially some problems connected with these finger-prints before I finally commit myself. The ins and outs of Statistics are as you well know singularly intricate and apt to mislead inquirers. Very faithfully yours, FRANCIS GALTON.

F. H. PERRY COSTE, Esq.

MANOR HOUSE, PEPPARD COMMON, HENLEY-ON-THAMES. August 28, 1903.

DEAR SIR, (1) The large contribution of Curtises, (2) the schedules, and now (3) your letter of yesterday, have all reached me. I am working as hard as I can at my material with a niece to help, and am gradually getting it into order. As yet I do not see my way to discuss more distant relations, *as such*, than first cousins, but propose to deal with batches of inter-related persons as wholes. It is most remarkable to note the frequency with which particular patterns affect such groups, and I shall before long get this into a numerical form. But there is much to be done before I can even attempt this. Thank you much for your offer of help in getting such members of the odd parents' fraternities as it may prove desirable to have. I will bear this in mind. You also say that you could get "200 or 300 more finger-prints" in order practically to exhaust the population of Polperro. Of course I should be *most grateful* for such a large contribution, but I am diffident in asking for so much. The utility would be many-sided. They would be welcome merely as prints, to establish the first of the objects of the inquiry. They would perhaps include *something* of the native Polperro types, and they would serve in some degree as a "control" series. Should you really brace yourself up to this great additional labour I for my part should be greatly obliged and should value the finger-prints highly. Please in that case take particular care *never to use too much ink*. Your fault as a "finger-printer" is blottiness. This

* Mr Perry Coste had taken the finger-prints of nearly the whole population of Polperro, a Cornish fishing village with much inbreeding.

cannot occur if the ink be spread over the tin box with thinness. Whenever too much ink has been accidentally squeezed out, the superfluity should be removed by dabbing the over-inked rubber on waste paper. The best of all your impressions are of children. One of a child of 2 years and 8 months is as good as can be. I will give your message to Prof. Karl Pearson. I feel inclined to let Dr Appleton senior stand over until I have got some results and know more exactly than I now do what I shall want ultimately. This place is exceedingly grateful, pure air, breezy commons, and geographical height.

Very faithfully, still with many thanks to your Wife, FRANCIS GALTON.

F. H. PERRY COSTE, Esq.

MANOR HOUSE, PEPPARD COMMON, HENLEY-ON-THAMES. *September 1, 1903.*

DEAR SIR, First, accept my congratulations on the domestic event and best wishes. Enclosed is a copy of the Oliver-Toms' fraternity. If you want the part that I have omitted pray tell me. Do not think of putting yourself out now, by making and sending the big series of which you so kindly spoke. I propose to make a temporary halting place where I am now, and to work up the material thoroughly so far. I have quite enough for provisional results, viz. 865 sets. Let me reiterate how strongly I feel my obligation to you. It is a grand collection that you have made for me and, whether for individual lines or as a group of nearly related persons, it will give me abundance of work and I will do my best to do justice to the large material so laboriously obtained by you for me. I can assure you that I realise the difficulty of printing from the worn fingers of perhaps unwilling and often stupid fisherfolk, but what prompted my remarks was chiefly that in some sets of prints some are good, others blotted *in parts*, and others again densely blotted all over. One always tries to work up to a high ideal! Small has sent me three full books taken during his holidays in North Cornwall. They are perfectly beautiful, but they are taken from a non-labouring class. I have not yet noticed the occurrence of any of your Polperro names in his lists, but have yet to examine them thoroughly. I hope you will finger-print the baby as soon as its mamma permits. I have an enthusiastic correspondent in America who began to finger-print her own baby six days after it was born, and did so on every day of that week. From the many dabs I was able to select a complete and very fair set, which I enlarged and have compared at intervals with prints subsequently taken from the same child who is now 5-6 years old. There is no change anywhere. It will become a classical case. Very faithfully yours, FRANCIS GALTON.

F. H. PERRY COSTE, Esq.

Letter of Miss Emma Galton to her brother, Francis Galton.

5, BERTIE TERRACE, LEAMINGTON SPA. Thursday Evening, *Dec. 17, 1903.*

DEAREST FRANCIS, We long to hear that you are in Sicily, for the weather is not genial, but I see by the Papers the floods have been very bad in Rome and in Venice, but I do hope you and Eva will have a good journey. Your account of Mr Herbert Spencer's cremation has interested us much, and Erasmus has just been here and read it with much interest, and I have shown your letter to some of my callers, and all were so interested about the ceremony. Cameron* called this morning—he and his wife Lucy came on a visit to Grace Moilliet†. Cameron was at the funeral at Hadzor yesterday (Wed.)—a very long affair, Incense and Bells and many Priests—Charles Galton officiated—Hubert, Howard and his wife Maud, were of the party who attended. May Barclay's‡ maid (Mrs Cowie) has written to Temple to say how *very kind* Hubert and Howard§ have been to them; May had left £100 to Mrs Cowie who had been 29 years with her, and £50 to Mrs Beal, the cook, who had been about 29 years with May, but Hubert and Howard have promised Cowie an annuity of £50, and the cook an

* Ewen Cameron Galton, son of Robert Cameron Galton and grandson of Francis Galton's uncle, John Howard Galton of Hadzor (see our Vol. 1, Pedigree Plate A, and Plate XXIX).

† Wife to Tertius Galton Moilliet, Galton's nephew, son of his sister Lucy.

‡ Mary ("May") Barclay Galton, the only remaining child of Hubert John Barclay Galton. Her mother was a Barclay.

§ Sons of Theodore Howard Galton, Francis Galton's first cousin.

annuity of £26, and to Ann the housemaid an annuity of £26. The servants will stay on till January 15th. Grace had thought of all sorts of things for the Camerons, but this morning a letter came that Mr Serocold was *very ill indeed*, so Cameron left at 3 o'clock and his wife was off at 10—as they will have to go to the Riviera to see Mr Serocold, as they think he will die—having had two operations and being very feeble.

Edward Wheler writes how very cold it is, and so much snow at Alnwick. My House smells of Puddings and Cakes—and now the Mincepies will be begun to be made. Bessy will have a large party on Xmas Day—the Studdys* and a Nephew Studdy and other relatives, I believe Edward and M. L. † The Darwin family have had to pay some duty on Breadsall Lodge ‡, left by Sir F. Darwin to his unmarried daughters. He died 40 years ago, and Aunt Darwin 34 years ago—and they know nothing about any receipts. They should write, as Annie Sykes did, to the Papers. With much love, yours most affectionately, EMMA GALTON.

Letters to W. F. R. Weldon.

42, RUTLAND GATE, S.W. November 12, 1903.

MY DEAR WELDON, C. Herbst's book fills me with shame at my ignorance—When will you wake up or another Darwin arise, to consolidate and co-ordinate the mass of scattered evolutionary material accumulated of late years. I have dipped deep into the book at several points, but feel myself too ignorant of the creatures spoken about to have any hope of mastering it. Besides, as you say, I read German with difficulty, and don't like it or take to it.

Your phrases—(1) blue shadows on a white road, (2) prevention of bronchitis better than cure, (3) purple irises in Sicily while Piccadilly is in mud slush—have been so "fetching" that I have already provided myself with a foreign Bradshaw and am thinking much more definitely than before of a late December start. If so, it would probably be, first, direct to Genoa—then a week on the Italian Riviera—next a day or two at Naples, and then to cross to Palermo the first fine night. I am trying to find out the relative merits of the Palermo Hotels, and whether the Igea is really good or only costly and out of the way. Also I heard of a new hotel at Porto Fino (near Rapallo), said to be suitable for a week's stay, to rest and to acclimatise. I *must* treat myself as somewhat of an invalid.

G. Brodrick's death makes me very sad. He was an old friend, back to the 'forties or early 'fifties, and a sincere one. I have few left even of his generation, far fewer of my own. Yet I don't want to die, except perhaps now and then, when in a gouty and pessimistic frame of mind. I send back the shells and the book separately.

Very sincerely yours, FRANCIS GALTON.

HÔTEL TRINACRIA, MESSINA. March 12, 1904.

En route to Lipari—*don't* address as above.

DEAR WELDON, Your interesting letter greeted me here on arrival, after a glorious week at Syracuse and previously at Girgenti. You are by far too kindly a critic. The first sentences of the intended circular are rather illogically arranged and will be altered. You should see, as a curiosity, the corrections made by F. Howard Collins who did so much for Herbert Spencer and has been very helpful often to me. He is ruthless, and has (I hear) scored the proof all over, as is his wont. Some of his revisions are however always valuable.

About the cancer cells—Have not any full series of experiments yet been made on *transplanting ova* in all stages of their development? It ought to be done both in warm and cold blooded animals. Immature spawn in frogs and fish. The separated contents of an ovary, each grafted into some different part of the body of a mouse, guinea-pig, fowl (not neglecting the vascular comb) and especially on the parts (? glands) that cancer most frequents. *Something* ought to be found out in this way.

* Lucy Studdy was sister to Edward Wheler and both children of Galton's "Sister Bessy."

† Mrs Wheler, wife of Edward Wheler, now Wheler-Galton.

‡ Breadsall Priory was the home of Erasmus Darwin after his marriage to Mrs Chandos Pole. It was afterwards Sir Francis S. Darwin's house. I do not know whether Emma Galton made a slip in calling it Breadsall *Lodge*, or whether this was a separate house on the estate left by Sir Francis Darwin to his daughters.

As regards your problem. I dare not now trust myself to analysis and to criticism of formulæ; but have no doubt from elementary considerations that your results are sound. The upward and downward movements of P depend equally on those of A and of B . If those of A range less widely than those of B , the latter will on the whole have the predominant influence. If A does not move at all, the movements of P will be wholly due to B .

Again, the connection between small variability and small Arithmetic Mean value is clear (for symmetrical curves of frequency at least) on the supposition that negative values are impossible. A quasi-albino race (one with a small A. M. value) cannot produce individuals who are whiter than white, but if it sometimes produces such as are dark, its curve of frequency must necessarily be humped up against the axis of Y , and its positive tail can hardly be thicker at its root than in the figure. In this case MQ_3 is small (though larger than MQ_1) and $\frac{MQ_1 + MQ_3}{2}$, which is a fair measure of the s.d., must be smaller still than MQ_3 .

On re-reading, I fear my explanation may be found less lucid than it should be, but you will probably understand what is meant. I have written it under epistolary difficulties of table and light. I have amended it, but not well.

We are looking forward with keenest interest to a stay of some days in the Lipari Islands, among sulphur, pumice-stone, two active volcanoes (Vulcano and Stromboli) and deported Camorristas and Maffeists. They are allowed much freedom during the day but are confined and locked in at nights. There are no robbers among them, only murderers, one of another, and they are said to be very interesting and communicative. You, with your fluent Italian and Italian sympathies, would make out a good deal from them. We are fortunate in having introductions to the principal among the few honest people who live there, as to the officer now in command and to the agent of the chief landowner. It will be a funny experience. I expect to be housed like a pig, and *not* to be treated as a convict; but even they receive 50 centimes from the Government a day, which they supplement by working for wages. The weather is very variable, some sun *every* day; glorious sun most days. Now and then gales of wind.

The post that brought me your letter brought one also from K. Pearson, so I am posted with your Easter plans. I had hoped to be home just before Easter, but expect now to be delayed abroad a few days longer. Kindest remembrances from both of us to you both.

Very sincerely yours, FRANCIS GALTON.

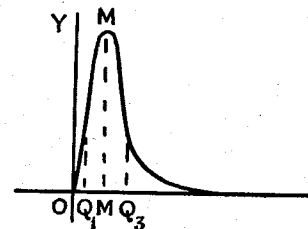
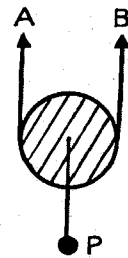
42, RUTLAND GATE, S.W. April 10, 1904.

MY DEAR WELDON, I was so very sorry to miss you, and by only five minutes, yesterday. I did not *dare* to read your letter till this morning, being rather dangerously overworked and fearing disaster. With a lot of correspondence I *begin* with the least important, to ensure this not being overlooked, and end with the important. So your letter came the very last.

As regards albinos of all kinds, there is evidently an unusually close correlation between the soma and the germ (generative cell); total absence of colour in the one going with total absence in the other. When albinism is confined to the eye, the correlation is less close, but still close-ish. Perhaps the day will come when the mean correlation between soma and germ (generative cell), in respect to certain exceptional qualities, will be studied. What a puzzle it all is! The mice will be mines of facts. Those three beautiful volumes by Amari! I am ashamed to accept so valuable a present, but will do so, and read them through, and be more and more saturated with gratitude. I have a strong leaning towards Saracens.

Eva Biggs will have told you our news. We both go into Warwickshire to-morrow for three or four days, but to different places. I to my dear old sisters, 96 and 92 respectively* (5, Bertie Terrace, Leamington); she to her sister, Mrs Bree. The cold is as much as I can bear, but I am getting acclimatised again to my native country. It would amuse you to see F. Howard

* Bessy and Emma Galton.



Collins's revision of my paper. No boy's exercise at school could be more scrawled over. But some of his suggestions are good. As soon as I have finished this letter, I will take it finally in hand and post it to the printer.

If you care for a bit of pumice-stone you shall have some. All good pumice-stone comes from Lipari. There is a white mountain wholly composed of it, and convicts cut galleries into its sides to get at the choicest bits. Kindest remembrances to Mrs Weldon and to the Pearsons.

Ever sincerely yours, FRANCIS GALTON.

Alas! since writing this he has gone to bed with a temperature of 101. I think he won't go to Leamington to-morrow. It is, O, so cold—with snow in the wind. (E. B.)*

42, RUTLAND GATE, S.W. *June 20, 1904.*

DEAR MRS HERTZ, You ask me a difficult question about probable purchasers of Roger Bacon's *Magnum Opus*. The combination of scientific tastes, history of science tastes, purchasing power, and possession of library room, is rare. I have from time to time thought who might be suggested, but always in vain, so much so that I do not venture to send even the five *least unlikely* names. The book seems to be more suitable to a public library than to any but a few very exceptional book collectors. I am ashamed of being so helpless. The physically scientific peers and baronets, who are Fellows of the Royal Society or of other societies, *might* be circularised, but from what I know of them I should doubt much success. It is too archaic a book for their wants, and they are hard pressed to keep their knowledge up to date. Very faithfully yours, FRANCIS GALTON.

42, RUTLAND GATE, S.W. *July 5, 1904.*

DEAREST EMMA, You may like to have an authentic copy of my "Eugenic" lecture. I have just received the usual few advance "Author's copies." The lecture and the long (wishy-washy) discussion upon it, will be published in due time by the Sociological Society. It is well printed, anyhow.... Ever affectionately, FRANCIS GALTON.

MALTHOUSE, BIBURY, FAIRFORD. *Friday, August 25, 1904.*

MY DEAR BESSY, Your letter was very welcome, I feared you might not have shaken off the illness. Milly and I have been corresponding about the inscription for dear Emma's grave †. I enclose two, marked (A) and (B). The (A) was the one to which her letter refers, I have just written out the shorter form (B) to see how it looks, but I prefer the (A) as being more interesting to the reader. How do you like the *words*? We have made many trials. You will see Milly's approval in her letter enclosed where I have marked the passage. Of course the proportions would have to be carefully attended to. Would you care to leave the matter *at first* quite in my hands, as Edward was disposed to do? If so, I will take much care to get a really good design that in respect to appearance shall be as *nice* and *simple* as possible, and I should be truly gratified if I might be allowed to defray the entire cost, in case my proposal should in the end be accepted. To get the nicest and simplest result one must consult persons of real taste. Very little changes of proportion make vast differences in effect. Then the material has to be considered; but I will not say more now, beyond that I wish to do everything with all the best advice I can get, and that I see my way to get it.

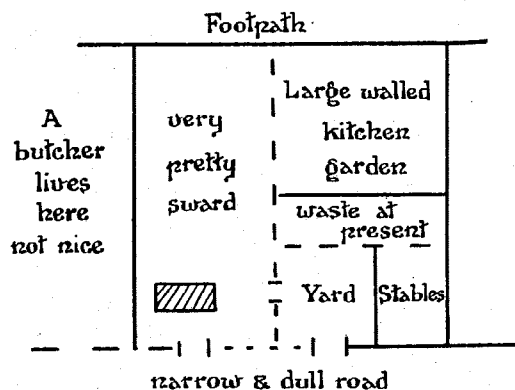
We went to the Cameron Galtons to tea. It is a curious place, very large in some respects, greatly cramped in others. The surroundings are mean, the gardens are very extensive, and the place is curiously rambling. Its history accounts for it, it was in part a wool-merchant's store, and that part has been pulled down by previous owners and its place otherwise utilised. My map (see p. 528) is I fear very incorrect. The house has excellent rooms, but the place gave me the idea that two persons could not pervade it; it has, however, great capabilities and I dare say they will settle happily. I hope Edward enjoyed Loxton ‡. I go there to-morrow (and return here on Tuesday evening). Eva then goes to Adèle Bree and returns also on Tuesday. We made an expedition yesterday to join our two Professors at tea in a country town. I drove, they

* Postscript by Galton's great-niece, Eva Biggs.

† Galton's sister Emma died in 1904.

‡ Loxton, the quaint home of Erasmus Galton: see our Vol. I, Plate XXIX.

and their wives and Eva bicycled. Then we talked "shop" and other things to our hearts' content and separated after two pleasant hours. We did this every Saturday last year. How the autumn



creeps on! I grieve at the departing summer. Give my best love to the Studdys—Eva would join if she were in the room. There is such a handsome old manor-house here. We went over it yesterday morning. A clear trout stream runs by its side.

