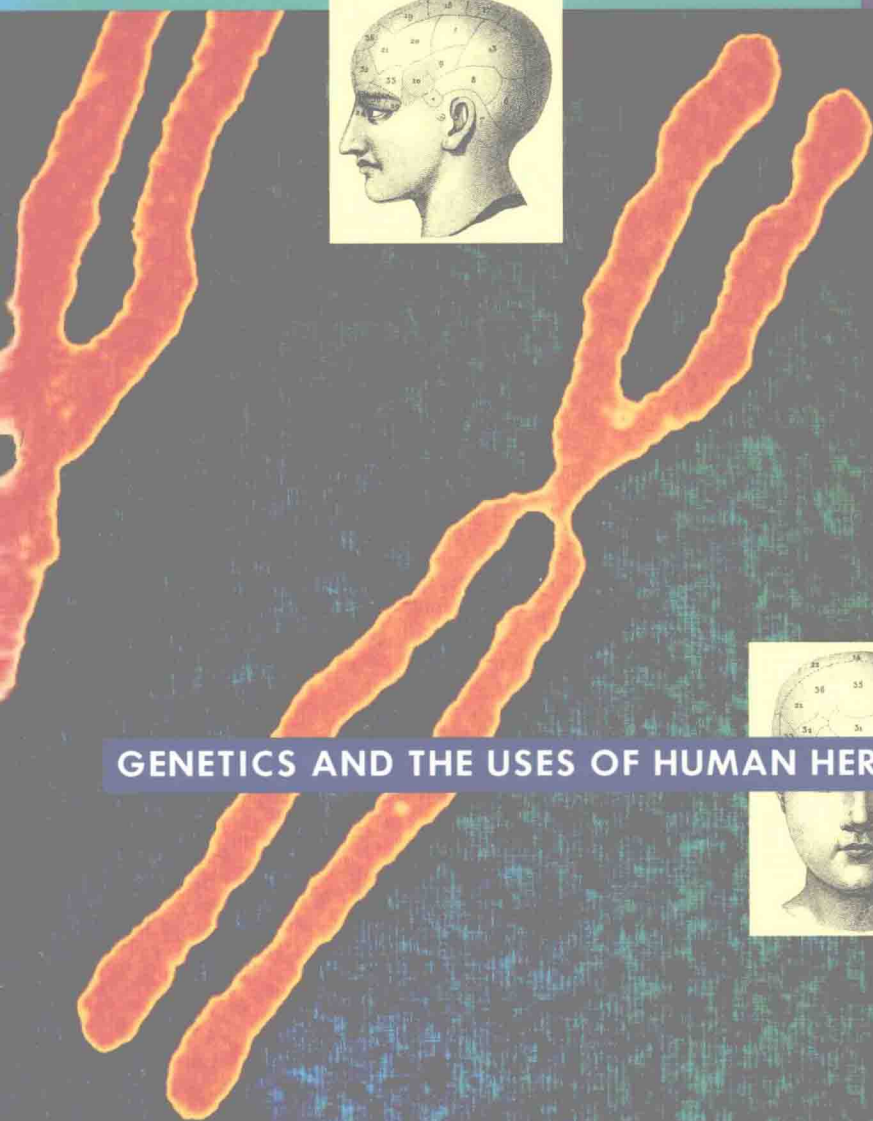
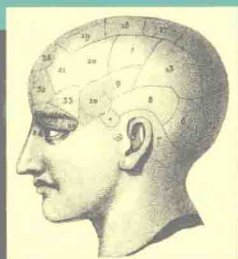


"The finest of all books on the history of eugenics." —STEPHEN JAY GOULD

DANIEL J. KEVLES

In the Name of Eugenics



GENETICS AND THE USES OF HUMAN HEREDITY



WITH A NEW PREFACE BY THE AUTHOR

IN THE NAME OF EUGENICS

Genetics and the Uses
of Human Heredity

Daniel J. Kevles

With a New Preface by the Author

HARVARD UNIVERSITY PRESS
CAMBRIDGE, MASSACHUSETTS
LONDON, ENGLAND

*For my mother and father,
with thanks*

Copyright © 1985, 1995 by Daniel J. Kevles
All rights reserved
Printed in the United States of America
Second printing, 1997

Published by arrangement with Alfred A. Knopf, Inc.

