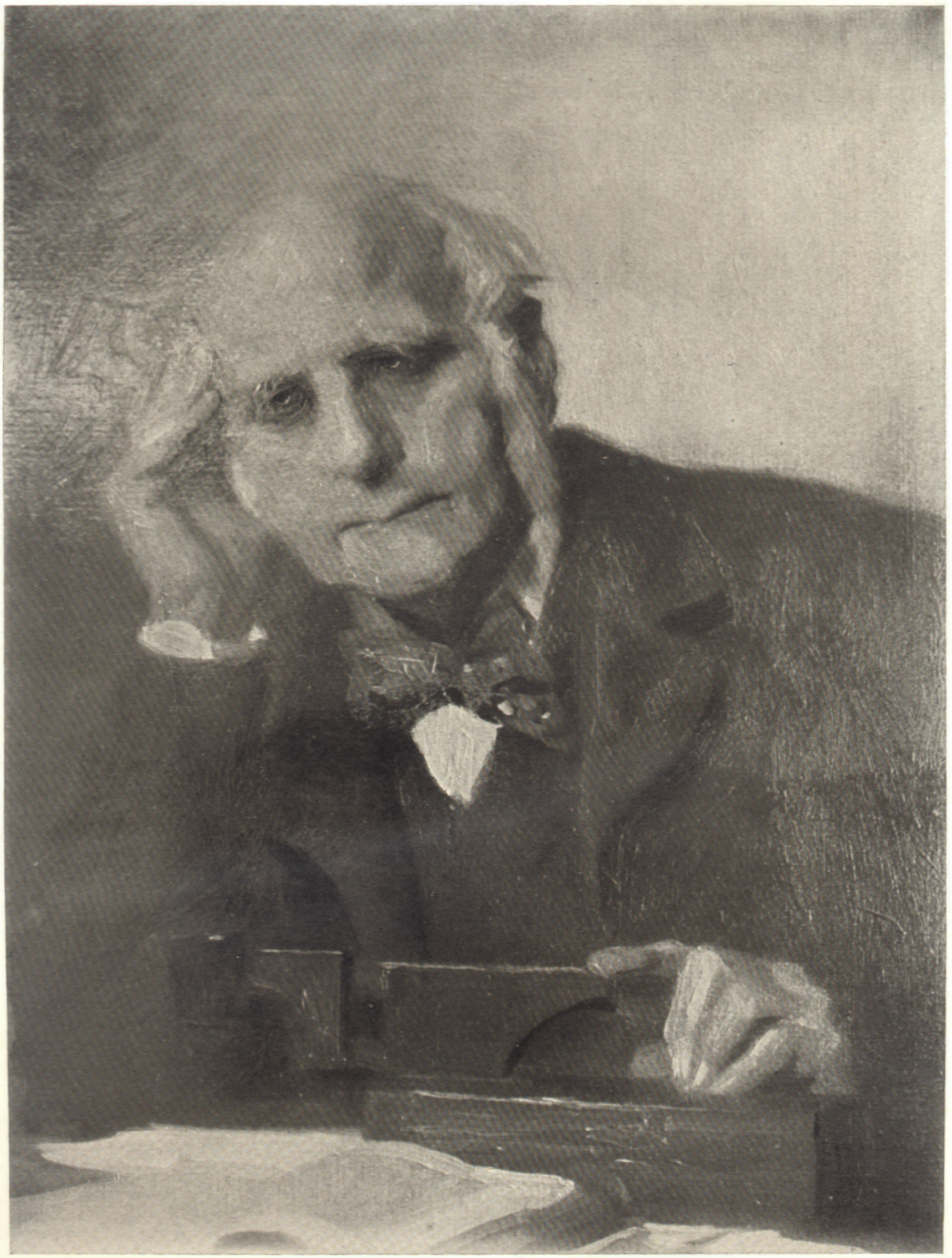

FRANCIS GALTON in 1903.

From a photograph by the Author of the unfinished picture by C. W. Furse at Claverdon.