Ever very affectionately, FRANCIS GALTON.

MALTHOUSE, BIBURY, FAIRFORD. *September 6, 1904.*

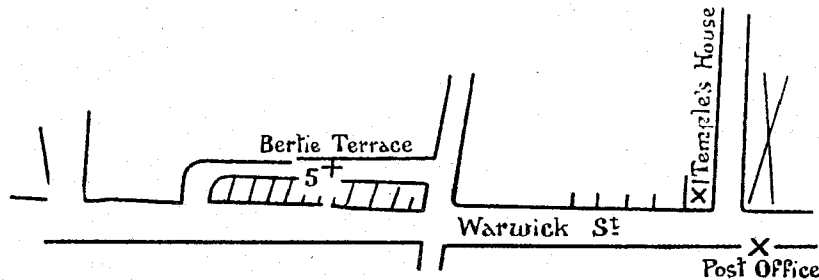
MY DEAR MILLY, I am anxious to hear about your eyes. How are they? Any news from the Cape? Now that dear Emma is gone, the family is like a wheel that has lost its tire. We must contrive means of keeping in closer touch. Bessy and I write every week. You and I must do the same. I went to Loxton a week ago. Erasmus most hospitable, but what an uncomfortable life it would be to most; but he takes real pleasure in it and it suits him to a "T." And the quantity of occupation that he gets out of it is surprising, for he does not a little foreman's work, besides agent's work and, loving to do things substantially, takes much time over each. Then he keeps minute accounts and reads books and does kind things, and so, although he sleeps little, the day is full. It is very pleasant having the two professors, Karl Pearson and Weldon, within reach. Weldon has astonishing energy. He cycled over last Sunday from Oxford, 28 miles, taking Pearson by the way. He walked here, some 5 miles, and talked till past 8 p.m. and then cycled back the 28 miles, and does his hard professorial and other work all the same. They two went to Cambridge and had a (verbal) fight with Bateson and his followers on Mendelism. There was a pretty long account of it in the *Times*, out of which some rather savage phrases of Bateson had fortunately been left. They both, with wives, etc., come here to-morrow to tea. I had one of the Master of Trinity's charming letters about the British Association. Balfour, the Duke of Devonshire, and Lord Avebury's party were his house guests. He describes Balfour as a miracle of *detachment*, full of interest in high subjects, fresh, delightful, showing no sign of the wearying work he had gone through nor of the serious foreign anxieties of the moment. And he was immensely pleased with the Aveburys, five of them; he, she and three daughters. I look forward much to coming to you on the 15th (we sleep in London on the 14th). Please tell me if this itinerary is right? Paddington dep. 12.25, Newton Abbot arr. 4.59, dep. 5.45, Bovey arr. 6.6, or should we take a fly from Newton Abbot? We can stay *over Monday* night, leaving you on Tuesday 20th, if that suits? Love to Amy and to all of the party who may be with you.

Ever affectionately, FRANCIS GALTON.

CLAVERDON LEYS, WARWICK. *September 23, 1904.*

DEAREST MILLY, Claverdon is so pleasantly changed. Edward and his wife bring in so many new interests, and they play their parts so well. I spent three hours in Leamington on the way here with Bessy, who looked singularly well; but she has rheumatic pains rather severely. She lives now at No. 5 and expects to migrate there altogether, being warmer and brighter and

even fuller than No. 3 is of old associations on account of my Mother. There has been difficulty in dealing with the accumulation of dear Emma's things, but Edward tells me that all her books were most methodically kept, all bills paid up to almost the last, and everything was so neatly stored. I called on Temple and saw the other two maids there; she was very lachrymose, then cheered up, then, when I went away, became all tears again. As to you, so to me, she bitterly bemoaned her sudden isolation. Anyhow she has a charming house with a little grass plot and summer-house behind and a narrow plot in front. It is close to Bertie Terrace, on the same side of the main road, and nearly opposite to, but short of, the Post Office. I go again on Monday for the greater part of the day to Bessy, and hope to find Eva there. She is, or was,



not sure whether she could leave London by Saturday morning. I had not time on Wednesday last to go to the cemetery. We lunched to-day at Wroxall Abbey, with Edward's brother-in-law. All so hospitable and family-like. I called on Grace Moilliet, but she was out. Gussy* is at Himbleton with Lady Galton †. Yesterday I went to Wootton Wawen Church where Darwin is buried and Mary ‡ and Mrs Phillips and others. I liked all the memorials much, Darwin's included, which had been hardly criticised, but not deservedly, as I thought.

I trust, dear Milly, that your eyes are really mending. That horrid pamphlet tried them, I know. I wish I had never shown it you. It is so pleasant now to realise your surroundings and to think of you amidst them. It was a very delightful visit indeed to me and to Eva. Grimspound was grand and the moor most striking and beautiful in many ways, and the air felt so healthful. Give my best love to Amy. Also to the Captain and his Wife §. We expect to be back for good early in October. Ever affectionately, FRANCIS GALTON.

42, RUTLAND GATE, S.W. October 8, 1904.

DEAREST MILLY, I am to blame for letting the time slip by without writing. All is well here, but I have been full of my "Eugenic" plans, so full that I have not even written up my little pocket journal for a week. I stayed last Sunday with Lady Welby at Harrow, who is a most zealous friend, and have consulted with Sidney Lee, the Editor of the *Dictionary of National Biography*, with Barron, the Editor of the *Ancestor*, with Professor Weldon, with Branford, the Secretary of the Sociological and with Lionel Robinson, a general litterateur, and see no less than seven different ways of making the first effort, between which a wise choice has to be made. Every one of them seems hopeful at present. The iron is kept red hot on the anvil, and I am simply continuing to write concise family biographies, like that of the Stracheys which you saw (No, you didn't, it wasn't ready then). They too are giving me friendly help, and writing out ideas and getting them into shape. I cherish every day before winter, with its too faithful bronchitis, sets in. Lucy Wheler is staying a week with us, and is massaged every morning. She and Eva are quite happy, and shop, and see art things together. Bessy seems to be going on very well and will have all the changes of furniture made while she keeps on at No. 5. No. 3 will soon be, perhaps *is*, advertised to be sold. How quickly events move. I think I must have told you of my stay at Claverdon and of the tree thinning. It was all very pleasant there, where also events are moving quickly. I am curious about the newly discovered drive

* Augusta B. Stewart, second wife of Herman Ernest Galton: see our Vol. 1, Pedigree Plate A.

† Marianne Nicholson, Sir Douglas Galton's wife.

‡ Mary Phillips, wife of Darwin Galton.

§ Captain Guy Lethbridge.

on the moor. I have often thought of those pleasant ones that you took me. We must fall into regular days of correspondence. I always used to write to dear Emma on Saturdays, and will to you. The lettering in the design for the bronze tablet has been improved and approved. It is now being engraved. I have ordered photos of it before being mounted on the stone, and will send you one. Give my love to Amy, also to Hugh* if he is still with you. I shall be glad of tidings when you next write (! on Friday) about Fred and Frank.

Ever affectionately, FRANCIS GALTON.

42, RUTLAND GATE, S.W. *October 15, 1904.*

DEAREST MILLY, You send good news of Frank. I trust the IF may go well. I have had an eventful week in fixing and carrying out the most hopeful of my numerous alternatives. You know that I have long been putting by a reserve of money for scientific purposes, either during lifetime or after death, which now amounts to a good round sum. Armed with the intention of bestowing £1500 of this in aid of "Eugenic" research, I determined on the University of London as the best of the 7 or 8, so on Monday I went to the Principal, my friend Sir Arthur Rücker, to talk the matter over. Now the University has the reputation of being a slow-moving body that requires everything to be done (1) through formal notice to their Academic Council, (2) through Committees appointed by the Council, (3) by adoption of the Report of the Committees by the Council, (4) by ratification by the supreme body, the Senate. The Meetings are fortnightly or monthly, so you may imagine the time any new piece of policy requires to go through, in the usual course. Now, as to what *has* happened in this matter. I went on *Monday* to Rücker, fired my proposal; then it turned out that the Academic Council met that very afternoon, and that as a "*matter of urgency*" my proposal could come on. So then and there I wrote it. It *was* proposed and accepted, and a good Committee of three important men, *plus* Rücker and the Registrar as officials, and myself, were appointed to meet on Friday (yesterday). On the day before, Rücker, the Registrar and I carefully drafted the details of the proposal to lay before the Committee; we met yesterday, improved and passed it, to go before the Senate on the 26th, when I have no doubt it will be confirmed. You shall have full details when it is. The result is that the £1500 is for 3 years (£500 a year) to appoint a "Research Fellow in National Eugenics" at £250 a year (the term is neatly defined, and so are the duties). Also an assistant at £100 to £120 a year, who may become titled "Research Scholar." All precautions are taken for superintending them and superseding them if they don't work well, and rooms are to be assigned to them. Also many academic advantages, too long to explain, are to be given them. Also a prospect of extending the Endowment beyond three years, if it is found to answer. So much helpful good-will exists, that I feel the seed is planted in good soil. Whether it will grow and flourish is another matter; very much depends on the holder of the Fellowship. But with inquiry and with advertisement, I have hopes of attracting a fairly high university man with lots of energy and sympathy and general intelligence, who sees in it an opening to future work of a more paying character. It has undoubtedly many attractions in that way, and the salary is as good as an ordinary college Fellowship.

Sibbie and Frank Butler† are with us for three nights. We had a particularly nice dinner party last night for them. John Murray, the publisher, told many anecdotes. Lady Pelly was there, and very helpful; so were the Rückers, and the Coleridges (*she* the novelist), etc. I have heard no more of the bronze tablet and do not expect news yet, but will write to the man in a week. Good-bye, Eva's love and mine to you all. Ever affectionately, FRANCIS GALTON.

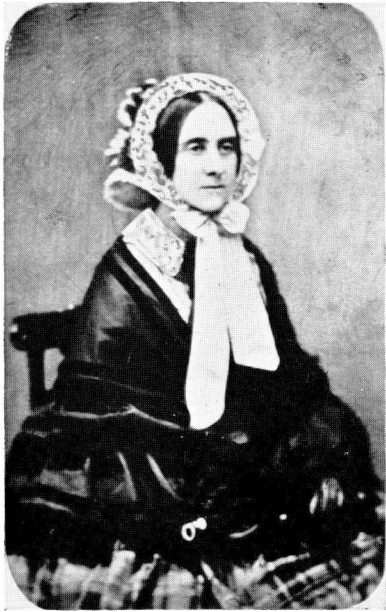
42, RUTLAND GATE, S.W. *October 22, 1904.*

DEAREST MILLY, Yes, the weekly letter must become an institution. You must have glorious tints on the moors. Eva and I spent a day at Peppard Common where we had such a pleasant time last year, partly to see the woodland colours, and Professor Weldon joined us. One of our then neighbours was Sir Walter Phillimore, the Judge, whose daughter married the son of my old friend Mrs Hill. She, the daughter, had a bicycling accident a few days ago and was killed instantaneously by an omnibus. I have just been to the first part of the funeral service, held in a church in Sloane St. It was very affecting to see how many old retainers,

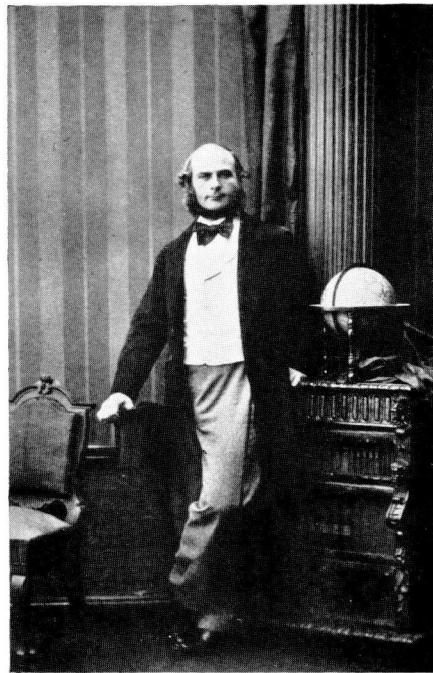
* Frank, Fred and Hugh, Galton's great-nephews, the three youngest sons of Mrs Lethbridge.

† Nephew of Francis Galton's wife, Louisa Butler.

PLATE LV



(i) "Sister Emma" (Miss Emma Galton).



(ii) Francis Galton, Secretary of the Royal Geographical Society, 1856-63.



(a)



(b)

(iii) Mrs Tertius Galton (née Violetta Darwin, Mother of Francis Galton and Aunt of Charles Darwin), in later years. (a) From a photograph taken at Leamington. (b) From a water-colour sketch in the Galton Laboratory.

I suppose, were there, in obviously deep sorrow. I walked out with Mrs Leonard Courtney. The last time we met was at the cremation of Herbert Spencer, when her husband delivered the beautiful, simple and forcible farewell to him. It will be nearly a fortnight before you get full tidings of Frank. You said that Guy was learning finger-print work; I suppose, how to read off and classify. They will of course have plenty of prints for his purpose available at the prison? I fear I could not help him with specimens as mine are all classified already. My fellowship affair comes before the Senate of the University of London next Wednesday, so nothing *could* appear about it in the papers before Thursday and then probably a mere notice under University intelligence. They will advertise for candidates, and that may attract notice; also inquiries will be made privately, for they do not bind themselves to select from those who answer the advertisement. At the best, it is "buying a pig in a poke," for so much depends on points of disposition and capacity that can only be guessed at, however elaborate the descriptions may be. I will tell you the results of course. I lunched last Tuesday with the Principal of University College, to see what rooms they could allot there for the "Fellow." It will shortly become an integral part of the London University, instead of being as hitherto a separate College. The professors are such a strenuous lot; I had coffee after lunch with them. Everything was simple. They, or the chemists among them, make the coffee; a big brew out of which each ladles his own cupful. I had a chat there with a charming professor, Sir William Ramsay, just back from a lecturing tour in America. He does not rate American science in *his* branch any higher than others have done in theirs. They have a few good men, mostly imported, as Professors, but not much that is indigenous. Edward Wheler and M. L. were here three or four days ago*. He fills his place *uncommonly* well and I am proud of him. He does real good work. Love to Amy. I do wish that your eyesight were better. Eva is off to-day to Constance Pearson. Ever affectionately, FRANCIS GALTON.

42, RUTLAND GATE, S.W. October 30, 1904.

DEAREST MILLY, Your autumn must be glorious. We two, Eva and I, had a glorious day out in Surrey. The trees were everywhere a uniform gold; no red whatever, but gold, gold, gold. I have never seen the like before. There were, as I heard, beeches on chalk soil, some three miles from where we were, that flamed in red, but I saw none of them. The portrait of me, by Charles Furse, which Eva insisted on having done *for herself*, is come. It was painted at his house last autumn, but not *quite* completed to his taste; so it was agreed that it should remain with him, to be retouched in the spring (he being full of work and obliged also to spend many weeks at Davos in the winter, for health's sake). He came back and was overwhelmed with orders for pictures and it was agreed that I should again stay with him this autumn. Well, as you know, he has suddenly died, leaving a large number of unfinished pictures. But mine is practically finished and is now here. It is an *excellent* piece of work and would hold its own in *any* gallery of pictures; besides, it is *very* like. It is Eva's property. She won't tell me any further particulars, but keeps it as a secret, which I respect.

The Fellowship arrangements are being rapidly pushed forward. While writing this, printed copies of the requirements have reached me, of which I enclose one for you as a memento. You see now (1) that everything is done in the name of the University and (2) that the word "Eugenics" is officially recognised. I am very glad of all this as it gives a status to the Inquiry, so that people cannot now say it is only a private fad.

Mrs Eustace Hills was *not* the lady you met. Was she not Mrs Hills, Judge Grove's daughter, and mother-in-law to Mrs Eustace Hills? Judge Grove was one of the very kindest friends I ever had. It was at his house, hired for the shooting season, that dear Louisa was suddenly taken so alarmingly ill with violent haemorrhage from the *stomach*. Mrs Hills, then Miss Grove, was so very kind and helpful. It laid the foundation of an affectionate friendship between them. That illness was many years before the end of dear Louisa's life. The cause of it was never properly explained. Lecky's remarks on Gladstone are in the preface to his second edition (the last one) of *Democracy and Liberty*, tell Amy. The photo of dear Emma sitting in her drawing room is excellent; perfectly life-like and domestic; perhaps her figure is a little

* Writing to his aunt, Emma Galton, in October 1898, Edward Galton-Wheler remarks: "I most thoroughly enjoyed being at Uncle Frank's. He is the best of hosts, always hospitable, and one feels it 'Liberty Hall' where one can do anything one likes."

stiff, but the whole is a valuable memorial. Ethel Marshall Smith* dined here the other day. She is quite an altered person, so radiant, healthy looking, and (how shall I phrase it?) *expanded*. You heard of Edward Wheeler's retriever getting a second prize? Her breed is too gentle a one for your purposes. What a relief this morning the news is *re* Russia!

Ever affectionately, FRANCIS GALTON.