First Harvard University Press paperback edition, 1995

Portions of this work originally appeared in *The New Yorker*.

Grateful acknowledgment is made to The Society of Authors Ltd.
on behalf of the Estate of Bernard Shaw for permission to quote
from Bernard Shaw's letters. Bernard Shaw texts copyright © 1985
by the Trustees of the British Museum, the Governors of the National
Gallery of Ireland and Royal Academy of Dramatic Art.

Library of Congress Cataloging in Publication Data

Kevles, Daniel J.

In the name of eugenics: genetics and the uses of human heredity
/Daniel J. Kevles; with a New Preface by the author.

p. cm.

Originally published: New York: Alfred A. Knopf, 1985.

Includes bibliographical references (p.) and index.

ISBN 0-674-44557-0 (pbk.)

1. Eugenics—History. 2. Heredity, Human.

3. Race discrimination. 4. Genetic Engineering. I. Title.

HQ751.K48 1995

95-18034

304.5—dc20

CIP

PREFACE, 1995

THE SPECTER OF EUGENICS hovers over virtually all contemporary developments in human genetics, perhaps even more now than when this book was first published a decade ago. Human genetics as a program of research originated with the eugenic idea that the physical, mental, and behavioral qualities of the human race could be improved by suitable management and manipulation of its hereditary essence. During the heyday of eugenics—much of the first half of the twentieth century—social prejudice often overwhelmed scientific objectivity in the investigation of human genetics. Social distinctions of race and class were commonly attributed to differences in biological merit. After World War II, however, biologists in the United States and Britain fought—by and large successfully—to emancipate human genetics from such biases in order to establish it as a solid field of science that would explain the complexities of human heredity and assist medicine by illuminating the relationship of genetics to disease.

The breaking of the genetic code in the 1960s inaugurated the current era of human molecular genetics; and since the 1970s, the invention of powerful techniques and technologies for isolating, locating, manipulating, and analyzing genes has enabled scientists to probe the genome directly for the characteristics of DNA that shape what we become. Progress in human genetics was accelerated enormously by the establishment, in the late 1980s, of the Human Genome Project, an international effort whose aim is to locate and obtain the DNA sequence of each of the one hundred thousand genes estimated to compose the complete complement of human hereditary information. Since then, hardly a month has gone by without announcements that a gene for one disease or another has been identified. The genes for Huntington's disease, cystic fibrosis, Duchenne muscular dystrophy, and hypercholesterolemia have all been found; so have genes involved in blood disorders, immune deficiencies, many cancers, including a type of breast cancer, and dozens of other afflictions. Increasingly, the

techniques of molecular genetics have been exploited to search for genes that may contribute to disorders such as manic depression, schizophrenia, and alcoholism.

In the long run, human genetic knowledge will very likely lead to therapies and cures for many diseases. New drugs will be designed to overcome the specific deleterious effects of genetic malfunctions. Gene therapy will introduce normal DNA into the body to assume the functions of abnormal strands of the molecule. Powerful technologies already permit the selection of healthy embryos in vitro for implantation in women whose offspring are at risk for various genetic diseases, while new techniques have enabled the insertion of healthy genes into sperm that might otherwise be genetically impaired.