THE

LIFE, LETTERS AND LABOURS

OF

FRANCIS GALTON

BY

KARL PEARSON

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VOLUME I

BIRTH 1822 TO MARRIAGE 1853

Cambridge:
at the University Press
1914

PREFACE

THE delay that has attended the issue of this Life of Francis Galton, of which even now only the first volume appears, is largely due to three causes. In the first place the writer has so many other duties that the time to sort out, peruse and abstract the large amount of available material has only been obtained in odd holiday intervals or by postponing the claims of students and workers in the Galton Laboratory on his attention and energy. I trust that they will for the sake of this account of the life of the man, to whom we alike owe so much, pardon the delays, which have so often been inflicted on the publication of their own researches. Secondly I had hoped that some postponement of the date of issue might lead to the discovery of more material bearing on the "Fallow Years" 1844 to 1849. This hope has not been fulfilled, and nothing has reached me[1] which in any way supplies the place of the material, which appears to have existed at the date of Galton's death, judging by his own index to his letters. Hardly a letter to him of this period, which would have fixed his habitation and occupation, or have suggested his thoughts and reading, has reached me. The whole of his letters home from Egypt and Syria have perished, and the letters to him from his sisters, which would have told much, have been destroyed. The first realisation of this loss so depressed me, that I almost determined to give up the portraiture of a life, which could thus never be adequately exhibited in some of its most momentous phases. The five years which follow most men's University careers are the most developmental of their lives. No other quinquennium is one of such marked growth, for men usually in this period will start to think and act definitely for themselves; they must then face the fundamental problems of life relying on their own powers. Here I can tell my reader little or nothing of Francis Galton, and I would merely say that the absence of information is not due to want of

[1] I have endeavoured in vain to trace what has happened to letters written 60 to 70 years ago to College friends—all long dead.

searching. It was only the feeling that, at least in one or two aspects of Francis Galton's later life and of his scientific work, I could perhaps put his contributions to human knowledge more adequately than possibly one or another who might take up the task, if I resigned it, and who would hardly grasp the bearing of that long and intimate scientific correspondence between Galton, Weldon and myself, that I persevered in my endeavour to give some account of a life, wherein an important chapter of personal development must remain largely unrecorded.

The last source of delay has been the difficulty of collecting the illustrative material, with which I determined from the start to accompany this work. The records had to be collected from many sources, and it was soon clear to me that I was collecting as much information bearing on the family history of Charles Darwin as on that of Francis Galton. It seemed desirable to place the two men to some extent in contrast in my volume, showing in ancestry, in methods of work and in outlook on life what they had in common and how they differed. Twenty years ago, no one would have questioned which was the greater man. To-day the work of Darwin is being largely undermined by a new view of heredity. We are told that "the transformation of masses of population by imperceptible steps, guided by selection, is as most of us now see, so inapplicable to the facts, whether of variation, or of specificity, that we can only marvel both at the want of penetration displayed by the advocates of such a proposition, and at the forensic skill by which it was made to appear acceptable even for a time[1]." Foremost among such advocates were Charles Darwin and Alfred Russel Wallace. If the judgment given above be correct, Darwinian evolution is only a fallacy supported for a time by "forensic skill." Its propounders must belong to a school which will leave no permanent mark on human thought. The last twenty years have seen a continual progress, not only in the expansion of the methods initiated by Galton, but in the recognition of the purposes to which he desired their application; above all we have approached much closer to the conscious study of what makes for race efficiency—to the application of Darwinian ideas to the directed evolution of man. If Darwinism is to survive the open as well as covert attacks of the Mendelian school, it will only be because in the future a new race of biologists will arise trained up in Galtonian method and able to criticise from that standpoint both Darwinism

[1] *Problems of Genetics*, by William Bateson, p. 248, New Haven, 1913.

and Mendelism, for both now transcend any treatment which fails to approach them with adequate mathematical knowledge.