42, RUTLAND GATE, S.W. *November 12, 1904.*

DEAREST MILLY, *Si da* †, You must be anxious about Frank ‡ still. It was an awkward business. Guy † will soon be with you. All is well here. Eva has been three nights in the New Forest, with her brother at Emery Down, and bicycled gloriously with him. Sensible girl—she made him take a short rope and tug her thereby, up hill and against the wind, like a trailer. I have been busy in relation to the new Fellowship. We four who form the Committee met yesterday to consider applications, and selected the three most promising to see next Friday, and probably then to elect. They are all good in somewhat different ways, and I am happy in the prospect of getting the best. A newspaper cutting came this morning, fuller than usual. You may like to see it, but do not trouble to return it. The photograph of the tablet for dear Emma, which has been engraved some days past, ought to arrive to-day. I trust the whole thing will be completed and set in place very soon, perhaps by the end of next week. I am grieved at the death of Emma Phillips§, for I saw so much of her between 45 and 55 years ago. There was something very nice and cheerful and sympathetic about her when at her best, and then a sudden wave of shyness, indifference, and dominant sense of self would come over her, and she was an altered person. It was very odd. I wonder what sort of a person the heir to all the strictly entailed property of Edstone is. Beyond knowing his name, which I have forgotten, I have heard practically nothing of him. He is Irish, and was hardly ever in Warwickshire. Somehow or other I missed seeing the graves of Aunt Sophia and Mr Brewin. There is much that is radically wrong in our British aesthetic sense, or peaceful burial grounds like that of the Friends in Birmingham would not be so rare||. I often marvel at the way in which an artistically minded person succeeds in turning a mere plot, with no particular natural advantages, into a beautiful garden. The Japs do this. This horrid, horrid war! Did you see some weeks ago a Russian and a Jap locked in death. The Russian had gouged out the Jap's eyes and the Jap had bitten through the Russian's throat. However, dogs delight to bark and fight, and the same delight lies at the bottom of much human nature. Many loves.

Ever affectionately, FRANCIS GALTON.

P.S. I overlooked *your* P.S. T—¶ has turned rather silly, posing as a lady and calling her niece and Mary "the maids." She sits doing nothing in a grandly furnished drawing room, and in a house furnished far beyond her station, and I understand gets laughed at. Her head is turned. She told me that after what she had been used to, she could not have endured going to a smaller house.

Blessed be Higgins for his paste. [The P.S. was pasted to the sheet.]

42, RUTLAND GATE, S.W. *November 28, 1904.*

DEAREST MILLY, I had to omit my weekly letter, being in bed (mostly) all Saturday and Sunday with cough and cold, no asthma I am rejoiced to say, such as I always had when my bedroom was carpeted. Your rats sound almost alarming. There used to be a professional rat-catcher, who gave himself a high name, and who walked about London in a brown velveteen coat with silver rats sewn on to it as ornaments. He was a picturesque figure, and knew it, but he has long since disappeared—gone to the "rats," I suppose. I am so glad to be at home and not away in a comfortless place, this cold weather.

* Ethel, daughter of Cameron Galton, married Mr Marshall Smith.

† *Si da* is Galton's abbreviation for "sister's daughter." His niece Milly, Mrs Lethbridge, was his sister Adèle's daughter. See above, p. 446.

‡ Sons of Mrs Lethbridge, Galton's great-nephews.

§ Sister of Darwin Galton's wife, Mary Phillips, and coheirress of Edstone.

|| See our Vol. 1, p. 52 and Plate XXXII.

¶ A pensioned servant of Galton's sister Emma.

You are doubtless an admirer of Wordsworth's "We are seven"; the following will serve as a pendant to it:

Dramatis Personae: Dirty boy, alone in an Edinburgh garret. Philanthropist Visitor. Ph.V. Where's your mither? Boy. Oot charing. Ph.V. Where are your brithers? Boy. Twa are oot begging. Ph.V. What ither brithers have ye? Boy. One in the Univarsity. Ph.V. Maybe he's studying for the meenistry? Boy. Na; he's in speerits in a bottle; he wa' born with twa heids.

Applicants for the Fellowship begin to be heard of. A very likely man is almost certain to apply. I had three hours' talk with him last Thursday. There are already five others; possible or actual candidates. Forgive this short letter. I have arrears to get through and am not yet wholly fit. Best loves to you all. Ever affectionately, FRANCIS GALTON.

42, RUTLAND GATE, S.W. December 3, 1904.

DEAREST MILLY, I trust you are satisfied with your "Lethbridge rat-research dog." My *Research Fellow* is still unfixed, but I hope daily to hear from the present favourite whether he will formally apply or not. He is now in France. What good news it is that Frank has got a permanent appointment of a kind that he likes, and apparently on his unassisted merits. I wish I were fit to go to S. Africa with the British Association next autumn, but of course that is out of the question. The people who *do* go will have a hard and busy time of it, and must I fear take nearly all of their Science with them, for there is not much of it there—at least only few signs of it. If George Darwin's health stands the work, it will be very congenial to him, for the most important feature will be the survey, as proposed, of an arc of the Meridian, to join the Cape surveys with the Russian, *via* Egypt. Geodesy is one of his special subjects. My past week has been one of coddle, until I am aweary of fires and blankets, which make me cough. We go to Branksome Hotel, Branksome Park, Bournemouth, on Monday for a few days, where "I may heal me of my horrid cough." It is a sort of "Island-valley of Avilion," with Poole Harbour on one side and the sea on the other. We are now looking forward to leaving for the South, somewhere early in February. I can't easily get away, and doubt if it be wise to get away, earlier. *Then* the almond trees are in blossom and spring is in the Southern air and the days are lengthening, and winter is past. Of course your rats are only the invading Hanoverians, not the more gentle and graceful black British ones. The latter are apparently almost extinct, under the action of blind Eugenics. Ever affectionately, FRANCIS GALTON.

42, RUTLAND GATE, S.W. Saturday, December 17, 1904.

DEAREST MILLY, What villains they must be in Pretoria! If you hear, please tell me whether, and how, the finger-print system acts out there. Without a bureau manned by a really capable man and a couple of clerks, it would probably get into a complete muddle, so far as classification is concerned. Is there an Identification Department? I have not lately seen anything of the Scotland Yard doings, but I believe all goes on swimmingly. Dear Emma's gravestone is not even yet put up. Edward Wheler has seen it in Leamington, at the yard of the man to whom it is entrusted and likes it much, but there are certain details which delay. I send you a photo of the inscription, which you will like to keep, all the more for having helped in drawing up the words. The Galtonias at either side are utter failures*. The artist has no excuse, for he was supplied with many drawings; but accuracy is not the strong point of artists. They think as much of shadows as of substances, and a handbox casts as black a shadow as a block of granite. (That metaphor might be worked up!) Hugh will delight in Rome. I am very glad that Fred is now so strong and happy. The last rose of summer—the last rat of the year! You will have to keep and pet him or her. But the large probable families of rats are appalling. I heard that all the hives full of Ligurian bees in England, for

* Few things pleased Galton more than the naming in 1880 by J. Decaisne (Professeur au Muséum d'Histoire naturelle, Paris) of the *Hyacinthus candicans*, from South Africa, the "Galtonia." It is one of the most beautiful and hardy bulbs, shooting out a spike five feet and upwards in height. It differs much in habit though less in floral construction from our ordinary hyacinths. I well remember Galton's delight at finding two or three Galtonias growing in a bed of the garden of the house I was staying at, when the biometricians were at Peppard in 1903. See above pp. 523, 530. It was characteristic that he should place it on his sister's tombstone.

many years, were descended from a single queen bee, sent by post to England from the Riviera. Is it possible? I am not sorry to remain several weeks longer in England, being not strong enough now for the risks of an ordinary journey. We hope to be off in the second week of February. Things go on here in a humdrum regular way. No real advance just now. Loves to you all. Ever affectionately, FRANCIS GALTON.

Galtonia.*

Flores hermaphroditi, regulares, penduli, bractea membranacea stipati, longe pedicellati, pedicellis summo apice articulatis.

Perigonium corollinum, candidum, campanulatum, limbo 6-fido, patente, laciniis planis vix apice papilloso-incrassatis, exterioribus oblongis, interioribus obovatis basi angustatis.

Stamina biseriata, subaequalia, tubo ad faucem inserta, inclusa, filamentis subulatis, glabris; antheris oblongis, dorso medio affixis, oleaginis; polline aureo.

Ovarium sessile, oblongum trilobulare, loculis pluriovulatis septis glandulis nectariferis minimis; ovula biseriata, anatropa.

Stylus cum ovario continuus, erectus, obsolete trigonus stamina superans v. subaequans; stigmata tria, sessilia.

Capsula sessilis, oblonga, membranacea, reticulato venosa, loculicide † trivalvis, polysperma.

Semina ovata, mutua pressione angulata, testa membranacea, nigro-fusca; albumen carnosum; embryo cylindricus longitudine albuminis.

Herbae bulbosae, Africae australis incolae. Bulbus tunicatus. Folia pauca, magna, linearia, erecta v. patula, crassiuscula, glauca. Scapus metralis. Flores racemosi, inodori, albi, speciosi, bractea membranacea integra v. inferne lobulata stipati; pedicelli in floribus virgineis reflexis, fecondatione peracta, erecti, summo apice sub perianthio articulati.

* Galton (Francis), auteur du "Narrative of an Explorer in South Africa," London, 1853.

From "Note sur le *Galtonia* (*Hyacinthus candicans*), nouveau genre de Liliacées de l'Afrique australe," *Flores des Serres et des Jardins de l'Europe*, Tom. XXIII, p. 32, 1880.

42, RUTLAND GATE, S.W. January 1, 1905.

DEAREST MILLY, This is my first letter in 1905, written with a new pen and in a new suit of clothes. Also I feel a new man, the cough having apparently gone with 1904. A very happy New Year to you and all yours. I was so glad to hear what you told me about Frank. All your sons and your daughter are so much liked. It must be a great pleasure to you. I got out this morning for a long drive (for me) round Regent's Park, without being tired. I suppose it has turned cold with you as with us. The N. wind has driven the fog away, and we saw some sun at last. If life that has no history is happy, mine now must be supremely so, for I have no news whatever. I got to the Club yesterday; people seemed *older*; even Lord Avebury who was boyish for half a century looks at last rather old, the hair changing from colour to colourless. Dear Emma's grave-stone is not even yet put up. Bessy tells me that the grave is prepared for it and that she has seen the tablet, which the stone mason brought to her, but there has been some delay about the stone itself, which is due from Portland. I wonder if it is quarried by convicts, or do they only quarry stone for Government works? This terrible Jap war! and the soldiers freezing with cold. How they do quarry mines! Fancy the explosion of two tons of dynamite. It was, I think, one ton that blew up in a barge some time ago in the Regent's Canal—or was it only gunpowder?—and shattered all the windows near and sent the tigris in the Zoo into hysterics. It must have been only gunpowder, or the canal would have been destroyed, and much besides. Love to you all and regards to the rats if more than one remains. Ever affectionately, FRANCIS GALTON.

42, RUTLAND GATE, S.W. January 8, 1905.

DEAREST MILLY, It must have been a great shock to you, that horrible accident close to your gate. Poor fellow, even if drunk, the punishment to him and his family exceeded apparently his sins, by far. I have often wondered and talked with people about what the results would be if our sympathies were vastly keener, or to put it in another way: What should

† Mr. V. Summerhayes, who has kindly looked for me at the specimens of *Galtonia* in the Herbarium at Kew, informs me that the capsules seem to be dehiscing for a short distance both loculicidally and septicidally, along six sutures in all. The capsule then seems to act as a censer or pepper pot mechanism, since dehiscence apparently never goes beyond the upper third.



Galtonia (*Hyacinthus candicans*) from tropical South Africa.

be the colour of a clergyman's dress? It must be suitable for marriages, christenings, sick-beds and deaths. One suggestion was *violet*. My mother was fond of saying that she had had a much happier life than most, but that if she were given the choice of re-living it she would rather not. It is all very queer and no thinking about it gets one any "forrarder." Do you happen to recollect that skit of Voltaire, when describing the range of knowledge of his almost supernaturally informed Zadig. "...and as to metaphysics, he knew all that has been known since the creation, *c'est à dire très peu de chose.*" That bitter Monday last upset me in another direction, viz. gave me gastric catarrh, three or four days of sofa and slops. Eva was able to leave me on Wednesday for two nights at Allesley. She saw the cemetery at Leamington where the stone had just been placed, and she saw Bessy, whom she reports as looking exceptionally well and happy. I got out in a "growler" both yesterday and to-day. I was sorry to hear of your attack. Next Friday is the day of electing the "Eugenic" Fellow*; I shall be very glad when that is finished off. But though it will be practically settled on Friday, confirmation is formally needed by two bodies, (1) the Academic Council, (2) the Senate, before which the election cannot be final. I don't foresee the slightest difficulty in all this, only a week or two of further delay. Best loves. Is Guy with you? Is Hugh on his Swiss tour? I gather that Amy is with you.

Ever affectionately, FRANCIS GALTON.

42, RUTLAND GATE, S.W. *January 15, 1905.*

DEAREST MILLY, I am grieved for Fred's mishap. When you learn more, do send me a post-card to say if it is simple or compound, and an ordinary or a bad fracture. An ordinary simple fracture is not such a very bad thing and need not lose him his appointment. I hope it is not worse. My own small malady is better. Slops, hot bottles and bed are my prescriptions, but at this moment I am writing on my lap, well wrapped up in an easy chair. On Friday I got to my Committee for an hour and back straight to bed. We unanimously agreed to recommend a man who will be formally elected by the Senate on the 25th, and I am perfectly satisfied, and so we all are. He is not the man I had chiefly in view, but his merits came out stronger and the drawbacks to the favourite became more conspicuous, so there was no doubt in placing him first. It is better not to mention names till the election is final. All this is a very great relief to me. Much is going on independently now *re* Eugenics. You will be glad to get the other half of your "pair of scissors" back. The Arabs somewhere have a list of things which are in pairs and cannot work singly, and which they say must have been created so at the beginning. The only one I recollect is a pair of tongs. *With* them a blacksmith can make everything, but he cannot make *them* without another pair. Your garden, birds, and possibly rats, will all show signs now of the incoming spring. Snowdrops ought to show soon. What lies the Russians will tell. That in Stössel's memorandum about the number of Russians in Port Arthur, was not one half of the real number. What an ingenious idea that of painting the surrender of Port Arthur on *kites* and sending them over the Russian lines. I am assured that there is no fun extant equal to that of flying meteorological kites from a swift steamer equipped for the purpose. It is easy to explore the air in that way for much more than 1 mile high. It requires a great deal of skill and constant attention. Much has been done and is doing in that way. They are shaped quite differently to common kites, something like Venetian blinds, and carry no tails. They require a steam-engine to wind in the wire rope that holds them, and they are sent up in *tandems*.

Ever affectionately, FRANCIS GALTON.

42, RUTLAND GATE, S.W. *January 16, 1905.*

MY DEAR WELDON, I should dearly like to see your views about the nature of dominance and their effect on Mendelian theory. If you really do send them, be assured I will read them with all the care I can. Can you explain (in a way) each necessary step in the imaginary case, say, of only three sorts of interfering germs?

I have spent days, some wholly in bed and others mostly so, by strict doctor's orders for gastric catarrh now. Really I am rather liking it, and don't object to slops for food. Hot bottles are delightful companions—I regularly have two. Very sincerely yours, FRANCIS GALTON.

* The reader will have observed that Francis Galton here and in several earlier letters uses the adjective "Eugenic." Perhaps he already saw the fun of this; but several years later he solemnly warned me that I was not to allow any one to speak of the Eugenics Laboratory as the "Eugenic" Laboratory.

42, RUTLAND GATE, S.W. *February 5, 1905.*

DEAREST MILLY, I shall be glad to hear next Saturday how you have tided over your many small calamities—indeed rather big ones. It was a great pleasure finding Bessy so unusually well and bright. She will be now at Claverdon. Thanks to Eva's dragonship, I managed it all without fatigue, including a sight of Edward and his wife and of Erasmus. But after returning, and not I think in consequence of the trip, I got poorly and the Doctor kept me in bed all yesterday and to-day up to the afternoon. Just a slight feverish attack and need for a dose. He tells me I may keep an engagement of lunching quietly to-morrow with Major Leonard Darwin. I want to hear all the latest news about George Darwin's preparations for South Africa. He has a particularly strong staff of associates, as Presidents of the several Sections of the British Association. Schuster has been here frequently and is working away. He gets into his rooms at University College to-morrow, and spends half of each week there and half at his home in Oxford. Our Committee meets on the 10th to arrange particulars. I have already drafted an "unauthorised programme," which will be read with my other paper at the "So so" Society on the 14th, Schuster going on with it if I break down. I shall try some of Warren's (£10,000 a year) method. You know, he had to lecture at Leamington when at the height of his fame. He awoke with a stomach attack. His wife gave him some brandy. As he travelled down he felt no better and took more. He went to Jephson who said—take a couple of glasses of port. At length the lecture-hour came and he was got somehow into his seat on the platform, where he sat with eyes shut and arms folded. The chairman arrived late and at once began with a modest disclaimer of his own power of speaking, but "that does not matter as you will now hear the eloquence of our distinguished guest, Mr Warren." Warren sat still; his neighbour nudged him, saying "Warren, get up." With difficulty he did so. Then, looking round the eager audience with bloodshot eyes, he simply uttered the words "Bow, wow, wow" and collapsed back into his chair. About the Darwins, Mrs Litchfield has just sent me a charming two volume *Life and Letters of her mother**. It is privately printed. The second volume is particularly interesting. I have taken salon-lits from Calais to Bordighera on the 20th. We leave London on the 16th and stay at Calais in the meantime. Love to all of you.

Ever affectionately, FRANCIS GALTON.

Insurance Data.