But in the short run, for most diseases, human genetics is yielding prediction without promise, providing prognoses that can be dire but not the power to prevent the anticipated pain, suffering, and, perhaps, death. It is also raising anxieties. Some fear that the techniques of gene therapy, embryo selection, and the engineering of sperm could all become tools of a kind of human genetic manipulation that would be offensive to humane and egalitarian values. The manipulation could discriminate against socially costly or devalued groups and individuals. Symptoms of apprehension abound. The abortion of unborn children destined to suffer a genetic disease draws protests from advocates of people afflicted with that malady. An activist for the disabled attacks Planned Parenthood for displaying "a strong eugenics mentality that exhibited disdain, discomfort and ignorance toward disabled babies."¹ Some gay analysts have castigated recent scientific reports that male homosexual orientation may be a genetic product, contending that such research risks pathologizing homosexuality and warning that the discovery of a "gay gene" could lead to prenatal screening and ultimately gay genocide.

These anxieties are rooted in the social tensions that beset contemporary society. Such tensions have always been exacerbated by inquiries into the genetics of racial differences that bear on the capacities of minority groups to participate fully in the competition and rewards of life. They have been heightened once again by a renewal of assertions that black Americans as a group are genetically less intelligent than white Americans because they score on average fifteen points lower on I.Q. tests. Genes are held to place blacks, along with whites of comparable test performance, disproportionately in poverty, in prison, on the welfare rolls, and in the statistics of illegitimate births. The high maternity rate of low-income groups is said to be fostering dysgenics, the increase of inadequate genes in the population.²

Such claims are not new. They formed part of the core of the eugenics movement that swept through the Anglo-American world and many

other countries during the first third of the twentieth century. In the United States, however, the biological distinctions that mainly obsessed eugenicists were not those between whites and blacks but those then believed to divide whites—differences between, on the one hand, the old-stock white, Anglo-Saxon, Protestant majority, and, on the other, the numerous Catholic and many Jewish immigrants from Eastern and Southern Europe. Eugenicists, who were themselves predominantly of the old majority, considered scholastic intelligence—the kind indicated in I.Q. tests—a paramount measure of human merit, ignoring other abilities such as business acumen and artistic creativity that such tests did not capture. To them, I.Q. tests appeared to determine that the newer immigrants were innately endowed with low intelligence, while their high birth rates seemed to indicate that they were spreading inferior genes into the population at a rapid rate. In the interest of reducing the proportion of the “less fit” in society, eugenicists in the United States helped restrict immigration from Eastern and Southern Europe. They promoted the passage of eugenic sterilization laws that disproportionately threatened lower-income groups. The laws and programs they fostered supplied a model for the Nazis, who sterilized several hundred thousand people and, brandishing their research into the genetics of individual and racial differences, claimed scientific justifications for the Holocaust.

The Nazi horrors discredited eugenics as a social program. Studies in social and biological science repudiated its stigmatizing theories of human difference, showing that what it took to be distinctions of race were those of ethnicity. In the United States, the social policies that reduced discrimination and expanded opportunity worked with the passage of time to produce their salubrious effects among the newer immigrants and their descendants, including socioeconomic improvement and, eventually, par performance on I.Q. tests. In the half century after 1932, whites’ scores on such tests rose some fourteen points. Blacks’ scores rose too, though not as much. Still, along with the change in whites’ scores, the increase indicates that test results are not rigidly fixed by genes but are also sensitive to changes in education, opportunity, and scholastic ambition.

Blacks have resided on the American continent for the better part of four centuries; nevertheless, it is mainly since World War II—but even more so since the 1960s—that they have passed on their migration to freedom from a United States that was legally segregated and in countless ways racially oppressive to the contemporary nation, where, although racism continues its poisonous work, new standards of law and tolerance better protect dignity and beckon ambition. In a sense, as a community blacks have only just embarked on the journey that many white immigrant groups took several generations to complete. It is not unreasonable

to conceive that, as it was for those white minorities, so it will be—given enough time and good will—for nonwhite minorities, including the flood of recent newcomers to the United States. The roots of human behaviors and capacities are complicated. Attempts to probe them for the role of genes may try to allow for contemporary environmental differences, but they tend to be blind to the cultural and psychological impact of past experience. They rely on measures that fail to capture attitudes, aspirations, expectations, and, above all, social hope. In short, they can be blind to the legacy of history.

