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OF

CHARLES BENEDICT DAVENPORT

1866–1944

BY

OSCAR RIDDLE

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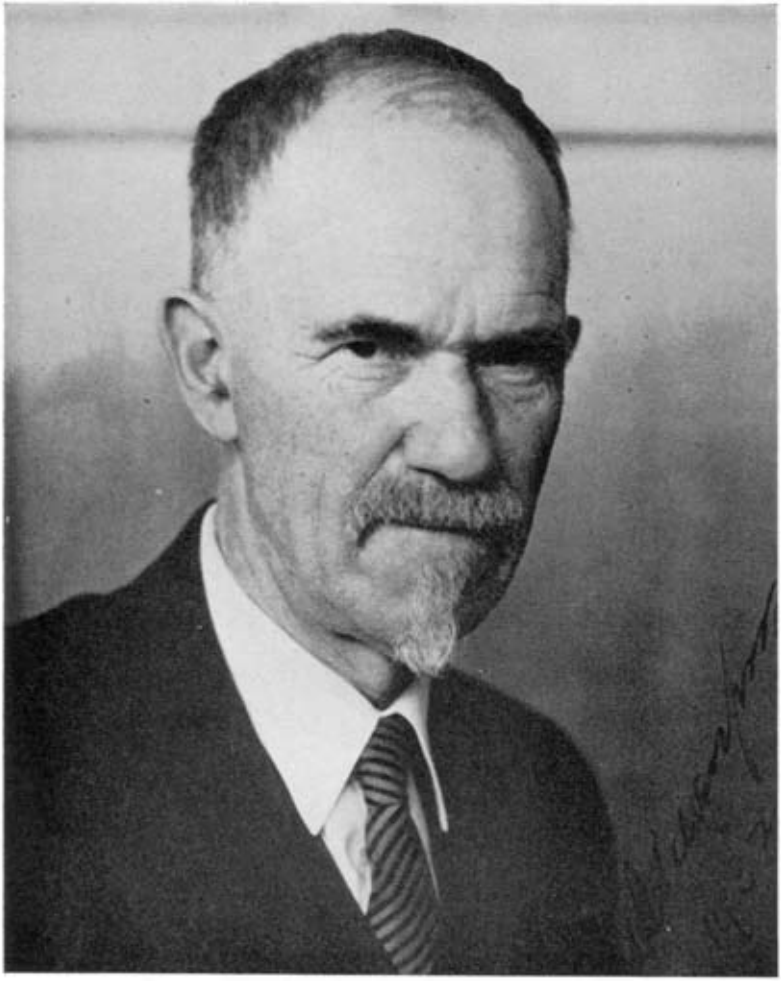

Arch B. Thompson

CHARLES BENEDICT DAVENPORT [1]

1866–1944

BY OSCAR RIDDLE

Charles Benedict Davenport, distinguished zoologist, geneticist and eugenist, was born on his father's farm near Stamford, Conn., on June 1, 1866. This farm, during six months of spring and summer, was occupied by the Davenport family although their more permanent home and the father's business were located in Brooklyn.

The father, Amzi Benedict Davenport, was of Puritan stock. He published in two editions (1850 and 1876) an elaborate genealogy of the Davenport family that went back continuously to 1086. Amzi grew up as a farmer's boy at the home near Stamford, but before he was 20 he became a school teacher and established a private academy in Brooklyn in which he taught for 16 years. In 1853 he set up a real estate office, dealt in insurance and managed estates, acquiring a high reputation for honesty and reliability. He married twice and was the father of eleven children. He was deeply religious in the Puritan manner, and his attitude toward his children was exceptionally harsh and unyielding. Though very energetic, with a brisk walk, he was nervous, astigmatic, partially color blind and, from 1880 to his death from pneumonia (following breaking of leg) in 1894, had chronic rheumatism or arthritis.

The mother, Jane Joralemon Dimon, was of English-Dutch-Italian ancestry. She held liberal religious views, was interested in natural history, and extended warm affection and encouragement to collegiate education to her children. Her father, John Dimon, a farmer's son and carpenter from East Hampton, Long Island, became an active citizen of Brooklyn, where he served as Commissioner of the Alms House and, for several years, as Alderman. Her maternal grandfather, Teunis Jorale-

[1] The biography published by MacDowell has been drawn upon freely in the preparation of the present Memoir: Charles Benedict Davenport, A study of conflicting influences, by E. Carleton MacDowell, *Bios*, vol. 17, No. 1, 1946.

mon, son of a Dutch farmer in New Jersey, acquired a farm on Brooklyn Heights and became village trustee, and later a judge, in Brooklyn. He accumulated a considerable fortune, parts of which gave financial independence to his grandaughter. Charles was the eighth child and last son of Amzi and Jane. An older brother, William Edwards Davenport, became an ordained minister and social worker in Brooklyn. A younger sister, Frances Gardiner Davenport, attained success in historical research.