During the course of this year (1905) Francis Galton endeavoured to move the Institute of Actuaries to undertake, or prompt the Life Insurance Companies to undertake, an inquiry into the heredity of disease. To the outsider the proposal seems not only of great scientific interest, but of the highest commercial importance to the business of life insurance. The biometricians had shown definitely that length of life and general health were inherited characters. Galton's somewhat slender data indicated that certain diseases tend to run in families (see our Vol. III^A, pp. 70-76). My own more numerous family schedules are convincing in their evidence that most broad classes of disease, whether as cause of death or of ailment during life, have familial incidence. But when we remember the variety of familial relationships, and these for the two sexes, the range of age groups and the number of even broad classes of disease, it will be recognised that the full data for a thousand families, covering fifteen to twenty thousand individuals, are far from adequate to obtain a definite numerical answer to such a question as the following: A.B., of age a , has a certain number of relatives C, D, E, F, ... who died at ages c, d, e, f, \dots of diseases belonging to certain broad classes, and a certain number of relatives C', D', E', F', ... of ages c', d', e', f', \dots who are now suffering from

* Mrs Charles Darwin's *A Century of Family Letters* issued some years after to the public.

particular diseases. What is A.B.'s expectation of life? The inheritance of various types of disease is a subject on which there is very little medical literature and that not of a kind from which a numerical estimate of duration of life can be based. The present system by which Life Insurance Companies vaguely select the better lives by aid of their medical officers is wholly out of date, and even if it can be made profitable to the companies is not just to the insured. Every life has its individual expectation, and its corresponding premium, and from the standpoint of the insured it is unfair to reject a life because the insurer is too ignorant, or too inert, to obtain the knowledge requisite to insure it at a reasonably approximate rate. The fact is that insurance companies as now run are in the bulk commercial enterprises, having little regard for the needs of the population as a whole, unless those needs are such as with little scientific inquiry can be turned to easy profit. The time is ripe for the State to take over not only the insurance of the handworker, but of the whole community. It possesses in its records of births and deaths material from which, with labour and scientific oversight, an approximate picture could be made of how the entire population in its classes and families lives and dies. Such must be the basis of any insurance scheme fair to the individual, whatever be his health or his family history. And if there must be a profit made out of life insurance, as there certainly is at present, it is surely best that it be made by the State, rather than by commercial companies. The State would at least enforce the medical examination of annuitants as well as of the would-be insured.

Galton often referred to the importance of measuring the expectation of life with due regard to the susceptibility of the family to various types of disease which have high mortality rates at special ages. He considered it not only of value for scientific life insurance, but also fundamental for a right development of Eugenics. He consulted on the matter the well-known actuary Mr W. Palin Elderton, who at a meeting of the Sociological Society had stated that possibly the insurance offices had material for the measurement of the heredity of disease. Mr Elderton, after a very careful consideration of various proposals, suggested an appeal to the Institute of Actuaries.

42, RUTLAND GATE, S.W. *January 22, 1905.*

DEAR MR ELDERTON, If I could see my way a little further I should be glad to take steps to give effect to your suggestion about obtaining Eugenic data from Insurance Offices.

Can you help me with a little information? 1. Are the records kept for any considerable time after the death of the person insured? 2. What size number of them could be in likelihood obtained? 3. Could permission be easily got to have them copied? 4. If so, to whom should I apply? 5. What should you imagine would be the cost per 100 of obtaining copies? 6. Could I get 2 or 3 samples (without names)? Very faithfully yours, FRANCIS GALTON.

January 25, 1905.

DEAR MR GALTON, I think I had better deal with each of your questions separately: 1. The records are kept for various periods depending on the practice of the particular office; in some cases for more than thirty years after death. 2. If you could get many offices to join, you would be able to take out thousands of cases, some records, however, giving little information.

3. I fear I can't say whether permission to copy would be easily obtained; I fancy most offices would insist on a member of their own staff being employed, as much of the information in the papers is confidential. 4. Application would really have to be made to each office. 5. The cost would probably depend on the time taken, which would vary with the accessibility of the material, some of the papers being stowed away in awkward places. 6. I would try to get samples if you like from my own office.

With regard to (4), (5) and (6) would it not be a good way to try to get the offices to combine to investigate the data at their disposal? If offices could be got to see that the data would be of practical use (which is the case) they would be more willing to agree, and would probably bear some or all of the copying expense. The difficulty is how to approach them. This might be done through the Institute of Actuaries, the Life Offices Association (a body which is a collection of Insurance Officials who meet for consideration in connection with practical routine) or the Life Offices Medical Officers' Association (a body formed from the medical examiners of assurance companies).

If the Institute of Actuaries could be induced to issue a circular to the offices asking if they would contribute, I think assurance companies would more willingly hand over their particulars than to a private individual, even if it were known that the collected statistics would be investigated by private individuals.

I enclose a draft card which with slight alterations might be adopted. It will show the particulars you can get.

I will if you like mention the matter officially in my own office (the "Guardian"), but I fear we could do little for some months as we have our quinquennial valuation on hand which means that the whole staff is stopping late over that, and additional work is quite impossible at present. I could mention the matter to one or two people in other offices if you think a preliminary sounding would be a good thing. Of course, you will recognise that I am merely expressing a personal opinion in my letter, but I shall be only too glad to help you in any way I can.

Very faithfully yours, W. PALIN ELDERTON.

On the basis of Mr Elderton's suggestions Galton drew up an address to the Institute of Actuaries which ran as follows:

February 11, 1905.

To the President and Council of the Institute of Actuaries.

GENTLEMEN, Permit me to address you and call your attention to a serious actuarial need, namely of better data than are now available for computing the influence of family and personal antecedents on the longevity and health of individuals.

A vast quantity of appropriate and trustworthy material appears to be stored in Life Insurance Offices, out of which authenticated extracts might be furnished for the purpose of statistical discussion. (To avoid suspicion of breach of trust, names might be replaced in the Forms by register numbers, the keys to which would be confidentially used for the purpose only of determining relationships between persons assured.) A Form on which the extracts might be entered is enclosed in order to save lengthened explanation. It might doubtless be improved. I am assured that no person or Society would be more competent to arrange the details of such a scheme, or to bring it more weightily before the notice of the various Life Insurance Companies, than your own.

My justification for interfering in the matter is that the desired information would be especially serviceable for my own inquiries into what the University of London has now recognised under the title of "National Eugenics." On this account I am prepared to pay such moderate preliminary expenses as may be needed for an experimental trial, being not without hopes that the Insurance Companies may hereafter contribute to what will be of use to themselves. In the event of a *prima facie* approval, I would ask the President and Council of the Institute of Actuaries to appoint a Committee to consider it in detail, with instructions to report on what it might be useful and feasible to obtain from Life Insurance Companies, on what would be the probable cost of the extracts at the rate of so much per thousand, and on the desirability of further action.

A rough draft of this letter had been made, when a passage in the recent Address by your President was brought to my notice, which gives hope that this proposal may meet with a still more favourable reception than I had ventured to anticipate*. FRANCIS GALTON.

FORM (suggested by Mr W. Palin Elderton).

"Register Number" of the life assured.....				
Date of Assurance.....				
Age at Entry.....				
Date of Death		Age.....		
Cause of Death				
FAMILY HISTORY				
	If living	If dead		Reg. No. if any
	Age	Age at Death	Cause of Death	
Father Mother				
... Brothers				
... Sisters				
Remarks on personal antecedents prior to date of assurance.				

* Galton's appeal made twenty-five years ago has led up to the present day to no investigation of this basal problem ; it is doubtful if it will do so as long as the chief assurance work is done by commercial companies who can select enough first class lives to pay ample dividends on their invested capital.

CASA —, BORDIGHERA, ITALY. *March 2, 1905.*

DEAREST MILLY, This stationery that we find drawers full of here is grand, is it not? It is all put at my service. I am grieved at your account of Guy and sympathise all the more from my somewhat similar afflictions, but the coming spring is in favour of him and this change of climate is fast curing me. But the weather here is far from paradisaical. It has been so for $2\frac{1}{2}$ days in all, but rainy and often chilly all the rest. The past frost and drought have made cruel havoc with the gardens, so the spring show of flowers will be far poorer than it has been within recent memory. We are lodged luxuriously. It was very lucky for us that the lessor of this villa had to leave it for some weeks in order to seek a divorce from her husband in Edinburgh, and that she wanted cash for the purpose. So I made an offer of $\frac{2}{3}$ of what she asked and got the house and two excellent servants, all in perfect order, till the end of March. I shall try and get, first the Arthur Butlers (he and his daughter) who are at San Remo, and then Mrs Litchfield*, who is at Cannes, to come here successively, each for a week. The garden is such a nice, rambling luxury, with good shelters against wind. It is mostly sold already to be broken up and built over in the spring. The Italian railroad services are greatly hindered by the methodised obstruction on them, adopted in lieu of strikes. There seems so little public spirit in Italy, that strikers of all kinds are free to bully the public. I dare say they would retaliate interference with the knife. I constantly wonder how society can be carried on by people who are so abject as most people are. I have been reading Hodgkin's account of the slowly perishing Roman Empire, and the pictures of depravity in it are horrible; yet the Empire was long in dying. There are capital books about here; some in this house, others at friends' houses, and others again at a *good* subscription library. I have been hearing folk-lore tales lately. Thus, a shepherd was missing; his sheep returned, but not he; three or four days passed and the relations consulted the priest, who said, he will come back soon but you must ask him no questions. He did come back, silent and altered, but at length told his tale. He saw a cavern and went in and found a joyous company, dancing and feasting, who made much of him. This modern Tannhäuser remained as he thought many days and at length entreating to go, they conducted him out, but on taking leave said: "If it was not for what you have in your pocket, you never could have got away." It was a piece of salt, a bit of what he had taken with him to give to the sheep. Salt is supposed to have many occult virtues. Another story was about a man falling in on a particular saint's eve with a masked procession carrying lighted tapers; the last who passed him gave him his or her taper, which he took home and put in a drawer; in the morning he found it was a dead man's finger. So he consulted the priest, who said, wait a year and then go again, and give back the finger to the man who gave it you, but take a *tom-cat* with you. This he did, carrying the cat in an apron. When all was over, the cat was *dead*. The priests must be full of these legends, and ought to be very suggestive too, if they are always consulted and must give appropriate advice. I have been reading again White's *History of Selborne*. Besides all its natural history, merit and charm, what beautiful English it is. It was written about 1770, the time when my father was born †. Loves to you all.

Ever affectionately, FRANCIS GALTON.

CASA —, BORDIGHERA, ITALY. *March 10, 1905.*

DEAR WELDON, Alas for optional Greek!—We are now in brilliant sunshine and warm weather, and I sit most of the day in a wooden shed in the garden, where I get through a fair amount of work. I wish you and Mrs Weldon were in this pretty villa to enjoy it also. You have a capital subject in working up latent characters in races that apparently breed true. *Shorthorns* ought to yield useful facts. It is interesting about the $\frac{1}{8}\frac{3}{4}$ mice; $\frac{1}{7}$ instead of $\frac{1}{4}$. The enclosed cutting was sent to me; though the conclusion is rubbish, you might like to see the alleged facts if you do not already know about them.

What you say is quite a new idea to me, that the loss of power by the embryo to regenerate the whole from a part is unconnected with the loss of power in the adult to regenerate lost limbs. Certainly a remaining piece of begonia leaf does not renew the lost part. Your book when it comes out will be full of interest. I don't expect to go farther South than here. The place suits me perfectly and I want to get as well as I can, and not to fall back into invalidism

* Charles Darwin's eldest surviving daughter.

† White's *History* first appeared in 1789, Tertius Galton was born in 1783.

by rash acts of fatigue, etc. But I envy you Ferrara, about which I have been lately reading in Hodgkin's big work on the last days of the Roman Empire and of the Goths, etc. I have this villa only until the end of the month, but shall try for a prolongation of my sub-lease. We are quite at home here, having many friends about. I see that K. Pearson *has* delivered his three lectures, but detailed news does not reach me here. Oh! this blessed Riviera (when it *is in good humour*) for invalids. It is almost worth having been ill to enjoy the balm of its air. With both our kind regards to you both. Ever sincerely, FRANCIS GALTON.

Be sure to remember me to the Pearsons when you write. Schuster seems energetically at work.
43° 46' = Bordighera, 44° 50' = Ferrara.

CASA —, BORDIGHERA, ITALY. *March 11, 1905.*

DEAREST MILLY, I am indeed grieved at your continued anxieties. The coming spring is however all in favour of your invalids. We have had three or four days of perfect weather here, and I have sat out most of each day in a wooden shelter in the garden and got through a goodish deal of work there. Carnival with its mild tomfoolery is happily over. It was got up by a *socialistic* town-council of all things. There is a superstition against it still, on account of the earthquake having come nearly 20 years ago, on (?) Ash Wednesday, owing to the sins of carnival during the preceding week. I am not sure of the exact logic, but it is something like the above. The owner, from whom we took this house, has lost her divorce suit; the Judge considered the action void of just foundation. *She* is much liked here. I know nothing, and care less, about the ins and outs of the case. *He* is "adored" (so an old Scotch lady told me) in Edinburgh, so presumably there are faults on both sides. I do not know whether she will let us prolong our lease until Easter, but I shall ask permission, not knowing any more suitable place to go to. I wish your invalids felt the blessing of returning health as I do, but I am not up to further travel now, and intend to risk nothing needlessly. One of the doctors here is a very interesting Italian, Agnetti by name. He was born in humble life at Parma, did well at College, became doctor, and settled here, much disparaged by his already settled competitors. There was then a government movement in favour of introducing suitable plants, and people having gardens were invited to help. Agnetti had a small plot and distinguished himself by what he did in planting and reporting, so much so that he was made "Commendatore," which gave him considerable social position. He doctored me when I was here before and I thought him a particularly capable and pleasant man. Now he has become fired with political zeal and has been elected representative for Parma. So he is now "Onorevole," a much coveted distinction, and sees his way to combining parliament in Rome with physic here. *It seems odd.* I have not yet seen him, only messages have passed. He was full of the Italian quinine treatment and had good stories about it; one to the disadvantage of Koch, the Prussian, whom the Italian doctors hated for his arrogance, but the story is too long to tell properly. Briefly, Koch looked at a patient who seemed dying (in a ward placed at his disposal) and simply said: "Let his body be kept for me when I come to-morrow." The Italian physician thought, after Koch had gone, he might fairly intervene, so he injected quinine into the man's vein. When Koch called the next day the patient was sitting up in his bed devouring a hand-full of macaroni!! Of course the Italian doctors were delighted at Koch's stare of astonishment.

Ever affectionately, with loves to you all, FRANCIS GALTON.

CASA —, BORDIGHERA, ITALY. *March 12, 1905.*

DEAR SCHUSTER, Enclosed are heavy but important letters, every one of them for you to read, and those to Miss Kirby, Miss P. Strachey, Sir J. Crichton-Browne for you also to forward. You might like to correspond with Dr Urquhart, and even with Miss Philippa Strachey and the rest. If so, write on official paper and enclose my letter with yours. I send stamps. You will see about the latter in the Strachey biography. She is very accomplished and *might* give useful help.

I am strongly inclined to think that, as Dr Mott has the insane in hand, you would do well to *concentrate on the feeble-minded*. My reasons are based not only on what I hear from you about Miss Kirby, but especially from what was told me a week ago by a most intelligent lady-doctor, who keeps a "home" in London (in Wimpole Street I think), Dr Lillias Hamilton, of Afghanistan celebrity. She was nurse and doctor to the late Ameer during five or six years.

Well, she was two years at a home for the feeble-minded, and explained to me the careful loving way in which the lady nurses inform themselves of the patients' family history—and their wide-awake scientific knowledge too. She promises to send me information, and I rely much on her. If you see your way to act on the lines mentioned in my letter to Miss Kirby, it seems quite possible that you might do a really big and useful thing, that would be your *cheval de bataille* on which to win the approval of the London University. You will have *zealous women* to work with, and the aid of women who are zealous (and wisely directed) is invaluable. Think well of this.

The refusal of the Life Medical Officers Association seems to finally extinguish our hopes in that direction. Dr Urquhart opens other fields. Don't *merge* your work in Dr Mott's. If he is working hard in his own province, be chary of trespassing.

Mr Eichholz is a first-rate man. I mentioned him to you as having given by far the best evidence before the Physical Deterioration Committee. By all means cultivate his acquaintance and seek his help. The Jews are a singularly well looked after body. I have seen a little of their organisation and know how thorough it is. Very faithfully yours, FRANCIS GALTON.

March 31, 1905. On and after April 10 to May 1, we shall be at Villa Stratta, Bordighera.

MY DEAR WELDON*, Your photos sent to Miss Biggs are wonderful. I wish you had brighter and warmer weather. We have lots of sunshine but of course nothing of historical grandeur. You have justly convicted me of gross geographical error. Another, one is liable to make, is to suppose Dover to lie nearly south of London. "Humanum est errare" and I feel at times very human in that respect.

Your mice give an unending problem. It is grand to have five generations. I don't believe anybody would have appreciated your work more than Mendel himself had he been alive. Dear old man; my heart always warms at the thought of him, so painstaking, so unappreciated, so scientifically solitary in his monastery. And his face is so nice.—I can't give you any useful hints. I wish I could. I am just a learner, and bad at that now. During the last week or fortnight I have been busy with my "Measurement of Resemblance," and am getting it into Royal Society paper state. It comes out all right. The only question with me is whether to wait, or to give it only in a theoretically complete form. In the first case, I should illustrate it photographically and provide apparatus to show; but I feel I have not power now to do such things properly, so I shall probably content myself with the theory for the present, and give minor illustrations.—Schuster seems eager and thorough. He has had a week or so of old work on skulls to revise arithmetically, but he has done that. He has useful relations too, whom he can get to give some help. There is quite a large, vacant, and promising field of work, anent the "feeble-minded." Very capable and enthusiastic ladies work up the family histories and are anxious to be of use. With a little intelligent direction they ought to be of much use. We shall see.