The history narrated in this book reveals that the uses of human genetics were colored in the past by social and political context. They are similarly colored in the contemporary United States and elsewhere in the West—but in ways that diminish the likelihood that the revolution in human molecular genetics will be turned to eugenic ends. Despite contemporary threats to reproductive freedom, civil rights and civil liberties are robust enough—far more robust than in the early part of the century—to interfere with any attempts at state-mandated genetic manipulations. Awareness of the barbarities and cruelties of state-sponsored eugenics in the past has tended to set most geneticists and the public at large against such programs. Handicapped or diseased persons are politically empowered, as are minority groups, to a far greater degree than in the early twentieth century. In both the United States and Europe, they have allies in the media, the medical profession, and organized religion—especially the Roman Catholic Church, long a staunch opponent of eugenics. They are thus politically positioned to block or seriously to hinder eugenic proposals that might affect them.

Yet the ongoing revolution in human genetics is occurring in the contentious context of a growing demand for high-technology medicine and its delivery through a market economy. The ability to acquire genetic information has created the capacity for what has been called a kind of “homemade eugenics”—individual families deciding what kind of children they will bear. “‘Human improvement’ is a fact of life, not because of the state eugenics committee, but because of consumer demand,” an observer of biotechnology has noted.³ Then, too, genetic information remains vulnerable to adverse refraction through the lenses of social prejudice, economic interest, or both. It may not be used as it was in the past to stigmatize entire groups, but it can affect—indeed, has already affected—the welfare of individuals. Employers have sought to deny jobs to applicants with a genetic susceptibility to disease or to illnesses arising from conditions of the workplace. Life and medical insurance companies have tried to exclude from coverage people with high-risk genetic profiles. In the future, even national health systems might propose to ration care on the

basis of genetic propensity for disease, especially to families at risk for bearing diseased children, not for the sake of eugenics, but to save money.

This book is a work of history. It addresses the past on its own terms. Yet it was written in the strong belief that the exploration of the eugenic past has much to teach about how to avoid repeating its sins and mistakes. The stunning progress in human genetics during the last decade has only added force to that conviction. Attention to the history of eugenics throws into relief what is new about the difficulties that human molecular genetics poses for social decency, ethics, and policy—and illuminates what may be welcomed about its onrushing advance as well as what should be feared.

D. J. K.

Pasadena, California

March 1995

PREFACE TO THE ORIGINAL EDITION

THE WORD “eugenics” was coined in 1883 by the English scientist Francis Galton, a cousin of Charles Darwin. Galton, who pioneered the mathematical treatment of heredity, took the word from a Greek root meaning “good in birth” or “noble in heredity.” He intended it to denote the “science” of improving human stock by giving “the more suitable races or strains of blood a better chance of prevailing speedily over the less suitable.”¹ Since Galton’s day, “eugenics” has become a word of ugly connotations—and deservedly. In the first half of the twentieth century, eugenic aims merged with misinterpretations of the new science of genetics to help produce cruelly oppressive and, in the era of the Nazis, barbarous social results. Nonetheless, in recent years, Galtonian premises have continued to figure in social discourse—notably in the claims of those arguing for a racial basis of intelligence, in certain tenets of human sociobiology, and in some proposals for human genetic engineering.

I was led to write this history of eugenics partly by the recognition that the subject casts a shadow over all contemporary discourse concerning human genetic manipulation. The history of modern physics (a field in which I have previously worked) reveals how unprepared we were to deal with the momentous issues that the release of nuclear energy—a feat requiring only a few years of concentrated effort—suddenly compelled us to confront in 1945. In 1963 the great British biologist J. B. S. Haldane declared that the genetic modification of man was likely to be still millennia away, but he added: “I remember that in 1935 I regarded nuclear energy as an improbable source of power.”² Acquisition of the knowledge and techniques for human genetic intervention would pose challenges which, while different in kind from those of the nuclear revolution, may be comparable in magnitude, and it is none too soon to examine them in historical context.