The early education and youth of Charles transpired under conditions which, at the time, were quite unusual in America. Except for the winter of 1874-1875 he did not attend school until near the age of fourteen, but was taught by his father, for whom, it appears, he concurrently performed endless chores at the real estate office and on the farm. Besides writing other things Charles early wrote a diary from which we learn that in winter he was office boy and janitor of the office, which he opened, swept and dusted every morning; there he did errands to change "For Rent" signs, frequently collected rent bills, went to the tax office, and studied his lessons.

During two years, we are told, these lessons consisted of "doing sums and stuiding Smith's Grammer." The father secured these services for 25 cents per week and, of course, the lessons he gave when he had time. Frequently this was in the evening while he clipped papers. If Charles failed he had to go to bed at once. The same penalty was paid for not knowing his Sunday School lesson, which was heard by Amzi even more regularly than other lessons. At home Charles was handyman, blacking his father's boots, carrying coal and ashes, and shovelling snow. He was stable boy also when the carriage horse was in town. He had often accomplished much before he reached the office about 8:00 A. M. His diary states: "O! I want to go to school. I hate to be in the office—that Prison House, as I call it." His first eighteen summers were spent on his father's farm. He early became a regular farm hand, tended stock, worked in the fields, and drove to and from the station with his father, who made frequent trips to Brooklyn.

Although busy with farm work his lessons were continued, and these summers gave splendid opportunity to watch bird migrations, collect insects, and profit by his mother's knowledge of natural history. Thus was established the interest that determined his life work.

When nearly fourteen (November 26, 1879) Charles was permitted to attend school. He then entered the Brooklyn Polytechnic Institute, where his previous isolation and early responsibilities marked him with premature seriousness and independence. To the end of his days he was to remain essentially a lone man, living a life of his own in the midst of others, and feeling somewhat out of place in almost any crowd. Spontaneous or organized group games or athletics seem to have been unknown to him at any age. His informal preparation was, for a time, a handicap at the Polytechnic, but this seems to have intensified the spirit of competition called out by contact with his equals. He excelled in history, mathematics, composition and the small offerings in natural history. After four years, corresponding to the end of high school, he was at the head of his class and gave the commencement oration. Charles continued his work, largely in civil engineering, at the Polytechnic Institute, from which he received the B.S. degree in 1886.

From an early age Charles was a writer and organizer or participant in informal, juvenile groups interested in natural history. At about 9 or 10 years he was secretary of such a society (Excelsior) which maintained a museum in a room on the top floor of his grandfather's house, and when 11 to 13 years old he edited "The Twinkling Star," an amateur monthly. Later (1881) he was vice-president of a short-lived Brooklyn Chapter of the Agassiz Association. Throughout his last year in the Institute, Charles was editor-in-chief of the full-fledged school monthly, *The Polytechnic*. During the summer of his eighteenth birthday he spent two months as field reporter on the *White Mountain Echo,* of Bethlehem, N. H. At this and even somewhat later periods his requests or discussions of personal matters with his father usually assumed the form of long, or quite long, letters. Replies often assumed the same form, though

father and son continued to spend considerable time in the same office.

For nine months (1886-1887) following his graduation Charles was joined, as a rodman, to a group in northern Michigan engaged in a survey of the Duluth, South Shore and Atlantic Railroad. The latter half of this period was also utilized to acquire sufficient Latin to provide admission to Harvard. His classmate and close friend, Herbert H. Field, later founder of the Concilium Bibliographicum in Zürich, had taken the liberal arts course at the Polytechnic and was thus prepared to enter Harvard the previous autumn. Field strongly urged Charles to come to Harvard. These conditions and events led Charles to break from engineering, and indeed from the domination of his father, and try for college, a goal for which his training had not fully prepared him.