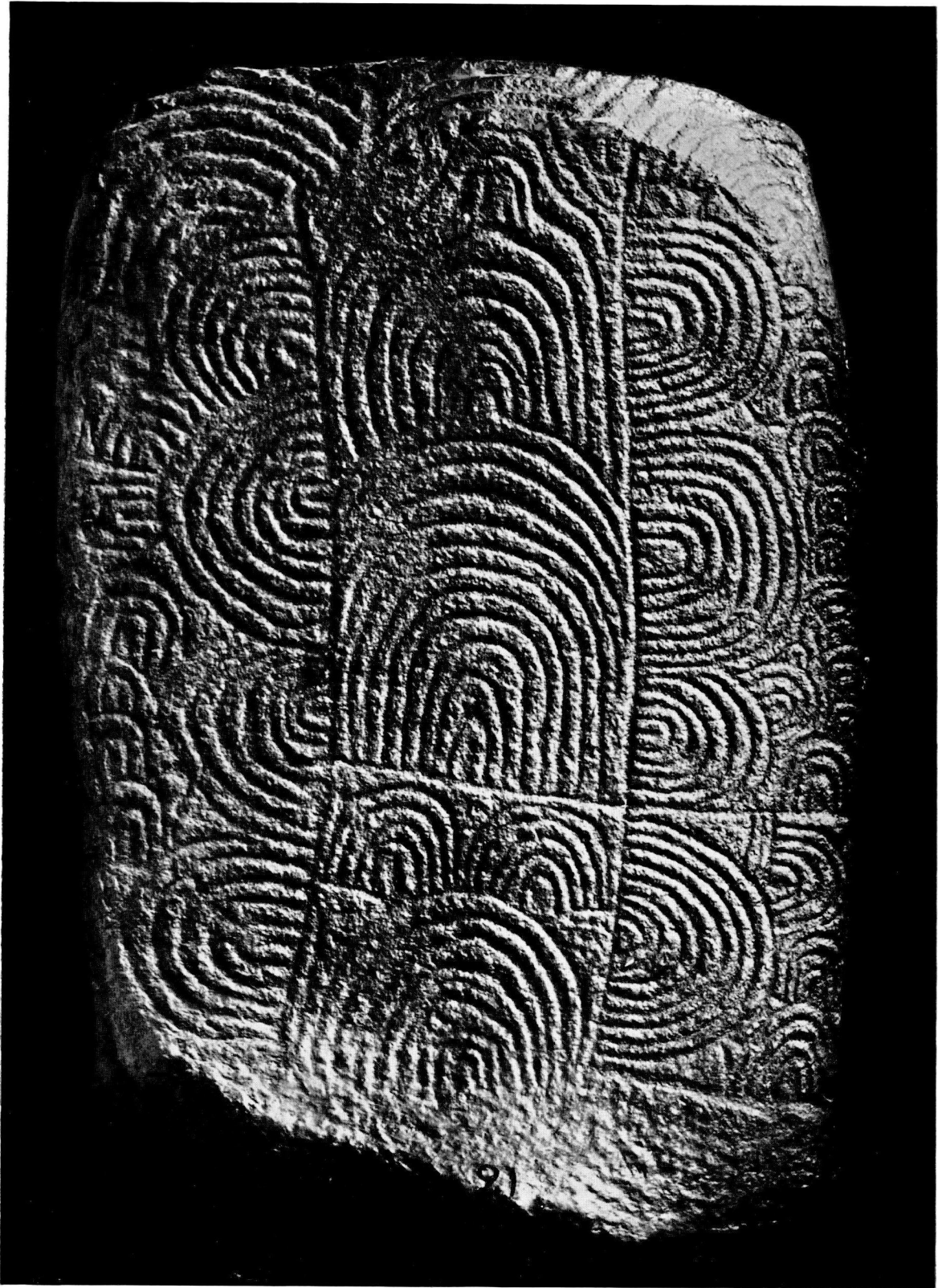
The sensation of the Riviera is the motor-boat competition. The boats will all arrive at Monaco to-morrow, and the show and races are to go on for more than a week. On April 10th we change our quarters, having rented Villa Stratta, Bordighera, till May 1st, and then home. Kindest remembrances to Mrs Weldon. Ever yours, FRANCIS GALTON.

VILLA STRATTA, BORDIGHERA. Easter Sunday, 1905. But post nothing here later than Thursday next, April 27.

DEAREST MILLY, All things come to an end, Riviera residence included. We leave next Monday morning, with many regrets, but still desirous of change. All visitors feel the air less good about this time, and begin to go. We propose to return leisurely; it is difficult to fix by which way, on account of Italian railway strikes. Your May 22nd ought to be a charming time for Brittany, if not still too cold. It is a land unknown to me, which I keep as a preserve to go to, some future day. I do not realise yet where Paramé is †. I happen to know a good deal

* I much regret the paucity of Galton's letters to Weldon. I have all Weldon's letters to Galton, but few of his letters to Weldon have survived, and those only by being mislaid, for Weldon systematically destroyed all the letters he received. I doubt the legitimacy, or at any rate the wisdom, of such destruction, especially in the case of men as noteworthy as Galton and Huxley.

† On the coast slightly east of St Malo.



Sample of the conventionalised Finger-Print Ornamentation on the Stones at Gavr'inis,
from the series of photographs in the *Galtoniana*.

about Gavr'inis and have photographs of the big stones—casts of them are in the Museum of St Germain. They are cut apparently as conventional renderings of the marks made by a bloody thumb or finger on a flat surface. They are certainly not exact copies of any real finger mark, being far too regular, but their patterns seem clearly to be based on the general appearance of one or more. The museum authorities allowed me to have the photos to examine. My resemblance problem hangs fire, for the makeshift apparatus I have been using proves inadequate, and I must get some (of which I possess the essential parts in London) properly fitted together. There are many alternative ways of carrying out the same principle and I am somewhat bewildered which finally to adopt. The subject too has many ramifications and I ought to show many illustrations. So the whole thing must wait awhile and mature. The greenery with you in England seems little short of what it is with us. There are however not many deciduous trees here to judge by. One horse-chestnut is in bloom, but the mass of the verdure is olive, palm and orange. What a sight a flourishing orange garden is! One understands their ancient name of golden apples. How pleased you will all be with your holiday trip. Best love to you all in which of course Eva would heartily join. Miss Cuénod asks after you. Do you recollect her at Vevey? Ever affectionately, FRANCIS GALTON.

Letter of Erasmus Galton to his brother Francis.

ROYAL VICTORIA YACHT CLUB, RYDE, I. OF W. May 3, 1905.

MY DEAR FRANK, I am so very glad to hear you are now quite well and on your way home. Yesterday was bitterly cold, but this morning we have sunshine and all appearance of summer coming on. Your idea about fruit trees is excellent in theory but not in practice. Fruit, to be first class, must have sunshine and room. Fruit trees planted as you saw them at Loxton have plenty of it, and have two wide avenues and two narrow ones, so that carts, bush harrows, and mowing machines may pass between the trees, in fact everything can be done by horse cultivation in place of manual labour. For instance, hay is cut, made, stacked and finished entirely by machines. Turnips are cultivated in rows of from 28 to 32 inches apart, cabbages still wider to allow horse hoes to work between, one horse and one horse hoe easily doing the work of twelve men. The Royal Agricultural Society's *Journal* of this quarter gives a long account of fruit farming, which I think you should read before sending in your paper, which paper I enclose in this letter for your re-consideration. I would advise sending it to the Royal Agricultural Society *Journal* or to the *Field*, to which papers I have sent a few articles which they accepted.

Ever very affectionately yours, ERAS. GALTON.

P.S. Bessy has been so good as to tell me every fortnight about you.

42, RUTLAND GATE, S.W. May 13, 1905.

DEAREST MILLY, My letter is belated, for you have no Sunday delivery, but there is nothing to say. Eva and I go to Claverdon on Monday, for four days or so. We are nearly square again at home. There is now a mahogany rail put into my house, from the ground floor up to the second floor, up which I pull myself like an orang outang, and find it very handy in descending also. You will be very glad to be off and enjoy spring and change in Brittany. I feel now as though the past winter were a half-forgotten dream. The first letters almost that I opened on returning, were to say that the Council of the British Association had nominated me as President next year at York. They were very kind, assuring me that I need not attend Committees on account of my deafness, and might absent myself much, leaving the duties to a Vice-President, but I dared not risk it. The social duties are what chiefly knock me up. I think I could get through the Address, but even that, with my uncertain throat, would be a doubt. So I refused at once. Something of the same kind occurred to me before, and not only once, but I am conscious of many limitations to my strength, and then, as now, declined. It is a bore to renounce the opportunity of having so good a pulpit to set forth one's fads; it is in fact a unique opportunity for addressing all men of science and the public as well. George Darwin will have a very fatiguing time in S. Africa. He has to give two addresses, one at Cape Town and one at Johannesburg, and the travelling will be very long. It is a great way, and by slow trains, to the Victoria Falls. I fancy more than 48 hours each way, and there is ever so much more to be done. The *Diplodocus* (big beast 90 feet long, when measured along the undulations

of his back) is at last on view. I shall call upon him to-morrow. You may have seen in the papers an account of the public presentation of him to the Natural History Museum yesterday. My Eugenics Research Fellow has been grinding on, but possibly he needs more *go*. Statisticians, like the children of Israel in Egypt, have not only to make bricks but to collect materials. Here it is that men differ so much in their success. The most hopeful line just now seems to be in the direction of the feeble-minded, about whom a Commission is now sitting. Several eager and capable ladies are engaged in the work, and they seem desirous of scientific guidance, so I hope something may be done there. They are to have a big meeting next month and are preparing their programme of work. I am so very glad that many of your family anxieties are over. Amy will, I trust, improve under the sky of Brittany. It is said to be a rainy part of the world, but it cannot always rain. At Marseilles and at Paris it *poured* while we were there, two nights at each place. I ate a *Bouillabaisse* at Marseilles which had been an epicurean dream for years. They say you ought never to eat it unless you have a spare day to get over the effects. It contains a vast variety of shell-fish, as well as other fish, which may be half poisonous. However, mine proved particularly digestible.

Affectionately, with many loves, FRANCIS GALTON.

42, RUTLAND GATE, S.W. June 13, 1905.

DEAREST MILLY, Your card of this morning gave great relief. The weather is all in your and Amy's favour now, but the "flu" is a nasty thing. My sister Bessy seems to have had a touch of it. Temperature only 100, but continuously, or almost so, for a week. She has been in bed at Claverdon. Since Saturday I have not heard. I think they *were* anxious about her. We, thus far, are all right. To-morrow I go to Cambridge where there is the function of degreasing, lunch and dinner, which I hope to digest. A few days ago I was invited and went to a big *Statistical* dinner, at which when the visitors' healths were drunk, after talking about me, the proposer said I should leave my mark—he would not say on the *foot*-prints, but—on the *finger*-prints of time! Rather forced, but it did for an after-dinner speech. About a week ago, Eva and I went to the Farm Street Roman Catholic Chapel, to hear "Father" Galton preach. He is not the Bishop of Demerara, but Charlie Galton. Two of Theodore's sons became priests*. He preached uncommonly well, with singularly good articulation, as though he were fond of the sound of every word he uttered. He would be an excellent master of elocution. The chapel itself is one of the most beautiful and decorous I have ever seen. The congregation most reverent, and the music perfect. As you will have heard, and perhaps experienced in Brittany, we have had the rainiest week almost on record, to greet the King of Spain. I passed Windsor to-day and saw the King's flag flying. They are making ready a royal wedding for a king-to-be, but of only half the kingdom—Sweden—that he expected to have. Good-bye, love to you all and may you all pull happily through this hateful scourge of influenza.

Ever affectionately, FRANCIS GALTON.

42, RUTLAND GATE, S.W. June 25, 1905.

DEAREST MILLY, What a very gallant act of Guy! I wish it had been some millionaire whose life he saved. It was such an English act too, unselfish, single-handed and prompt, while others were "disposing themselves" to launch a boat. I cannot realise how with only one arm such a feat could be done, though I know he used to be an excellent swimmer. I suppose that the water was not deep and that the rough sea was not dangerous to a man accustomed to water, and able to keep his wits cool, and that Guy was able to touch ground and to push. It would have been most dangerous had the drowning man retained enough vitality to grapple. A sea bath is usually ruinous to clothes and watch. I hope he had nothing on or with him that suffered much? The excitement of this family event may have harmed, or may have helped, Amy in her convalescence. I sincerely hope the latter. Much has happened here during the past week of "Eugenic" interest, but it relates chiefly to administration, which was more than my "Fellow" could manage, together with research. So a readjustment of duties has had to be made and there will be a Lady Secretary. Also Murray, the publisher, will publish for us (on the half-profit plan) books of families on the same principle as that little pamphlet you saw, but on a substantial scale. There is material for one now, that Schuster has put into order, but to

* Theodore Howard Galton, Francis Galton's cousin.

which I shall have to write a preface. We have taken the Rectory at Ockham for six weeks, beginning with August 18th. Ockham is in Surrey, north of Guildford, and we have friends near, especially a very old and kind friend of Eva, who has suddenly become quite blind and whom she wishes to cheer and read to. I am afraid that my sister Bessy has been much pulled down by her influenza. The doctor has compelled her to stay in bed more than she likes. She is very calm and cheerful, but feeble. I hope to see Edward* to-day, who is in London about cattle shows, etc., and with whom it was fixed to go to the Zoo this afternoon. Penelope † dined here yesterday. I had two Syrians to take care of. One of them took great and hospitable care of us when we were in Egypt, so I had a little party for them. I wonder when and where we shall next meet. Amy's perfect recovery must be your primary occupation. I am for the present drifting aimlessly, but with a great deal of work to do ahead, for I must now "boss" these Eugenic matters a good deal, to make them "hum" as the Yankees are pleased to say. Arthur Butler and his daughter slept here the night before last and the Master of Trinity came yesterday morning. There had been a great function at Haileybury College. Lyttelton, the old Master, taking his leave, before going to Eton. Arthur B., you may recollect, was elected long ago to re-create Haileybury on its present footing and lost his health finally in doing so. I will keep this letter open till to-night in case there be anything to add about my sister Bessy. She is on the sofa: no anxiety.

Ever affectionately, with loves to all, and with much respect for Guy, FRANCIS GALTON.

CLAVERDON LEYS, WARWICK. *July 31, 1905.*

DEAREST MILLY, Your letter was full of information. I came here on Saturday. Eva writes from "The Log Hut, Teigncombe, Chagford" very happily. She has "a dear old curtsying woman to wait." Thank you much for your sympathetic telegram and writing. My precious Eugenics has now been advanced a notable stage in University recognition and ought to prosper. Murray is in full swing printing. I go to the Lakes to-morrow, touring about through once familiar scenes till Saturday, when I get to Highhead Castle, near Carlisle, for a stay of four days, or five, with my old friends the Hills ‡. A letter there would rejoice me. I saw Bessy this morning, wonderfully well in face and talk, but rheumatic. Otherwise she would have been here in Claverdon, whither I have brought a calorif § for her amusement. Edward and I have been constructing a mechanical "toss-penny." I want to illustrate what I have to say in my preface about Statistics that "chance" means merely the result of unrecorded, and by no means necessarily of unknowable, influences. The example I take is that of tossing a penny, which is typical of a "chance" result but which few would deny is the result of pure mechanism. I thought it would be well to see what sort of influence on the results would follow by using a machine, how far the chance could be reduced to a certainty. So we made a machine, and though it is a little shaky and uncertain, on one occasion it gave two sequences amounting between them to 48 "tails" out of 50 throws. A minute change in adjustment greatly alters its action, so a good "toss-penny" ought to be as well made as a gunlock. The new owner of E—, Mr Z—, is here to-day. He is quite a stranger, young and perky. Emma Phillips || never saw him, which is rather unfortunate. But he will not enter into possession yet. Indeed he could not for two years, as the house is let. He comes from the Colliery district near Bristol. Love to Amy. I trust she is now settled in her new bearings. Ever affectionately, FRANCIS GALTON.

Archiv für Rassen- und Gesellschafts-Biologie, BERLIN-SCHLACHTEN-SEE, VICTORIASTR. 41.
zur Zeit, SWINEMÜNDE, den 17 August, 1905.

DEAR SIR! We thank you very much for your kind answer and permission to translate your paper on Eugenics! Excuse, please, the delay of this letter, since I was travelling in the last time and lacking the necessary leisure. Regarding the permission by the Sociological

* Edward Wheler, Galton's nephew, who had succeeded Darwin Galton as squire at Claverdon.

† Darwin Galton's widow, Galton's sister-in-law.

‡ The lady of the house was a daughter of Francis Galton's old friend, Mr Justice Grove.

§ I suspect this stands for "calorifère," a heating apparatus, such as old ladies from the Midi sometimes placed when sitting down under their ample skirts to keep themselves warm.

|| Sister of Mary Phillips, Darwin Galton's first wife.

Society, I shall apply for it to the Secretary. We take the highest interest in your eminent and important Eugenics, which is so closely connected with the subject of our *Archiv*, and shall keep our readers acquainted with the further development of your ideas. That you will belong to our readers is, of course, a great satisfaction for us. We hope that an article in the now appearing number, "Die Familie Zero," the history of a family with its degenerating and regenerating branches, will be of interest for you. From your standpoint you perhaps take also some interest in a little book, which I published ten years ago and which I allow myself to send you with the same mail. I started from an English use of the word "race" and tried to investigate the conditions of preserving and developing a race—race-hygiene ("Rassen-Hygiene"). Afterwards, in the first introducing article of our *Archiv*, I tried to sharpen the meaning of the word "race," so as to make it suitable for the theoretical and practical needs of a man, who will seize the real *long* (beyond the individuals) lasting unities of life, their conditions of preservation and development. I should be very much indebted to you, the senior of the practical application of the principles of evolution on man, if you would in an hour of leisure read my essays and write me your cool judgment. My book is written mostly in a small town, where I practised as physician, absent from a good library and therefore without much knowledge of current literature. That, together with the haste, with which I was compelled by my editor to deliver my paper to the press, may declare many omissions in respect of modern authors.