I was also convinced that eugenics held a rich variety of opportunities for historical investigation as such. There have been a number of important

studies of the subject, but most have dealt with it in only one country or another, tended to view it through the lens of the Holocaust, and halted the story in the early 1930s. I have made this book a comparative history of eugenics in the United States and Britain from the late nineteenth century to the present day, giving attention to its expressions elsewhere, especially in Germany, insofar as they affected Anglo-American developments. The comparative approach has helped to explain certain important features of this history—for example, why a eugenic legislative program succeeded at least partially in the United States but not at all in Britain—that would otherwise have remained puzzling. I have also attempted a critical assessment of Anglo-American eugenicists as they diversely recognized themselves before the Nazis came to power; and the assessment has led me to depart from prevailing interpretations to advance the view instead that eugenics involved not only scientific rationalizations of class and race prejudice but a good deal more, including disputes over how men and, especially, women of the modern era were to accommodate to changing standards of sexual and reproductive behavior.

So much was said and done in the name of eugenics that this book of necessity merges history of science with social, cultural, and political history. It explores the interplay between, on the one hand, the social assertions made by eugenicists and, on the other, advances in pertinent sciences, particularly genetics in relation to man. Since about 1930, that interplay has been strongly affected by research in human genetics. I have here ventured the first historical account of the development of that field through the early sixties, and I have also sketched its remarkable progress since then, not to provide a comprehensive handbook of its specialties—the contemporary state of gene therapy, say—but to deal with such topics in a way that is indicative of emerging problems and possibilities.

This book is thus not an up-to-the-minute technical guide, and it is certainly not a tract for the times. I am under no delusion that a history of eugenics will provide any detailed moral or political map to follow in the uncharted territory of human genetic engineering. What I do expect from such an exploration is at least some assistance in disentangling the benefits we might aim for from the pitfalls we might legitimately fear. I hope that this historical journey will suggest to the reader—as it has to me—how one might think about the human genetic future, and how one might thread a path into it of good sense, reason, and decency.

D.J.K.
Pasadena, California
December 1984

CONTENTS

<i>Preface, 1995</i>	<i>vii</i>
<i>Preface to the Original Edition</i>	<i>xiii</i>
I Francis Galton, Founder of the Faith	3
II Karl Pearson for Saint Biometrika	20
III Charles Davenport and the Worship of Great Concepts	41
IV The Gospel Becomes Popular	57
V Deterioration and Deficiency	70
VI Measures of Regeneration	85
VII Eugenic Enactments	96
VIII A Coalition of Critics	113
IX False Biology	129
X Lionel Penrose and the Colchester Survey	148
XI A Reform Eugenics	164
XII Brave New Biology	176
XIII The Establishment of Human Genetics	193
XIV Apogee of the English School	212
XV Blood, Big Science, and Biochemistry	223
XVI Chromosomes—the Binder's Mistakes	238
XVII A New Eugenics	251
XVIII Varieties of Presumptuousness	269
XIX Songs of Deicide	291
<i>Notes</i>	303
<i>Essay on Sources</i>	383
<i>Acknowledgments</i>	407
<i>Index</i>	411

**IN THE NAME
OF EUGENICS**

Chapter I

FRANCIS GALTON, FOUNDER OF THE FAITH

FRANCIS GALTON, innocent of the future, confidently equated science with progress. All around him the technology of the industrial revolution confirmed man's mastery over inanimate nature. To be sure, in the mid-Victorian era, heredity in plants and animals was less a science than a body of lore based on empirical practice. In the common understanding, scientific and otherwise, like tended to produce like, although in fact like often produced something quite different. Ideas of human heredity were particularly vague and contradictory. The science of genetics—indeed, the word “genetics” itself—had not yet been invented. Gregor Mendel's paper, the foundation of that discipline, was not only unappreciated but generally unnoticed by the scientific community. Nevertheless, it was well known that by careful selection farmers and flower fanciers could obtain permanent breeds of plants and animals strong in particular characters. “Could not the race of men be similarly improved?” Galton wondered. “Could not the undesirables be got rid of and the desirables multiplied?”¹ Could not man actually take charge of his own evolution?