With his mother's backing, tutoring, and a job in the Division of Water Work, Massachusetts State Board of Health, he obtained funds for the first frugal student years. Later the university provided various offices, culminating in an instructorship (1893-1899). He received an A.B. from Harvard in 1889 and a Ph.D. in 1892. Here Charles, as student, responded by an enduring devotion to his inspiring teacher, Prof. E. L. Mark. As instructor, he taught both undergraduate and graduate courses, the latter with notable success; and he investigated zealously and wrote prolifically. During the ten years, 1890-1899, he wrote twenty-five scientific papers and four books. The two volumes (1897, 1899) on "Experimental Morphology" served to stimulate the movement, already in progress in Europe and America, to apply experimental methods to zoological and embryological materials. His first book (1893), on "Graduate Courses—a Handbook for Graduate Courses," was probably of temporary and local interest only; its size and place of publication are unknown to the present writer. "Statistical Methods With Special Reference to Biological Variation" (1899) was the first book to bring the newer investigations of Karl Pearson to popular attention in the United States.

Davenport gave certain courses in the "Annex," later called

Radcliffe College. Here he met Gertrude Crotty, a graduate student who had been an instructor in zoology at the University of Kansas. They were married on June 23, 1894. After the infancy of their two daughters she took, during several years, an active part in his work and was co-author of several papers. Following their marriage she, and she alone, was Davenport's confidante and chief counselor. The mother of a growing family was keenly aware of the advantages of a growing income which the prolonged instructorship at Harvard did not provide. Week by week during these years she turned to the death notices in *Science* to learn of a position that might be open. Davenport became, and remained, highly conscious of the value of money and devoted to a good bargain. Advancement came with his appointment as Director of the Summer School of the Biological Laboratory of the Brooklyn Institute of Arts and Sciences, Cold Spring Harbor (1898-1923). In September of the following year (1899) he accepted an assistant professorship at the University of Chicago where he was promoted to an associate professorship in 1901. In 1904 he resigned the Chicago post and became Director of Carnegie Institution's newly established Station for Experimental Evolution (called Department of Genetics after 1921) at Cold Spring Harbor, N. Y.

During the later years at Harvard, Davenport published several researches with his students as co-authors: acclimatization to high temperatures (with W. E. Castle) and to poisonous chemicals (with H. V. Neal); heliotaxis (with W. B. Cannon); geotaxis (with H. Perkins); phototaxis (with F. T. Lewis) and comparative variability (with C. Bullard). Just prior to going to Chicago he wrote (1899) that by using modern quantitative methods as the key to the relation between specific form and geographical distribution, he hoped to throw light on the origin of species out-of-doors. Such studies, however, led almost inevitably to ecology. Though Davenport published only one strictly ecological paper, "The Animal Ecology of the Cold Spring Harbor Sand Spit," his interest and influence were so effective at that time that animal ecologists regard him as one

of their pioneers. Among his students at Chicago were C. C. Adams and V. E. Shelford. In this effort at Chicago, Davenport had the active support and cooperation of Whitman and Coulter. It was at Chicago, moreover, where plans had long been developing for a new kind of institution—a biological farm, equipped to carry on prolonged and uninterrupted studies of heredity, variation and related subjects. Prof. Charles O. Whitman of that University and director of the Marine Biological Laboratory at Woods Hole since its beginning, presented plans in detail before a meeting of the American Naturalists in December 1897, and emphasized the many mutual advantages that would result from its location near the Marine Biological Laboratory at Woods Hole. At this same meeting Davenport also spoke of the needs of a farm, or zoological preserve, for the study of phylogenetic problems.

Immediately succeeding events have been well described by MacDowell:

"Whitman knew very well Davenport's interest in evolution and, before the end of the first season at Cold Spring Harbor (1898), Davenport was tendered an invitation to take charge of the department of beginning investigation at Woods Hole the next year. This was declined on the basis of 'the inexpensiveness and pleasures of the Cold Spring Harbor summer'; his 'mercenary motives,' he wrote. Cooperation, even on a national scale, had no attraction for the man who was having his first experience as first in command. Whitman, however, persisted; if not Woods Hole, then an assistant professorship in his department at Chicago. The offer was received in September 1899 and was accepted. And so Davenport was brought into intimate contact with the most active discussion in the country of plans for a new institution to study evolution. To be sure, the details were all fitted to Woods Hole.

"Cold Spring Harbor, however, had a summer school and highly varied habitats and the proximity to New York might weigh heavily against Woods Hole's greater isolation. Moreover, at the end of 1901, the future of the Laboratory at Cold Spring Harbor was uncertain. There was talk of transferring its control from the Brooklyn Institute of Arts and Sciences to Columbia University, with an inevitable change of director. If the Brooklyn Institute should expand the Laboratory by the establishment of a permanent resident staff to study evolution,

this change could be forestalled. The associate professorship was an advance in status, but financially it was still inadequate. The Directorship of a new laboratory would mean a real advance and give tremendous opportunities to organize and map plans; no more classes or university routines, no more worry about recognition or advancement; to do as he pleased and shoot ahead as fast as he desired—nothing could be more alluring.