Excuse, please, my bad English. I am sitting here at the sea without a dictionary, and have to feed on that little English fat which I have by and by gathered on my German body during my lifetime. Yours highly respectfully, ALFRED PLOETZ, M.D.

To SIR FRANCIS GALTON, LONDON.

THE RECTORY, OCKHAM, SURREY. August 20, 1905.

DEAREST MILLY, I am so glad the French Humane Society have done their belated duty to Guy, and I return the scrap of newspaper, which you will wish to keep. We came here on Thursday in beautiful weather, and had our tea on the lawn in a selected place by a big tree. But the bees began to buzz alarmingly; and well they might, for they had built a thriving hive in the hollow tree, and were flying in and out of a hole therein as fast as they do in an ordinary hive. No harm was done. We changed our place quickly enough. It is all green fields here, much timbered, chiefly with oaks, and very English. We are three or four miles from the Downs near Guildford, and go to-morrow afternoon to tea at a friend's house on the top of them—Sir H. Roscoe, the chemist's—600 feet above the sea; this is a not uncommon height hereabouts. Our "landlord," the clergyman, is our guest for last night and to-night for his Sunday duty. His wife, Mrs Ady, is a well-known writer, chiefly on Italian subjects. The book that first gave her her reputation is well worth reading, if you care about our Charles II and his sister "Madame" (the title of the book), who married the brother of Louis XIV, and did a world of sisterly good*. She had all the grace and not the faults of a Stuart. She died young, immensely regretted in France. What an adventurous drive, both for you and Patrick †, and then the sad Princetown: Why don't they use false webbed soles for swimming? They ought to get through the water much faster if they did. A neat patented design might bring in lots of money, if brought *well* out, just before the bathing season. George Darwin's Presidential Address at Cape Town (the first part) is first-rate. I am most curious to read the second part which will be delivered at your *favourite* Johannesburg. I suppose, as time goes on, that place will purify itself as the American gold-digging camps did. "Honesty, boys, is the best policy; *I tried them baith.*" Will the Japanese send missionaries to Exeter Hall? Their reception would be amusing to a cynic. My Lady Secretary begins work to-morrow. Ever affectionately, FRANCIS GALTON.

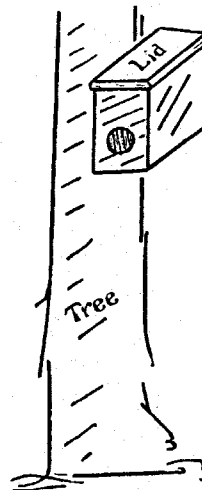
THE RECTORY, OCKHAM, SURREY. August 26, 1905.

DEAREST MILLY, Don't regard this magnificent address stamp. (That of the Royal Institution of Great Britain.) It is only that I am up in London to-day and am writing here. It is a quiet

* I have retained this paragraph, although it is repeated in the following letter. This is the first occasion on which I have come across a repetition in letters to the *same* person, a sure sign that Galton, strong as he remained mentally to the end, was still liable to one at least of the failings of old age—he was now 83.

† A much treasured horse of Mrs Lethbridge.

place, with lots of books, and my club is temporarily closed for repairs. I quite forgot this morning to put your letter in my pocket; I feel sure there was something in it I wanted to write about, and have forgotten it for the moment. All goes on happily with us. We have friends about and the country is delightful. Perhaps too many wasps; one stung Eva yesterday through a thin cuff and left ever so much poison in a stain on the cuff. I read somewhere that more people died—I forget where—of hydrophobia through bites of *wolves* than of dogs, the reason being that wolves fly at the face, but dogs bite through the clothes, wiping their teeth thereby, so their bites, as a rule, are far less dangerous than those of wolves, though much more numerous. You would enjoy seeing Upton Warren, where the widow of my old friend Charles Buxton still lives. Fondness for animals is the tradition of the house. They have parrots that fly loose in the woods and sometimes build nests, and there are very many artificial birds' nests, nailed against trees about five feet above the ground. I was told that they often opened the lids to see how the eggs or broods were getting on. Why don't you try a few at Edymead? They must be arranged (i) so that a cat can't get at them and (ii) so that a tom-tit's reasoning powers would be satisfied that it could not. The birds who used these artificial nests were principally tom-tits. There is an excellent library at the Rectory. The clergyman's wife, Mrs *Ady*, better known as Julia *Cartwright*, has written not a few important biographies, that of "Madame" (the sister of our Charles II, who was married to Monsieur the Duke of Orleans, brother of Louis XIV) is one of the best and well worth getting from Mudie. She was a far more interesting and good person than I had any idea of, and played an important sisterly part in politics. She died before thirty, immensely regretted*. One knows so little of the actors on the big stage of the world, so big that there is room for many important ones. Loves to Amy and to all with you.



Affectionately yours, FRANCIS GALTON.

THE RECTORY, OCKHAM, SURREY. *September 11, 1905.*

DEAREST MILLY, Poor Patrick †, "hors de combat"; add an *e* and he would be a war-horse, a "horse de combat." You can gather my state of weakness of mind to attempt such a pun. I was bothered here to write a motto for a sundial, and after many attempts wrote this, "Love rules Man, Sunshine rules Me"—not wholly bad; anyhow it is a new one. "Vivent le roi d'Angleterre et M. le Capitaine Lethbridge"! Don't let King Edward hear of it, or he will be still more savage than he is said to have been when General Baden-Powell struck coins under his own name at Mafeking. What an excellent time the British Association has had in Africa. We are very well placed here and happy in a quiet way, which I like above all things, with a scrimmage now and then to stir us up. Tin-foil is a trouble to get good. They adulterate it with lead, it looks equally shiny but is not so good. I shall be in London to-morrow for a few hours and expect to pass near a trustworthy shop. If I do, I will get and send you some. Your garden must be very pretty, ours has lost its best flowers already. Excuse more, as there is much to do and little free time before post. Loves to you all. Ever affectionately, FRANCIS GALTON.

THE RECTORY, OCKHAM, SURREY. *September 11, 1905.*

MY DEAR BESSY, You will be glad to have Gussy back. How much did Edward and his colleagues fine the motorists? Eva was taken in a beautiful one, and said she felt her *disposition* *worsening*. Every minute she felt more careless of other people on the road and more superior to them, and it was doing bad to her morals! It was Lord Rendel's motor and probably made at the Armstrong works, in which he is a partner. Life passes very pleasantly and quietly here. Now and then an interesting luncheon or tea. There are very nice people hereabouts. Our Oxford friend Professor Weldon stayed with us last night and we went this morning to look at the "Swallows," or big pits made by rain in the chalk. One was as big as a small Coliseum, we did not go down to the bottom where there was probably a hole into the depths. Another was not

* See the footnote to the previous letter.

† See the last footnote p. 546.

a "Swallow" at all but an immense chalk-pit with vertical sides 100 feet high and grass and trees growing in it. Quite a charming place to spend hours in. It is melancholy how late the sun gets up now, and how early he goes to bed. Did you hear of Guy Lethbridge's reception at the banquet in France, and of the toast (in French) of "King of England and Captain Lethbridge"!!! He had better not communicate the news to King Edward, who might not like it! They gave him *both* the medal and the diploma. I am very glad of it; it will brighten him up and he richly deserved them. Loves to all. Ever affectionately, FRANCIS GALTON.

THE RECTORY, OCKHAM, SURREY. *September 17, 1905.*

MY DEAR BESSY, Remember me to Fanny Wilmot*; you will be glad to have her by you. I am very sorry about your continued rheumatism, etc., especially as cold weather is coming on gradually. Edward will I hope be able to give much help to Erasmus, who thoroughly appreciates and trusts him.

I have at last finished my small but troublesome book, and sent it yesterday to a friend to criticise and revise, before it goes to the printer. Its title is *Noteworthy Families (Modern Science)*. I hope the rats at Claverdon do not mean drains out-of-order. There used to be a professional rat-catcher to be seen in London who has long since disappeared. He dressed in a sort of uniform, I think a greenish coat, with silver rats round the collar and a leather band crossways, also with silver rats. He was very picturesque, and reputed a great scamp.

All goes on well here. Frank Butler is with me for a couple of nights. We have many nice friends within reach and I shall be very sorry to go, as we must, on Thursday week, so I shall only get one more weekly letter from you here.

Only think of Mrs Gilson and others going as a matter of course to Khartoum and even to Gondokoro from the North, and the whole posse of the British Association going to the Zambezi from the South, and those places being actually undiscovered until lately. Bruce first wrote about Khartoum, but not much, and Livingstone of the Zambezi. It is much the same in N. America, where Fenimore Cooper's scenes of prairie and wild Indians are now big towns. It is a good story you send from Grant Duff about D'oyleys. The Sandwich Islands were of course called after Lord Sandwich, who I presume was then at the Admiralty, but how did the things we eat come to be called "Sandwiches" †? You know of course the old riddle: "How can sailors, wrecked on a barren coast, support life?" *Answer*, "By eating the sand-which is there." The town Sandwich is an uncommonly interesting old place and so is the ancient Richborough which is near it, with its big fortifications, and which was the main landing-place when Kent was covered with thick forest through which were very few roads.

Ever affectionately, FRANCIS GALTON.

THE RECTORY, OCKHAM, SURREY. *September 17, 1905.*

DEAREST MILLY, Poby...stett ‡ (I can't spell the name) vastly attracted Bishop Creighton when he went over to the Czar's what-was-it? There is much about him in Creighton's "Life." I wish that I could be sure whether it *was* he who was the ecclesiastic about whom Archbishop Benson told me in connection with the Jew persecution. I dare say Torquemada was an amiable man to some. Wasps, too, may be beloved in their own nests. So glad the Dartmoor pony is good and fit. We are dependent here on a dear old pony, sixteen years old at least. No, he is older than that—that is the age of the still dearer but less useful dog. My plaguy little book is finished! I sent it off yesterday, partly typed and partly in proof sheets, to my critical friend, Collins, to score over with corrections as he is sure to do. I always learn much from him. An amusing *measure of memory* about relations has cropped up. The paternal uncles (*fa bro*), and maternal uncles (*me bro*), are recorded in exactly equal numbers, so they are equally well recollected, but the different sorts of great-grandparents and great-uncles add up in impossibly different proportions. There are four sorts of each. One of the sorts *fa fa fa* and *fa fa bro* bears the writer's

* A daughter, Emma Elizabeth, of Sir Francis Sacheverel Darwin had married Edward Woollett Wilmot of Chaddesden.

† Said to be named from the fourth Earl of Sandwich (1718-1792), who had provisions brought to him in this form at the gaming table, so that he might not be compelled to leave it in search of food.

‡ Galton is probably referring to C. P. Pobedonosteff.

surname; call this group *A*. Another sort *me fa fa* and *me fa bro* bears the mother of the writer's maiden surname; call this group *B*. The other two sorts bear different names; call them *C* and *D*. Then the numbers recorded are in this proportion: $A 1 : B \frac{1}{2} : C \frac{1}{4} : D \frac{1}{4}$, showing how largely family recollections stick to the family surname. It all comes out very sharp and clear and consistently. The male first cousins follow the same rule, but less emphatically. I had somewhat tired myself about the book, but am *quite* rested and well now. I wish Bessy was more free from her rheumatism, etc. She seems at present to be quite confined to her sofa, but writes as cheerfully as ever. Frank Butler came here yesterday evening for two nights, quite well and not apparently overwhelmed by his three little daughters. I begin to count the days that remain to us here. We have to go on next Thursday week. There are very nice people and not a few old friends within pony-trap distance. I called on one, Mrs Archibald Smith, the mathematician's widow, whom I had not seen for many years. Her hall was hung round with African trophies. There was a beautifully strong and light iron chain with loops in it, which I thought was some kind of chain ladder, the loops being for the feet. But it was a *slave chain*. A gang of slaves was found by her son, the men were released and the chain kept. The loops went round their necks. Another thing was what looked like a big firescreen, with black leathern drapery. It was made of the two ears of an elephant.

Enclosed is some tin-foil. I had an amusing hunt after it in London and learnt much. It is only made at two or three factories, partly for druggists, partly for wine merchants to cover their bottle-mouths. Ever affectionately, FRANCIS GALTON.

42, RUTLAND GATE, S.W. *September 25, 1905.*

(This will be my address now.)

MY DEAR BESSY, You are a "*bonne écrivisse*" in the sense the gentleman meant. One never gets the big crayfish to eat in London, but I see them in shop windows. They are the most divine-right-of-King sort of fish. The biggest one in an aquarium sits as it were on a throne and the others gather round like courtiers in the most comically humble positions. I know they are good eating and must get one when we return. We pack up to-morrow and leave here on Wednesday, but not direct to London, which we reach on Saturday evening. We are sorry to go, but have a store of pleasant things to recollect. Evelyn Cunliffe* was to come to tea to-day, but it rains and we hardly expect her, it is a long drive. It gets cold too at nights. I have started winter underclothing to-day, and wanted it. I shall be interested to hear Edward's report of Erasmus. It seems so dreary for him to be practically alone in that wooden hut, but he has friends near and likes it.

Thank you for Miss Johnstone's address; I will write soon to her. All my things are in arrear now, that blessed book has thrown them all behind. A packet with the MS. of it, addressed to the publisher, is at this moment lying on the table by my side. It will go off by the same post as this.

What a disagreeable intruder upon her finger Gussy† seems to have had. Suppose it had come suddenly beyond her rings! There is some Arabian Night, or the like, story of a man who has a ring of mystic power, about which he knows nothing and is on the point of selling it to a wicked magician, when his guardian fairy takes the form of a wasp and stings the finger, which swells, so the ring cannot be removed. I wish some fairy would give me a better pen than this to write with. It scratches like a needle. Best loves. Ever affectionately, FRANCIS GALTON.

42, RUTLAND GATE, S.W. *September 27, 1905.*

(This will be my address now.)

DEAREST MILLY, The convicts must have been depressing. They are not however so homeless when set free, as big societies work in unison with Government to take care of them. But a broken-kneed horse and an ex-criminal are not favoured. It is all very sad. Government *can't* set up a factory, for all the trade unions are up in arms against competition by *state-aided* workers. We pack up to-morrow and leave on Wednesday, not directly for home but for three nights with friends near, and return to Rutland Gate on Saturday. It was amusing about your

* Sir Douglas Galton's elder daughter.

† Second wife of Herman Ernest Galton, Francis Galton's cousin: see our Vol. I, Pedigree Plate A.

dog and the looking-glass. Probably the little creature was terrified because the reflection did not *smell*. We shall be very sorry to leave; the people about are very nice and sociable and the quiet country is delightful. My little book is as troublesome as an ague, I thought it was off my hands but it has bothered me up to this instant, when I sealed up the MS. in a packet to go by post to Murray. And still there are odds and ends left and revises to come, etc., etc. But it is comparatively calm now. And it is such a small book after all. My friend F. H. Collins, who is a prince among proof correctors but cannot now leave his arm-chair, has been giving all his working time last week to putting Schuster's contribution into better shape. The material was good but the arrangement too higgledy-piggledy. I started winter underclothing this morning. Among the people we have met is that wonderful Arab-horse lady, Lady Anne Blunt. She had a great deal to tell. She and her husband go to Arabia to buy horses. She lives by the Tombs of the Kings near Cairo where a stud is kept, and they have annual sales in England. She is apt to appear in marvellous dresses, of some outlandish cut and colour, not necessarily Arab. She came out on one occasion in bright scarlet from top to bottom, as I heard. She is grand-daughter of Lord Byron, so may do mad things with propriety. Best loves.

Ever affectionately, FRANCIS GALTON.

42, RUTLAND GATE, S.W. October 27, 1905.

DEAR MR CONSTABLE, I am flattered that you have thought my book worthy of attack, hip and thigh. You have chipped off many bits of paint but I am so incurably self-conceited that I do not yet feel any timber to be shaken. If I were to reply in print I should fix on the second paragraph of p.138 and follow out the conclusions to which it leads.

You will be scandalised at a forthcoming volume, *Noteworthy Families (Modern Science)*, but if you see it, I think you will find the Chapter on "Success as a Statistical Measure of Ability" worth reading. Now I not only take your scourging with a smiling face but have the impudence to ask if you could get the enclosed forms suitably filled up for me? If you do, the reply will probably arrive after I have left London (for Pau) for the winter. Therefore the address at the bottom of the Circular is the best to use. Faithfully yours, FRANCIS GALTON.

I send this *via* your publisher, being not sure of your present address.

42, RUTLAND GATE, S.W. October 28, 1905.

MY DEAR BESSY, I more than fear that it would be very unwise for me to yield to the pleasure and wish of seeing you, before we start for *Pau* next *Thursday*. I had a sharp attack of shivering on Wednesday morning, and the doctor sent me to bed on fever diet all Thursday; yesterday the fever went, and to-day I may get downstairs a little while. He says I ought to be fit to start next Thursday, and the sooner I get away the better. So I must reserve every ounce of strength for the longish journey, and fear much that a long day to and from Leamington beforehand is more than I can stand. As soon as I cross the channel, as a rule, I feel better in breathing and general fitness. I am very sorry indeed. I wanted so much to see you and Erasmus before these many months of banishment. Louisa* will write her views and she must represent me in person.