If this view be a true view of the evolution of biological thought in the near future, then any comparison of the relative greatness of the two men becomes superficial. Darwinism needs the complement of Galtonian method before it can become a demonstrable truth; it requires to be supplemented by Galtonian enthusiasm before it can exercise a substantial influence on the conscious direction of race evolution. Man has been directly endeavouring for a few thousand years to improve himself by improving his environment. Galton's lesson—over and over again disregarded by those who profess to be his disciples—was that little could be achieved this way, that the primary method to elevate the race was to insure that its physically and mentally abler members, not only had the unrecognised advantage of natural selection in their favour, but were directly and consciously encouraged to be fertile by the state. If my view be correct, Erasmus Darwin planted the seed of suggestion in questioning whether adaptation meant no more to man than illustration of creative ingenuity; the one grandson, Charles Darwin, collected the facts which had to be dealt with and linked them together by wide-reaching hypotheses; the other grandson, Francis Galton, provided the methods by which they could be tested, and saw with the enthusiasm of a prophet their application in the future to the directed and self-conscious evolution of the human race. It is unprofitable to discuss relative greatness, and in this work I have made no attempt to do so. I see one family which has done much for our national worth, and every fact which bears on its history and its characteristics is of interest to us all. Those who know the real history of the one occasion on which Galton and Darwin disagreed know how loyal Galton was to Darwin—loyal with a loyalty far rarer to-day. Galton would not have wished me to put him in the same rank as his master, but the reader who follows my story to the end may possibly see that the ramifications of Galton's methods are producing a renascence in innumerable branches of science, which will be as epoch-making in the near future as the Darwinian theory of evolution was in biology from 1860 to 1880, and which has encountered and will encounter no less bigoted opposition from both the learned and the lay. To work for that Galtonian renascence has been the writer's main aim in life as it was also that of his chief colleague and friend—W. F. R. Weldon. I can only hope that these volumes will contribute

to the due appreciation of what Galton laboured to do and what he hoped in the future might be done in this field.

It is only fitting that I should put on record here the ready help I have received in innumerable ways from Francis Galton's relatives and friends. For letters, papers and the reproduction of illustrative portraits I have in the first place to thank Mr Edward Wheler Galton of Claverdon; to his sister, Mrs T. J. A. Studdy, I owe also much in the way of facts and portraits. Mrs M. G. B. Lethbridge, Sir Francis Galton's niece, did invaluable work in placing in order and indexing the letters to her uncle from 1860 onwards. To the three sons of Charles Darwin, Mr William Erasmus Darwin, the late Sir George Howard Darwin and Sir Francis Darwin, I owe much information and many letters. Without their ever-ready and generous aid it would not have been possible to put before my readers so completely as I have done the ancestral history of Charles Darwin. To Mr Francis Rhodes Darwin and to Colonel C. W. Darwin I am much indebted for particulars and photographs of the Darwin portraits at Creskeld Hall, and to Lady George Darwin for kindly help after the death of her husband. The Rev. Darwin Wilmot placed at my disposal most valuable manuscript material as to his grandfather, Sir Francis Sacheverell Darwin, as to his great-grandfather, Erasmus Darwin, and as to the family history of the Darwins. Mrs William Wavell, great-granddaughter of Erasmus Darwin, allowed me to see her Darwin portraits and manuscripts. Several other members of the family also have most kindly shown me illustrative material, or provided me with data. Many friends and correspondents of Francis Galton have allowed me to take copies of his letters, which will find due acknowledgment in my second volume, where these letters are used.

In the heavy pedigree work of this volume I have received continual assistance in search work from my colleague Miss Amy Barrington and in the laborious drafting of the pedigrees for engraving from the Hon. Secretary of the Galton Laboratory, Miss H. Gertrude Jones. My heartiest thanks are due to them both for the patience which they have brought to their tasks, and the invariable suavity they have shown to a frequently overworked and occasionally irascible taskmaster. To my friend and colleague Professor W. Paton Ker I am very grateful for a variety of suggestions and corrections during proof.