"The Carnegie Institution of Washington was incorporated on January 4, 1902. Davenport's first communication to this Institution was dated January 16, 1902, and was delivered by hand to the secretary, Dr. Charles D. Walcott, by Mr. Charles L. Hutchinson, vice-president of the Corn Exchange Bank of Chicago, who went to Washington to attend the first meeting of the Institution's Board of Trustees. This was the opening move of a two-year campaign whose final success gave Davenport a position of extraordinary influence and power, and gave his name a lasting place in the history of science.

"That there was such a campaign may seem surprising, but the lengths to which it was carried would be unimaginable without the original documents in the archives of the Carnegie Institution, in Washington. For once, the major influences and urges of his life worked in the same direction and their unified pressure became excessive. Davenport's procedures in this critical period have the greatest importance for an understanding of the man. The pressure was possibly never again so great; but on subsequent occasions, though less well documented, it is possible to recognize repeated use of the methods seemingly approved by success. In the present period the incandescence of his enthusiasm distorted his judgment and permitted exaggeration that bordered closely upon misrepresentation.

"The application was repeatedly submitted to the Institution in different restatements; the financial requirements were progressively reduced, as by the Biological Laboratory's offer of free land and, finally, by Davenport's proposal to raise funds for a building from other sources. One of these applications, dated May 5, 1902, was sent directly to the Carnegie Trustees and published in the first year book of the Institution."

The Davenports spent four months in Europe in the autumn of 1902 collecting *Pecten* shells for statistical studies of geographical variation, and visiting many marine laboratories from Bergen to Naples. It was on their return to Chicago at the end of that year that the writer first met them. Though I took no courses with Davenport, I could speak with him, first of all, of

his earlier letters requesting me to collect *Pecten* for him in Puerto Rico, and saw him often at the weekly departmental "Seminars." Twelve years later I became a member of the staff which he brought together at the Department of Experimental Evolution. This association lasted 20 years; and thereafter, during 10 years of his retirement, we were neighbors and associates. Davenport's letters to the Carnegie Institution continued in volume until October 1903, when he got unofficial word of his prospective appointment as director of a Station for Experimental Evolution to be formed by Carnegie Institution at Cold Spring Harbor. The official appointment was made on January 19, 1904, when Davenport was already in Cold Spring Harbor. Of this period MacDowell writes:

"The position was secure, but the program was as ill-defined as it had always been, and as it was to remain. The issues of the campaign had been geographic and personal; the specific experiments that were to solve the problems of evolution had been subordinated as relatively unimportant details. Varying lists of experiments had been proposed, but the differences in the successive lists did not represent progressive critical thought. So a laboratory was established with a staff and a building—but without a well-planned program. In March, the director wrote, 'I have little notion of just what we shall do. We shall reconnoiter the first year. . . . My own work will be largely a reconnaissance of capacity for maintaining, breeding and crossing wild animals in captivity and also the study of the behavior of unit characters in hybridization of domestic races of birds.' . . .

"In the early years of the new laboratory, Davenport personally undertook breeding experiments with snails, mice, house flies, moths, sow bugs, trout and cats; but publishable results were not obtained, owing, in most cases, to difficulties with breeding techniques. Canaries and chickens, however, did breed and provided the basis for four beautifully illustrated publications. These, with a series of papers with E. G. Ritzman on sheep, constitute his major experimental contributions to genetics. There were, besides, a large number of brief notes, annual reports, reviews and addresses on animal genetics. The chicken papers represented a real advance over the quality of the previous work, although the meticulous oriental accuracy of the illustrations, painted by Morita, was missing from the

tables. The canary paper gives shocking evidence of speed too great either for consistent tables or for sound logic. Such speed, with such effects, became habitual."

From 1900 to 1904 Davenport had bred mice of all the basic colors without finding a genetic interpretation; he accordingly concluded that there were unquestionably broader principles of heredity than those discovered by Mendel. He continued to hold this doubting attitude toward Mendelism until the supporting evidence began to appear from all sides and Bateson visited him. But as soon as the general acceptance of Mendelism was apparent, he became a staunch supporter and proceeded to make human applications.