You always take such interest in family matters, such as mine, that I send you a letter just received from the Master of Trinity College, Cambridge. It is about a copy of the portrait which Charles Furse painted of me. I heard unofficially that the Fellows of the College would be very glad to have one, so I got an excellent copy of it made by Frank Carter, and sent it with a suitable letter. You will see that they accept it both warmly and gratefully. It will be hung according to the recommendation of their "Memorials Committee," probably in the Great Hall alongside of many far more distinguished worthies. Anyhow, as a *picture* it would hold its own in any collection. Don't *destroy* the letter. It ought to be preserved somewhere. If it can be copied and returned it would be a good plan. I am very sorry that the rheumatism continues. Your news of Lucy and the Colonel is not quite as good as we could wish. You will have been hearing much of Lord Leigh's funeral. The death of a foremost man in a county must leave a large void for a time. Before we go, I shall certainly write again and send my address, which cannot be fixed until the reply of an hotel-keeper to my note arrives. It is due this evening or Monday morning. Ever very affectionately, FRANCIS GALTON.

* I believe this is a slip for Eva, Galton's great-niece and comrade. He used by accidental habit the name of his dead wife. See the following letter.

Enclosure in letter above:

TRINITY COLLEGE, CAMBRIDGE. *October 27, 1905.*

MY DEAR FRANK, The Council is over and I am desired in the name of the College to thank you warmly for this beautiful gift and to say that it is gratefully accepted. It is left to the Memorials Committee, of which I am Chairman, to consider the question of where it is to be hung, and to report to the Council. We are now arranging for a very early meeting of the Memorials Committee. You know how very earnestly I hope that this noble portrait will soon be on the wall of our Hall. Always affectionately yours, (signed) H. MONTAGU BUTLER.

42, RUTLAND GATE, S.W. *October 28, 1905.*

DEAREST MILLY, So glad that you would like to have James's book. It shall be ordered this morning, but, being Saturday, you will hardly get it before we are off to Pau on Thursday morning next. I have had a stern reminder not to delay, in the form of a sudden severe shivering for nearly a couple of hours on Wednesday morning. The *amplitude* of the shiver was remarkable and interesting; my hands shook through a range of fully 7 if not 8 inches. The doctor sent me to bed at once (two days before yesterday) on fever diet; yesterday I was much better and to-day I may leave my room a little. He promises that I shall be fit to go on Thursday and recommends it. So much for self. You recollect my picture by Charles Furse? The Master of Trinity saw it and wrote me a letter urging me to send a copy of it to Trinity College, Cambridge, where he felt morally sure it would be accepted by the Council of Fellows. Asking elsewhere, I heard the same thing, so I had an *excellent* copy of it made by Frank Carter, and sent it for acceptance. The Council met yesterday and accepted it "warmly" and "gratefully." The place where it is to be hung is referred to the Memorials Committee and will, as I am told, in all probability be in the *Great Hall*, alongside many of my betters. It is a great honour anyhow. I could never have dreamed in old times that they would elect me an Honorary Fellow and care to have my portrait. What a nuisance your Range must be. It might have occurred in bitter weather, so that trifling favour is something to be grateful for. You don't speak of the poor horse. If you want a nice *animal* book, get from Mudie *The Call of the Wild*, by Jack London. It has had an immense sale. I read it through yesterday from cover to cover, almost without stopping. They tell me that good as Hôtel Gassion is, a new one, H. du Palais et du Beau Séjour, is better. It is quieter, has a *large sunny balcony*, and the same south view. Moreover it is next door to the Winter Garden; so I have written for particulars which should arrive to-night. I will recollect about the "K" in Acland. Thanks for the introduction promised. I am living in hope that I may get the revise of my little book *in page* all sent to me to-night. If not, before I start, I must delegate the final look over and the index making to Schuster, but I should like to have a share in it. Always, at the very last, there is some difficulty to be settled. I think now, what with Schuster's willing help, Miss Elderton's business-like ways and the Advisory Committee, the Eugenics Office ought to run on its own legs while I am away. I will write again, at least a post-card, before we are off. But I *dare not* give a previous day to Leamington. Every ounce of strength must be reserved for the Pau journey, but Eva will go to Bessy for a day. Ever affectionately, FRANCIS GALTON.

HÔTEL GASSION, PAU, FRANCE. *November 14, 1905.*

DEAREST MILLY, At last, we are all again in normal condition and comfortably housed, with the splendid view (when we can see it) right in front of our windows in the very middle of the second story. I have not yet seen Mr Acland-Troite, on whom I called on Friday, leaving a letter explaining and saying we were about to change quarters. But I went to his church on Sunday. There were two clergymen and I do not yet know which was he. How the forms of Christendom do change! A Rip van Winkle, sent to sleep at the time when I was young, would have been bewildered at this service and have thought he must have mistaken the building. Do *clerks* still exist? The three decker arrangement of my youth has wholly disappeared, and one never sees the Royal Arms. It always used to be there with the White Horse of Hanover in its middle and often quartering the fleurs-de-lis of France. I recollect it gave me quite a shock, when I first went to Cambridge, hearing the choristers singing in their white surplices, but I had never, I think, at that time been at an English Cathedral Service. We



were brought up on such a Quakerish-Puritanical diet. The names of the Colleges also shocked me. Talking of Cambridge, I have now heard that the Council of Trinity College unanimously and warmly accepted the portrait, and that the Memorials Committee to whom the question was referred as to where it was to be hung unanimously recommended that it should be in the Hall (at a specified place), which was agreed to by the Council*. And there I presume it hangs at the present moment and may hang for an indefinitely long time. It is needless to say how pleased I am. Everything was done by the parties concerned in such a nice and kindly spirit. And Eva is equally pleased. We have had the whole gamut of Pau weather. At first it was wild and stormy, then perfectly beautiful; then more or less broken, and during the last two days a big thunderstorm, followed by swirls of rain with intervals of dry; now the sun is out and the weather promises to mend. What a picturesque place it, Pau, is in many parts, but I have not yet been able to get about much. The climate seems thus far to be something like that of Biarritz, damp soft air; perhaps like Rome too; without the dry, cold winds and piercing sun of the Riviera. It is quite a new experiment for me. This hotel is, as it was in your time, excellently managed and very clean, but rather dear. However I can stand that. We have two communicating bedrooms and Seabrooke's is just on the opposite side of the passage. A lift comes up whenever we ring for it. We have as yet made no friends here. The season is not yet begun. Those in the hotel are Russians, French and Americans, and one couple half-English and half-foreign (nice), and though the front rooms are full, those to either side of the big hotel are not. You recollect Charlotte Wood, afterwards Charlotte Batt, of old days? She died here. When Louisa and I were for a day at Pau we hunted out her gravestone, but I fear it will be difficult to identify it now after more than half a century has passed by.

My book, all except the index, has at last gone to Press, so you will get your copy about the end of this month, probably. I am so glad you like James's book. The criticism I would make on it is that he confines himself to *selected* cases. It would have been better if he had *also* given a *résumé* of *all* cases known to him, and of the experiences of doctors of the insane. George Fox must have been crazy when he went like a Jeremiah, and shoecorner, into the heart of Lichfield. Best loves to you all. Ever affectionately, FRANCIS GALTON.

Wednesday, Nov. 15. I reopen the letter to add that Mr Acland-Troite made a long call yesterday evening, and was most pleasant. He told us ever so much, and has already undertaken to get me an introduction which I wanted to the Director of the great horse-breeding establishment here. Thank you so much for the introduction. He struck me as a cultured gentleman, full of interests, the chief of which was his church, which he called his *baby*.

There are two other English churches here, plus a Scotch Presbyterian: four in all!! His wife just now is a little unwell. So we are not to call just yet. F. G.

*Fragment of a Letter to Mrs Wheler (Galton's sister Bessie)
written in 1905 from Pau.*

To go on with my broken off letter; I shall be glad to hear that Lucy's visit to Southampton did her no harm. It is very unfortunate for Col. Studdy that both his cough and his other malady continue to plague him. Please tell Erasmus when you see him that I feel I owe him a *full letter* in reply to the nice one that he sent me before I left England, but he must take what I write to you as partly to himself also.....

I was so *very* glad to read of George Darwin's K.C.B.ship. He thoroughly deserves it. His work in science has been of a kind that cannot be *popularly* appreciated, but is rated by experts as very high indeed. In every way it is a good and timely distinction. His wife will I am sure like it; though it is said that these titles always increase the charges of tradesmen!

Ever affectionately, with many thanks to Fanny Wilmot, whose letter I will keep,

FRANCIS GALTON.

P.S. The death of Edward Darwin† from *angina pectoris* is an interesting link between Dr Erasmus and Charles, both of whom died of that comparatively rare malady.

* This is a second instance of repetition to the same person.

† Son of Sir Francis Darwin, and grandson of Dr Erasmus, thus whole cousin to Francis Galton.

HÔTEL GASSION, PAU, FRANCE. *November 14, 1905.* (Post-card.)

B — had a nephew, I believe; that is all I know about his family. I wish indeed that I knew more. Your letter reached me after a long round, hence the delay. The acceptance of the portrait by the Council, and its destination, have given me the greatest pleasure. Thank you all. I am so sorry to miss your fresh account of S. African experiences. We are probably here for the winter. F. GALTON.

Professor Sir G. H. Darwin, K.C.B., F.R.S.

HÔTEL GASSION, PAU. *November 24, 1905.*

MY DEAR BESSY, The blowing up into the air of the "pincushion" legend* is like the loss of a dear friend to me. I can only bow my head in grief, and submit. But it *ought* to have been true. Did not at all events our grandmother see a Doctor every week?—also with some ceremony? Where can I have got these notions from? Mrs Schim.'s† virtues, however, I will still stand up for. She had plenty of warm friends up to her death, and Douglas, to whom I mentioned her iniquities, rather laughed at the account with scepticism. I have latterly found a fourth admirer but only of her "Port-Royal" collections and enthusiasms.

We spent last Tuesday afternoon, which was beautifully fine, at *Lourdes*, and saw the place pretty thoroughly, including the going up a *funicular* railway to a famous mountain view. The place is wonderfully beautiful, and white, and clean, with abundance of smooth sward and a rushing river, which comes on here past Pau. I drank the holy water, of course, straight from the tap, and did *not* find it cold. Oh! the flare of wax candles in the Grotto, and the crutches and sticks fastened to its sides and roof, as votive offerings. There was no crowd of pilgrims, but many very devout-looking, praying people.

We can't get lively. The air is so unexhilarating even on the finest days. This place has, I find, that reputation, so I expect we shall soon make trial of Biarritz (three or four hours off).

I am very sorry about the Studdys' bad drains. I gave your messages to Eva. Tell us when you next write, how Mrs Skipwith progresses. You will be glad to see Penelope‡ again. It is of course a trial to every one to see alterations in old places, but what we two went through that day, in our search for Ladywood, Duddeston, and the Larches, can hardly be beaten by the experience of any one else.

I am news-less, day follows day monotonously with its meals and sleeps, newspapers, novels, and with sadly too little out of door exercise. The weather is usually so bad. Yesterday was execrable, and we have no GO in us just now. They want me to write a book on "Eugenics" and I am disposed to accept the offer. If I see my way to do it, it will give pleasant occupation for a year. But it will be a difficult job to do creditably. Many loves to all.

Ever affectionately yours, FRANCIS GALTON.

HÔTEL D'ANGLETERRE, BIARRITZ. *December 10, 1905.*

DEAREST MILLY, I will go through your letter in order, leaving the Tollemaches to the end, after I have seen them. Démolins *is* the man you mention. I have not yet read but have sent for his *Anglo-Saxons*. His *French of To-day* is, to say the least, stimulating, but I find it raises many unsolved questions and criticisms, and especially as to whether his foundations are as solid as he believes. But I must read more before judging how far his methods would really help in "Eugenics" inquiries. So glad that you have Amy back, and a house full of sons and grandsons. The "Hilda" disaster must have come very home to you; all the more after your "Alliance" shock. I am so glad that you are again in correspondence with Mrs Benson, whom I myself knew only slightly, but whom I always heard so highly spoken

* The good lady was reported to have found it difficult to remember the names of the various parts of her frame and still more the locality of the pains she had experienced during the course of the week previous to the doctor's visit. So she caused a doll to be made and stuck a pin into the appropriate place as each pain troubled her. The doctor at his weekly visits gravely extracted pin after pin and discussed the corresponding pain and its cause.

† Mrs Schimmelpenninck, Galton's aunt, the well-known writer.

‡ Widow of Francis Galton's brother Darwin.

of; also that Amy's visit to Cambridge proved so interesting to her. The week here has passed pleasantly. There are interesting people here and very sociable ones. Mrs Tollemache is invaluable with her big collection of books and intelligent sympathy. He is greatly invalidated and can work little, if at all, now. I sit with him and talk the philosophy he likes. He is quite blind, or rather can *just* distinguish light and dark out of the corner of one eye. Even that much is far better than pure darkness. You recollect (or if you do not my little book when it arrives will remind you) my nomenclature for kinship. It occurred to me that its *particularising* power would be greatly increased by foot-figures, thus bro_3 would mean the 3rd brother in the family. Taking yourself as the Subject of a pedigree, I am your $me_2 bro_3$, Eva is your $me_3 si_2 da_1 da_3$. In other words your mother was the third sister of her ("Geschwister") brothers and sisters, and her second sister's eldest daughter's third daughter is Eva. So a great deal of additional information can be given by these foot-figures without necessarily interfering with the general simplicity of the formulae. I sent a brief paragraph to *Nature* illustrating it by the more highly placed relatives of the newly elected King of Norway, and have just posted their proof of it, with corrections. It will be used in the next publication of the Eugenic Office, whenever that may occur, for which Schuster is now busily collecting materials. I wish I could get information about the principal Eugenic *centres* or *districts* in England. I mean those that are reputed to turn out the best sort of people, however the phrase "best sort" may be interpreted. The finest men come from Ballater in Scotland or thereabouts. I am trying to get an inquiry into this made. I suppose the "best sort" of persons are those who have so much energy that they are fresh after finishing their regular day's work to get their living, and who employ their after hours in some *creditable* way. The sun is at length out in fitful gleams. It has been foggy and rainy most days. The day before yesterday there was a marvellous sea and turmoil of waters at the Barre (the mouth of the Adour). I will add a scrap about the Tollemaches. Ever affectionately, FRANCIS GALTON.

Tollemache recollects well all about you and reminded me that I had suggested the book to be given to you.

HÔTEL D'ANGLETERRE, BIARRITZ. December 11, 1905.

DEAR SCHUSTER, You have indeed your hands full with Miss Elderton's batch of extracts. It is a big job and will be very interesting at the end. About my "Extension of the Nomenclature," you will see a letter of mine (I presume) in this week's *Nature*. But I heartily wish I had waited a bit and got the thing clearer in my head before writing it. Please—in the letter—imagine the F_{1s} to be replaced everywhere by F_1 , and that this sentence had been inserted—"The foot-figure to every male, whether he appear under the title of *fa*, *bro* or *son*, refers to his rank among his fraternity; so the same person, who happens to be a third son, may appear as fa_3 , bro_3 or son_3 . Similarly as regards females, in respect to their sisterhoods; the same second daughter may appear, according to circumstances, as me_2 , si_2 or da_2 ."

Of course, other things might be conveyed by foot-letters, but it would not be wise to encumber overmuch. Still, the phrase "only son" or "only daughter" seems to deserve a special sign, u (for unity) might do, as " fa_u ," but z might do better—not s , which means son. This can stand over.

Of course footnotes would often be wanted. $wi(1)$, $wi(2)$ must stand for 1st or 2nd wife—then $wi_2(1)$ or $wi_2(2)$ would be easily understood.

I am sorry that the "Advisory Meeting" does not seem useful. If experience confirms this, have them less frequently and for special occasions only, or drop them altogether.

You do not mention whether *any* replies are coming in to the circular issued by the Sociological; when you next write, I should be interested to hear.

I am afraid that Branford is overworking himself dangerously.

When the corrections to Miss Elderton's papers come in, you will probably attack first some particular *class* of noteworthies and get them as far as may be off-hand before beginning another. However you will soon discover the lines of least resistance.

I find this place suits me much better than Pau did. It is rather too foggy and rainy, but this month in the Republican Calendar is called "Brumaire," the month of fogs. I hear the Riviera weather is far from good, so I am well where I am. The waves are sometimes magnificent.

Very faithfully yours, FRANCIS GALTON.

Enclosed. "Extension of the Nomenclature of Kinship." The method I adopted in your columns, August 11, 1904, of briefly expressing kinship has proved most convenient; it has been used in a forthcoming volume by Mr E. Schuster and myself on *Noteworthy Families*. I write now to show that it admits of being *particularised* by the use of foot-figures, as in the following example, which refers to the more highly placed relatives of the newly elected King of Norway.

Haakon VII, King of Norway (b. 1872).

fa_{1s}	Frederick, Crown Prince of Denmark (b. 1843).
$fa_{1s} fa$	Christian IX, King of Denmark (b. 1818).
$fa_{1s} bro_2$	George I, King of the Hellenes (b. 1845).
$fa_{1s} si_2$	Dagmar, widow of Alexander III, Tsar of Russia, who d. 1894.
$fa_{1s} si_2 son_1$	Nicholas II, Tsar of Russia (b. 1868).
$fa_{1s} si_1$	Alexandra, Queen of England (b. 1844).
$fa_{1s} si_1 son_1$	George, Prince of Wales (b. 1865).
$fa_{1s} si_1 da_3$	also <i>wife</i> , Princess Maud (b. 1869) of England.

The formulae are to be read thus: "His (the King of Norway's) father is the 1st (eldest) son, and is Frederick, Crown Prince of Denmark"; "his (the K. of Norway's) father's father is Christian IX"; ... "his father's 2nd sister's 1st son is Nicholas II"; ... "his father's 1st sister's 3rd daughter, who is also his (the K. of Norway's) wife, is the Princess Maud." These foot-figures need not interfere with the simplicity of the general effect, while they enable a great deal of additional information to be included. FRANCIS GALTON. *Nature*, December 14, 1905.