I am fully aware that the indolent reader will find much in this work which he does not want and which has but little interest for him. It is intended fundamentally as a permanent memorial to the Founder of the Galton Laboratory, and embraces material which may easily perish or be ultimately lost sight of. If the said reader will only wait a few years, I have little doubt that my material will be strained of its more solid content and presented to him in that light and cheap form, which we are told is a first necessity of the modern book market. My object is a different one, namely to issue a volume to some extent worthy of the name of the man it bears,—which may be studied hereafter by those who wish to understand him, his origin and his aims,—rather than to furnish an evening's amusement for readers however numerous, who would just as readily study any other biography as that of Galton, if only it chanced to be entertaining. I have been told that the genealogical section of my book will weary its readers and narrow its public. I would reply that this work is not written to gain a public, but *piam memoriam prodere conditoris nostri* and is intended especially for those who have known and loved Francis Galton in the past, or who may in the future desire to understand and honour him.

K. P.

The Galton Laboratory,
University of London.
April 8, 1914.

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PEDIGREE PLATES AT END

(*In Pocket of Cover*)

RÉSUMÉ OF THE LIFE AND LABOURS OF FRANCIS GALTON

CHIEF EPOCHS IN THE LIFE OF FRANCIS GALTON

Born February 16, 1822. Died January 17, 1911

A. "*Apprenticeship*"

Age		*Years*
—5	Trained under Sister Adèle	—1827
6—7	Dame School	1828—1829
8—9	School at Boulogne	1830—1831
10—12	„ at Kenilworth	1832—1834
13—15	King Edward's School, Birmingham	1835—1837
16	*Medical Education*, General Hospital, Birmingham	1838
17	„ „ King's College, London	1839
18	1st Journey, down Danube to Smyrna	1840
18—21	*Mathematical Education*, Cambridge	1840—1843

B. "*Journeyman Years*"

22	2nd Journey, Egypt, Khartoum, Syria	1844—1845
22—27	Hunting and Shooting	1845—1849
28—30	3rd Journey, Tropical Africa	1850—1852
31	Marriage	1853

C. "*Master Craftsman*"

32—42	Art of Travel and Meteorology	1854—1864
	New Influences:	
	(*a*) Quetelet's *Lettres sur la théorie des probabilités appliquée aux sciences morales et politiques* (Translation, 1849)	1849
	(*b*) Darwin's *Origin of Species*	1859
43	First Research in Heredity (Hereditary Talent and Character)	1865
47	*Hereditary Genius*	1869
50	Statistical Enquiries as to Prayer	1872

Age		*Years*
48	Heredity: Anthropometry	1870 onwards
52	*English Men of Science, their Nature and Nurture*	1874
54	Heredity: Psychometry	1876 onwards
56	Portraiture work	1878 onwards
61	*Human Faculty*	1883
66	Personal Identification (arising from inquiry as to permanency of characters). Finger-prints	1888 onwards
67	*Natural Inheritance*	1889
	[Correlation and its applications. This was the starting-point of the Biometric School.	
72	First academic Lectures on Variation and Correlation accompanied by Laboratory work started at University College—October 1894. Start of *Biometric Laboratory*[1]	1894]
74	Measurement of Plants and Animals Committee, Royal Society	1896
67, 77	Law of Ancestral Heredity	(1889) 1897
79	*Biometrika* founded. Galton writes a preface and becomes consulting Editor	1901
79—89	Eugenics movement	1901—1911
82	Research Fellowship in Eugenics in University of London. "Eugenics Office"	1904
85	Transformation of "Eugenics Office" into the "Eugenics Laboratory" and its association with the Biometric Laboratory	1907
89	Death and by bequest Foundation of the Galton Professorship and Endowment of the Laboratory of Eugenics in the University of London	1911

Chief Posts and Honours

Royal Geographical Society, Gold Medal (Member of Council for many years)	1853
Fellow of the Royal Society (Gold Medal, 1886; Darwin Medal, 1902; Copley Medal, 1910; Member of Council, 1865–6, 70–2, 76–7, 82–4)	1856
British Association (Sectional President, three times, Geography 1872, Anthropology 1877, 1885, and General Secretary 1863–7, Member of Council; twice asked to be President)	
Member of Meteorological Committee (Council)	1868—1901
Chairman of the Kew Observatory Committee	1889—1901
Anthropological Institute (President, 1885–9; Huxley Medal, 1901)	
Linnaean Society, Darwin-Wallace Medal	1908
Cambridge: Rede Lecturer	1884
„ Honorary D.Sc.	1895
„ Honorary Fellow of Trinity College	1902
Oxford: Honorary D.C.L.	1894
„ Herbert Spencer Lecturer	1907

[1] The Laboratory existed from this date; the name *Biometric* was given to it after the naming in November 1900 of *Biometrika*, when the term Biometry was invented, see Life of Weldon, *Biometrika*, vol. v, p. 35.