Galton first published his eugenic ideas in 1865—well before he coined the word itself—in a two-part article for *Macmillan's Magazine* which he subsequently expanded into a book, *Hereditary Genius*, published in 1869.² The line of attack was to investigate the origins of “natural ability.” By this phrase Galton meant “those qualifications of intellect and disposition which . . . lead to reputation”—not the reputation enjoyed by “the lion of a London season” but that commanded by “a leader of opinion . . . an originator.”³ The definition conveniently permitted Galton to take as an index of natural ability the appearance in such handbooks of eminence as *Dictionary of Men of the Time*. From these biographical encyclopedias Galton drew a sample population, spanning two centuries, of distinguished jurists, statesmen, military commanders, scientists, poets, painters, and

musicians. He found that a disproportionately large fraction of them were blood relatives. Families of reputation, he concluded, were much more likely than ordinary families to produce offspring of ability. In Galton's striking claim, heredity governed not only physical features but also talent and character.⁴

That conviction made Galton confident that it would be "quite practicable to produce a highly gifted race of men by judicious marriages during several consecutive generations."⁵ Quite necessary, too, since in Galton's opinion, the complexity of modern English life required more brains than even the statesmen or philosophers of the day possessed. In the article for *Macmillan's* he suggested that the state sponsor competitive examinations in hereditary merit, celebrate the blushing winners in public ceremony, foster wedded unions among them at Westminster Abbey, and encourage by postnatal grants the spawning of numerous eugenically golden offspring. (Some years later, he would urge that the state rank people by ability and authorize more children to the higher- than to the lower-ranking unions.) The unworthy, Galton hoped, would be comfortably segregated in monasteries and convents, where they would be unable to propagate their kind.⁶

Galton's hereditary analysis proceeded from the premise that reputation—especially the kind that earned a place in a dictionary of eminence—truly indicated ability, that the lack of it just as reliably bespoke the absence of ability, that neither outcome depended upon social circumstance. In defense of the premise, he insisted that high reputation could not be won by social advantage alone. Men of moderate ability descended from the peerage might become "influential members of Parliament and local notabilities," but at death they received "no Westminster Abbey and no public mourning." Similarly, he claimed that talent was rarely impaired by social disadvantage: witness the men of achievement who came from humble families; indeed, witness the effect of the removal of social disadvantage in the New World. "Culture is far more widely spread in America than with us, and the education of their middle and lower classes far more advanced; but, for all that, America most certainly does not beat us in first-class works of literature, philosophy, or art," he wrote. "If the hindrances to the rise of genius were removed from English society as completely as they have been removed from that of America, we should not become materially richer in highly eminent men."⁷

Galton's defense of reputation as an index of ability was seriously flawed. He brushed aside the idea that without social advantage professional men of moderate ability might not have got as far as they did, or that without social hindrance those of high ability might have traveled a good deal farther. Had he been more acute about the cultural incentives of

behavior, he might have recognized that in America untold talent had been drawn away from “literature, philosophy, or art” into the forming of a nation and the conquest of a continent. And had he been more self-aware he might have understood that his proto-eugenic pronouncements celebrated the social milieu—and met the psychic needs—of Francis Galton.