HÔTEL D'ANGLETERRE, BIARRITZ. December 17, 1905.

DEAREST MILLY, All goes on here steadily and well, but it is mostly overcast and foggy with only occasional sunny days, suitable for excursions to the battle-fields. It seems English ground. We possessed it for 299 years (from 1100) and occupied it in 1813-14. How Wellington's army did fight! His movements were so quick and sure. I see that one important success was due to the then newly invented Congreve rockets. He got with difficulty and at the close of a day a comparatively small body of his men across the Adour, upon whom a many-fold larger body of French swooped down from Bayonne. Each English soldier had two rockets in his knapsack and others in store. They launched these against the French, who had never seen the like before, and who were seized with panic and ran back. I find I was wrong in saying that bayonets got their name from Bayonne. It was from a neighbouring village, Bayonnette.

"Explain the relationship between (1) a gardener, (2) a billiard-player, (3) an actor, (4) a verger." The gardener attends to his p's (peas), the billiard player to his q's (cues), the actor to his p's and q's, and the verger to his keys and pews. If you want a short novel to read, try *The lost Napoleon*, by Sir Gilbert Parker (who is here). How happy you must be with your housefull. I suppose Amy's headache at the time you wrote is long since a thing of the past. The impending dissolution has stopped for a time the publication of books, as Murray told me it would some time ago. So I suppose mine is delayed for that reason. People are found to read little else than newspapers at the time of General Elections. Eva is particularly well and I ditto, with reasonable reservations due to getting older and less mobile by far. This is an excellent place for carriages, but driving is usually too cold now to be pleasant. I want vicarious exercise, like being tossed in a blanket (of course, not occasionally bumped on the floor as in school-boy days). Some mechanism ought to be devised for shaking elderly people in a healthful way, and in many directions*. Music might go on mechanically at the same time, with its rhythms and shakes all in harmony. Excuse nonsense. With much love.

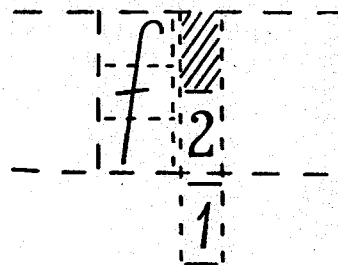
Ever affectionately, FRANCIS GALTON.

HÔTEL D'ANGLETERRE, BIARRITZ. December 22, 1905.

DEAR SCHUSTER, I am glad you wrote; the point raised requires careful consideration. I had thought of it from time to time, and have done so more carefully now. The precise

* Cf. Sir Alfred Yarrow's electrically-driven rocking or rolling bed!

method that you suggest is not the best possible, for it would require the space of an extra half line, if not a whole line, in the printing (see fig.); neither does it contain all that is wanted, viz. number of brothers *and* sisters. Moreover it rather mars the simplicity of the notation. Lastly, there would be unnecessary repetition. After numerous trials it seems thus far (subject to discussion) best to leave all this to a separate paragraph in smaller type. In this nothing need appear that did not relate to an *entry in the pedigree*. Suppose it is a case of $fa_2 bro_1 son_3$ in which only the *son* is noteworthy. The paragraph would always contain entries corresponding to those below. In these the brackets mean "self, brothers and sisters"; and the first numeral is the number in it of males, the second that of females, so the "self" falls into the first or last of the numbers according to the sex.



fa (5, 3); me (2, 2); $self$ (3, 1); $sons$ and $daus$ (2, 4).

fa_2 John; bro_1 Edward; and so on for every non-noteworthy kinship in the pedigree.

Of course, this paragraph may contain $fa fa$ (); $me fa$ (); $fa bro_n sons$ and $daus$ (); $fa bro_{n+1} sons$ and $daus$ (); and the like, so far as data exist and it seems useful *in the case in question* to insert them.

Many complexities due to double marriages or to intermarriages could be made clear in the footnote, the object of which should be confined to explaining *the text*, not to bothering out *all* relationships. In brief the syllables with suffixes will *particularise* the persons concerned, the footnote will tell particulars concerning them which the text does not.

I hope this is clear enough for you to experiment with and perhaps improve on? Please try, and report.

I have been in correspondence with Mr Hartog about the destination of the Report to the Senate. I trust that it will be handed to you to send on to *Biometrika*. A very brief account of it—its title and an explanatory sentence—will be wanted for the Report of the Committee to the Senate, I suppose; but you will be advised by Hartog. I am very sorry about Miss Elderton's illness. I hope it is nothing bad.

Very faithfully, FRANCIS GALTON.

HÔTEL D'ANGLETERRE, BIARRITZ. December 23, 1905.

DEAR SCHUSTER, Since writing yesterday I have written out the enclosed as a *full* example. The *complete set of names* is more of a luxury than a necessity. Without them, the entries could go consecutively, thus:

$fa_1 + fa_1 bro_1 + fa_1 sis$ (3, iii); $self + bro_1 + sis$ (5, iii); $sons + daus$ (1, 0); $fa_1 bro_2 sons + fa_1 bro_2 daus$ (5, i); etc.

In this way they would take little room, especially if printed smaller than the text. The fault in this very concise form is that it fails to identify *by name* the non-noteworthy links. The *rated* order of birth may not be correct; one wants the Christian names as well, for certain identification. This difficulty could I am sure be got over. How would it do in the following to write the third and fifth lines thus:

$self + bro_1 + sis$ (5, iii) 2. Charles,
 $fa_1 bro_2 sons + fa_1 bro_2 daus$ (5, i) 1. Constantine,

and so on, giving only the names of the persons who come *directly or indirectly* in the genealogical account.

It deserves a great deal of care to arrange once for all these and similar matters, to ensure uniformity, and to avoid costly printers' corrections hereafter. You would do well to prepare two or three typical genealogies for consideration. I would send them to Howard Collins whose advice on such matters is probably the very best to be had, and who is always ready to help me. Very faithfully, FRANCIS GALTON.

Example from King Haakon VII's Pedigree, which might be added to the Table in *Nature*, Dec. 14, 1905, p. 151. The data are taken from a pedigree in the *Graphic*, Nov. 25, 1905.

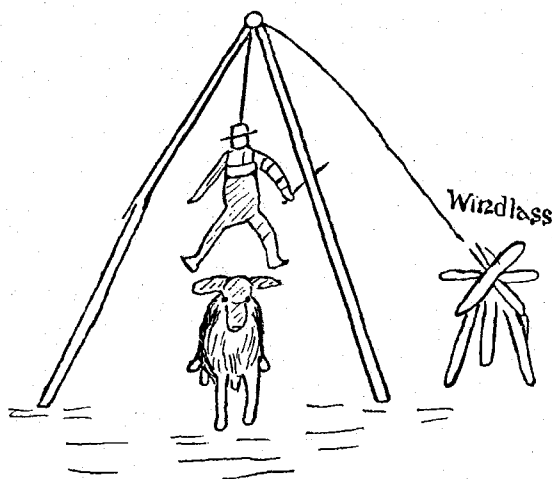
$fa_1 + fa$ bros + fa sis	(3; iii)	1. <i>Frederick</i> , 2. <i>George</i> , 3. <i>Waldemar</i> ; i. <i>Dagmar</i> , ii. <i>Thyra</i> , iii. <i>Alexandra</i> .
$me + me$ bros + me sis	(?; ?)	Data wanting.
self + bros + sis	(5; iii)	1. <i>Christian</i> , 2. <i>Charles</i> , 3. <i>Harold</i> , 4. <i>Ingeborg</i> , 5. <i>Gustav</i> ; i. <i>Louise</i> , ii. <i>Thyra</i> , iii. <i>Dagmar</i> .
sons + daus	(1; 0)	1. <i>Alexander</i> , b. 1903.
fa_1 bro ₂ sons + fa bro ₂ daus	(5; i)	1. <i>Constantine</i> , 2. <i>George</i> , 3. <i>Nicholas</i> , 4. <i>Andrew</i> , 5. <i>Christopher</i> ; i. <i>Marie</i> .
fa_1 si ₁ sons + fa si ₁ daus	(2; ii)	1. <i>Nicholas</i> , 2. <i>Michael</i> ; i. <i>Xenia</i> , ii. <i>Olga</i> .
fa_1 si ₂ sons + fa si ₂ daus	(1; iii)	1. <i>George</i> ; i. <i>Louise</i> , ii. <i>Victoria</i> , iii. <i>Maud</i> .
fa_1 si ₁ son ₁ sons + fa si ₁ son ₁ daus	(1; iv)	1. <i>Alexis</i> ; i. <i>Olga</i> , ii. <i>Tatiana</i> , iii. <i>Marie</i> , iv. <i>Anastasia</i> .

To the Table in *Nature*, Dec. 14, 1905, make the following additions:

- son₁ *Alexander*, Crown Prince of Norway (b. 1903).
- fa_1 si₁ son₁ son₁ *Alexis*, Tsarevitch (b. 1904).

HÔTEL D'ANGLETERRE, BIARRITZ. December 23, 1905.

MY DEAR MILLY, A most happy Xmas and New Year to you all. Your little Xmas card reached me to-day, your letter yesterday. The suggestion of a cob to ride is rather like—I hardly know what to resemble it to. I was somewhat less incapable four years ago when in Egypt than I am now, yet even then it required engineering before I could mount an ass, much more a pony. The muscles that first fail in age are those that enable one to use a stirrup for mounting and those that throw a leg over the saddle. I can do neither of these things now. With a crane like this, I might get on a donkey's back, or even a quiet cob's. Otherwise, it is



nearly hopeless. The past week has gone pleasantly, but rather uselessly. The cold freezes my wits, but the weather improves. We have some idea of trying St Jean de Luz for a week, but nothing is fixed yet. What an electioneering turmoil there will be. One M.P. has just left here to look after his constituency. I get quasi-philosophical talks on most days with Tollemache, and there is a quasi-resident here, Col. (with Mrs) Hill-James, who is an excellent authority on Wellington's campaigns. It seems he was a yearly guest of Darwin's* at Claverdon, and being a tandem-driver they had many common points of interest. It was very pleasant to hear how much he appreciated Darwin. We tea-ed there to-day. They are to have

* Darwin Galton, Francis Galton's eldest brother.

a big Xmas function at this hotel, dinner, champagne (probably bad), speech-making, holly and a dance,—“sauterette.” This house is full of Russians. The Duke of Oldenburg, whose wife is some near relation of the Tsar, is among them. The wife is rather maid-servantish looking, and reminds me of Temple in a way. Oddly enough Mrs Hill-James’ name was Fanny Arkwright. She is a cousin of her namesake, Darwin’s (first) wife. Other news is wholly local; you would not care for it. Over again a happy Yule-time to you all.

Ever affectionately, FRANCIS GALTON.

Mrs Robb’s son is made a general, the youngest in the army. He did excellent work at the Intelligence Department. Sir George Darwin’s son (Charles Galton) has just won a major scholarship for mathematics at Trinity College, Cambridge, while still at school (Marlborough). Montagu Butler’s brilliant son, James, has done the same for classics, while at Eton, at only 16½!! Both of these are promises of great University success. I *think* each is about £100 a year for 5 or 6 years.

HÔTEL D’ANGLETERRE, BIARRITZ. *December 27, 1905.*

DEAR SCHUSTER, The enclosed “Note,” to follow your typed account and to be printed in *smaller type*, is what I mean. Perhaps you will type it and submit it to some “Devil’s advocate” to hear the worst that can be argued against it, and to get hints for improvement. It certainly contains much information in a form well suited for statistics. There is some repetition of what appears in the text, but that does not seem objectionable. Please supply the number of Sir Edward’s children.

I have pencilled some small suggested corrections in the letterpress.

It would be well to use the typed “Note,” after such revision as you think well, as a guide; then, after doing a few more families on the same plan, to seriously reconsider the form and finally to decide. Recollect that all *complexities* of kinship should be unravelled in this “Note.”

Very faithfully, FRANCIS GALTON.

HÔTEL D’ANGLETERRE, BIARRITZ. *January 5, 1906.*

MY DEAR EDWARD*, Our morning post goes out a few minutes after the incoming post arrives, so I had not time to finish Eva’s letter. Give my dear love to your mother. She knows, and so do you, that I realise the discomforts of asthma and bronchitis. I had a brief bout only yesterday, which has passed off happily. It is a queer thing. I wish I knew how to cure it as well as I do how to bring it on *myself*, viz. by a cosy, well-warmed and carpeted room, and good feeding. But what is bad for me may not be bad for others,—who knows? Please thank Lucy† much for her long letter. I grieve at her family misfortunes and own uncertain health. Do not think of bothering her or yourself overmuch, but I should dearly love a frequent post-card until your mother is convalescent.

Bugs for ever! I am delighted that your brochure is to be published. It will be timely. *Snails* are the interest here according to Professor Weldon. There is one sort that in *ancient forest times up to the present* does not, or hardly does, cross the Garonne (the river at Bayonne). Why, no one yet knows. It is very common on the south side.

We are going in the middle of next week to St Jean de Luz for a week or so, but the above will be our address till I write again. I have no news you would care about. Three sets of people here know Claverdon well: 1. Miss Hodgson, 2. Col. and Mrs Hill-James (she an Arkwright and a *Fanny* Arkwright too), 3. (I forget at this moment). I am busy finishing off an outline account of occasional experiments during the past few years on the *Measurement of Resemblance*. It is possible, I find, to give a brief account of the essentials, but the subject with its many side issues is big, and would require a book full of illustrations to treat properly. I have not now time nor “go” enough for such a task, I fear.

Do you know young Sir G. Skipwith? Our friend Mr Townsend, who died very lately, has left him the Honington Estates. He was one of the nearest though a distant relative.

Ever affectionately, FRANCIS GALTON.

* Galton’s nephew, Edward Wheler, son of his sister Bessy.

† Lucy, Mrs Studdy, sister of Edward Wheler.

January 6, 1906.

I had written the enclosed when your grave telegram arrived of "Mother much weaker." We are very sad. I realise only too vividly what is probably going on to-day, which is even worse to the onlooker than to the sufferer. My father constantly repeated this in respect to his violent asthma. He seemed to suffer terribly, but did not suffer so much as we used to fear. F. G.

Address next letter please to Hôtel Terminus, St Jean de Luz, Basses Pyrénées, France.

January 7, 1906.

MY DEAR EDWARD, I am so glad that the end was peaceful and not preceded by long suffering. You and M. L. will be conscious of having been an infinite support and help to your Mother, and will look back to her even more than motherly affection to you with continued remembrance. I lose in her the only remaining person who knew our family and family friends in the days of my boyhood. All her store of memories is now irrevocably gone. You, together with all your sorrow, will doubtless feel a dearly bought sense of liberty, for all your movements have been guided by the thoughts of her convenience and happiness. Still it is something gained; also the pecuniary gain to yourself and to Lucy. It is all in the order of nature. I wish you all well through the sad ceremonies previous to and at the churchyard. I would have asked to share in them had I been within easy reach.

Ever very affectionately, FRANCIS GALTON.

HÔTEL D'ANGLETERRE, BIARRITZ. January 7, 1906.

DEAREST MILLY, "The end came this morning, so peacefully. Wheler." Such is the telegram just received about dear Bessy. It is the last link with my own boyhood, for Erasmus was at sea, etc., and knew little about me then. So much of interest to myself is now gone irrecoverably. But it was time, according to the order of nature, and I feel sure it will give longed-for liberty to Edward and M. L. to see distant parts. They were so devoted to Bessy and made their arrangements so subservient to hers, that the liberty *must* be welcome. But how they will feel the loss. Bessy's was a stoical life for a long time, not only after her widowhood but long before when her and her husband's income was very small. She battled bravely then. We go on Wednesday to *St Jean de Luz*, to the *Hôtel Terminus*, for a week or perhaps more, for a change. Please address your *next* note there, but only the next one. We shall probably return here afterwards. Count Russell was staying at this hotel, and we had pleasant talks with him, and kind invitations to his caves which Eva burns to accept, but I could not walk up to them. He has 500 acres of snow, 8000 and more feet above the sea, with rocks around it, as his property. Here are some of his caves*. He has been sleeping through the summer in sleeping-bags, not in beds, for the last 40 years! Something in the food, or what not, has somewhat upset us and we shall be glad of a change for a little while. It is still very warm on the whole, but variable. I doubt whether it will be fit weather for San Sebastian yet, but we could so easily spend a day there from *St Jean de Luz*. Mr Webster, the Basque scholar, lives like a Basque in the hills nine miles from there, where I hope to see him. Excuse more, I have had to physic myself and to keep upstairs to-day, and am in addition a little upset by the sad news. Ever affectionately, with best loves, FRANCIS GALTON.

I am very sorry that your eyesight still gives some trouble.

HÔTEL TERMINUS, ST JEAN DE LUZ, BASSES PYRÉNÉES, FRANCE. January 17, 1906.

DEAREST MILLY, I have delayed replying until everything had been received bearing on Bessy's death and funeral. She has indeed had much to be thankful for, especially in her closely reciprocated affection for Edward and Lucy, and the painlessness of the end. It must leave a terrible void in their affections and interests, judging even from what my own loss is to me, and of course far, far greater to them. But there is little use in talking of these things, even sympathy does not much help when wounds are deep and yawning. You must have been much distressed, and I look much for your next report on Guy and yourself and Amy. Sorrows come in battalions. They certainly are doing so to Lucy Studdy. Erasmus *cannot* attend long functions, he is medically unfit to do so. Edward and M. L. sat with Erasmus every evening in his room

* Presumably at Biarritz.