ANALYSIS OF FRANCIS GALTON'S WORK

				Years
I.	*Travel.*	(i)	Practise	1840, 1844, 1850–2
		(ii)	Art: of Travel	1855
			of Campaigning (Lectures at Aldershot camp)	1856
			Vacation Tourists	1860
			Last Memoir	1881
			(15 memoirs, etc.)	
II.	*Physics.*		Meteorology: (12 memoirs) chiefly	1861—1873
			Design of Instruments (12 memoirs)	1850—1906
III.	*Heredity.*			
			First Paper: Hereditary Temperament and Character ...	1865
			Hereditary Genius	1869

(i) *Physical Characters, Anthropometry*, 1873—1894

Influence of Town and Country (1873). Anthropometry in Schools (1874). "Nature and Nurture" (1876). Anthropometric Laboratory (1882). Anthropometric Instruments (1877—89). Records of Families (1884), etc. etc. (over 30 memoirs).

(ii) *Mental Characters, Experimental Psychology*, 1876—1896

Measurement of the Senses, Auditory (1876), Muscular (1883), Visual (1884), etc. etc.

Analysis of Mental Processes, Free will (1879), Visions and Imagery (1879—82), Arithmetic by smell (1894), etc. (18 memoirs).

(iii) *Human Faculty* (1883). (Life History Album, and Record of Family Faculties, 1884.)

(iv) *Portraiture:*

Composite Portraits	1878—1885
Just perceptible Differences	1893
Photographs of Pedigree Stock	1898
Numeralised Profiles	1910
etc. etc. (12 memoirs)	

(v) *Direct Experiments and Observations on Heredity:*

Transfusion and Pangenesis	1869—71
Twins	1876
Man: Stature, Eye Colour, Temper	1886—1887
Sweet Peas	1886
Pedigree Moth Breeding	1887
"Evolution" Committee	1896
Bassett Hounds	1897
etc. etc. (10 memoirs)	

		Years
IV.	*Development of Statistical Theory:*	
	Departure from Quetelet	1869
	Statistical Scales	1870
	Percentiles and Grades	1870—1907
	Ogive Curves	1875
	Geometrical Mean (Fechner's Law)	1879
	Regression	1885
	Correlation and its Measurement	1889
	"Ranks" and the Correlation of Ranks	1889
	First and Second Prizes, i.e. relative value of extreme ability (16 memoirs)	1901
V.	*Application to Theory of Heredity:*	
	English Men of Science	1874
	Laws of Heredity	1876–7
	Inheritance and Regression	1885
	Natural Inheritance	1889
	[Point of Departure of Biometric School]	
	Law of Ancestral Heredity	(1889?), 1897
	Noteworthy Families ... ... (36 memoirs and books, etc.)	1906
VI.	From the measurement of characters for inheritance naturally arose the problem of their permanence:	
	(i) Personal Identification and Description	1888
	(ii) Finger Print Investigations ... ... (13 memoirs, etc.)	1891—1902
VII.	*Application to Human Affairs: Eugenics:*	
	Hereditary Talent and Character	1865
	Gregariousness in Cattle and Men	1872
	Hereditary Improvement	1873
	Marks for Physical Fitness	1889
	Possible Improvement of Human Breed	1901
	Eugenics Addresses and Essays ... ... (17 memoirs, etc.)	1901–10

I am inclined to agree with Francis Galton in believing that education and environment produce only a small effect on the mind of anyone, and that most of our qualities are innate.

CHARLES DARWIN.