GALTON WAS BORN in 1822, the same year as Gregor Mendel, into a Birmingham family made rich originally by gun manufacture and in his father's day by banking. His father, Samuel Tertius Galton, was a Quaker when he married Violetta Darwin, a daughter of the famed physician, naturalist, and freethinker Erasmus Darwin. He remained a stern Quaker spirit even though he became a convert to the Anglican Church—a step he took at his wife's plea following the death of one of their children. A devotional religiousness pervaded the Galton household, but Francis remembered his mother, at least, as “joyous and unconventional.” His adoring sister Adèle, twelve years his senior and confined to a couch by curvature of the spine, doted on Francis, the youngest of seven children, and taught herself enough to administer his lessons until he went away to school. At two and a half, Galton could read; at four, he could write and do arithmetic; at eight, he was comfortable with classical Latin texts.⁸

The Galton family invested considerable hopes in Francis's intellectual future. Like other British families caught up in the industrial revolution, the Galtons had been following a social trajectory that led from manufacturing and trade to the higher respectability that could be either bought, married, or won by entering an esteemed profession. Francis's two older brothers displayed no ambition beyond lives of ease among the local landed gentry. His parents wished their youngest son to attain Erasmus Darwin's medical eminence. Besides, Francis had been raised an Anglican, and so was eligible for entry to England's leading universities, which were still restricted to members of the Church of England. At age four, Francis, who recognized quickly what was expected of him, announced that he was saving his pennies “to buy honours at the University.”⁹

Galton compiled an outstanding record in his initial year at King's College Medical School, in London, but he hated the study of medicine and was beset by constant headaches. In 1840, he matriculated at Cambridge University to read mathematics.¹⁰ He tried hard for an honors degree until, in his third year, he suffered a nervous breakdown. “It would have been madness to continue the kind of studious life that I had been leading,” he recalled in his autobiography, *Memories of My Life*. “I had been much too zealous.” Recovered after a term's rest, Galton contented himself with a pass degree and returned unenthusiastically to his medical studies. Then,

in 1844, the death of his father and a large inheritance freed him from honors competitions and most other obligations.¹¹

In 1845, the estate having been settled, Galton took himself to Egypt, where with two friends he sailed up the Nile, lazing the days away half dressed and barefoot. The party went ashore above the first cataract and there met a Frenchman named Arnaud, an exiled Saint-Simonian who had become a bey in the service of the potentate Mehemet Ali. Years later, Galton remembered the bey's modest mud hut, "perfectly simple, clean, matted, with a barometer and thermometer hung up and other scientific gear, books, etc., like a native philosopher."

"Why do you follow the English routine of just going to the second cataract and returning?" Arnaud asked. "Cross the desert and go to Khartoum."¹²

Galton and his party crossed the Bishari Desert on camelback in eight days, rejoining the Nile at Abu Hamed; they rode along its banks to Berber, then hired a boat that took them to Khartoum. After Khartoum, Galton made his way to Beirut, ultimately to Jerusalem, and in between to Salihieh, near Damascus, where he learned to speak Arabic fluently and established a household that included two Sudan monkeys and a mongoose. Returning to England in the fall of 1846, he divided his time between London society and sporting in Scotland.¹³ But he was unable to remain at ease with such a life. In his late twenties, brooding and dispirited, Galton consulted the London Phrenological Institution. The chief phrenologist reported that men of his head type—his skull measured twenty-two inches around—possessed a sanguine temperament, with considerable "self-will, self-regard, and no small share of obstinacy," and that "there is much enduring power in such a mind as this—much that qualifies a man for 'roughing it' in colonising." The report added, "The intellectual capacities are not distinguished by much spontaneous activity in relation to scholastic affairs."¹⁴

Galton did indeed relish travel to colonial outposts, and Arnaud Bey had exemplified the joining of foreign adventure with scientific study. In 1850, at his own expense but under the auspices of the Royal Geographical Society, Galton explored southern Africa, which was at the time largely unknown to Europeans and was inhabited by the warring Damara and Namaqua peoples. He traversed some seventeen hundred miles of the interior, to the east and northeast of Walvis Bay. He confronted the unruly Namaquan chief (wearing a pink hunting coat, Galton rode an ox directly into his doorway), negotiated a measure of British law and order among the Damara and Namaqua, and established peaceful relations with the Ovampo, to the north. He returned to England in 1852 with numerous determinations of latitude and longitude from the hitherto unmapped region. The Royal Geographical Society awarded him a gold medal, and the Royal Society