Soon after Davenport's appointment as director of the new laboratory Prof. E. B. Wilson, of Columbia University, was appointed a special adviser of the Carnegie Institution on the organization and work of the laboratories then being established at Cold Spring Harbor and Dry Tortugas. In this capacity Wilson wrote a letter to Davenport suggesting a conference. This letter was curtly dismissed as "interference," and it seems that Wilson made no further attempt to fulfill his mission with respect to this laboratory.

With Gertrude C. Davenport as senior author a series of papers began to appear in 1907 on human heredity—color of eye, skin and hair, and hair form. At this time only one of his four publications on avian genetics had appeared in print. Concerning this shift of his interests Davenport wrote (Annual Report, Carnegie Institution, 1909): "Although not strictly within the scope of experimental work the necessity of applying the new knowledge (laws of heredity) to human affairs has been too evident to permit us to overlook it." Thus began the active interest in eugenics which was soon to terminate his participation in genetic experiments, but which made him the leading exponent of eugenics in America.

In 1910 Davenport succeeded in persuading Mrs. E. H. Harriman to provide funds for the establishment of the Eugenics Record Office at Cold Spring Harbor. Ultimately her donations totaled considerably more than half a million dollars. In 1918

a simplification of administrative matters was brought about by the Carnegie Institution in accepting from Mrs. Harriman the ownership of the Eugenics Record Office. The work of the Record Office was maintained until about 1940, and thereafter abandoned. In the administration of the Eugenics Record Office, Davenport was assisted by Dr. H. H. Laughlin as superintendent until 1921 (when this Office was combined with the Station for Experimental Evolution to form the Department of Genetics) and thereafter as assistant director.

As a zoologist and geneticist Davenport knew, and greatly aided in the dissemination of the doctrine, that the germ cells do not belong to a person in quite the same way as does his hair or his stomach; that the way a person reacts to a given stimulation is determined by the germinal determinants that have fallen to his lot and to the training and experience that have favored or repressed the complete development and fruition of such determinants; that men are genetically unequal; that medicine and philanthropy tend to preserve the biologically unfit; and that race mixture, unselected immigrants, and unequal rates of reproduction in various native groups, all affect the future welfare of our nation. Indeed, such factors are of basic concern to the human race.

The Davenport eugenics creed, in abbreviated form, is given herewith:

"I believe in striving to raise the human race to the highest plane of social organization, of cooperative work and of effective endeavor.

"I believe that I am the trustee of the germ plasm that I carry, that this has been passed on to me through thousands of generations before me; and that I betray the trust if (that germ plasm being good) I so act as to jeopardize it, with its excellent possibilities, or, from motives of personal convenience, to unduly limit offspring.

"I believe that, having made our choice in marriage carefully, we, the married pair, should seek to have 4 to 6 children in order that our carefully selected germ plasm shall be reproduced in adequate degree and that this preferred stock shall not be swamped by that less carefully selected.

"I believe in such a selection of immigrants as shall not tend

to adulterate our national germ plasm with socially unfit traits.

"I believe in repressing my instincts when to follow them would injure the next generation."

The personal characteristics of Davenport, the mature man and investigator, have been made partly apparent in the preceding pages. Earlier and later ventures and accomplishments in his career may be better understood if some further statement is made concerning his personality. Davenport worked with great independence and with intense application. Only about 10 percent of his total of approximately 439 publications (including abstracts, etc.) were written in collaboration with others. G. H. Parker relates that while in the Harvard Laboratory, Davenport wore, as he bent over his microscope, a large eyeshield on which was inscribed "I am deaf, dumb, and blind." This effort to exclude all external disturbance during his work continued during his entire life. He was often writing in his office at 6:00 A. M. He daily took long walks, using a rapid stride; and walks of five, ten, and even fifteen miles were sometimes taken to catch trains, attend meetings, or do errands. Throughout life he maintained a boyish eagerness and enthusiasm. Though lean and nearly six feet tall he showed little or no evidence of the dyspepsia which, in some degree, he had throughout most of his life. He was practically devoid of manual skill, except at drawing (illustration of his own early scientific papers). He was shy, and as MacDowell concludes, consciously or unconsciously contended against marks left by his boyhood repression and sense of inferiority. He had an insistent urge to write, and some of his scientific work suffered from being written before it was properly prepared and digested. He freely and effectively gave of his time to young biologists who sought his aid. He did not seek, nor often accept, the advice of distinguished biologists or his staff concerning policies of high importance. At his home he was charming and hospitable, ready to converse on one or more of many things uppermost in his mind on his walks, or on topics of interest to his guests.

Several published criticisms, sometimes severe, of parts of Davenport's work in avian genetics, eugenics and in anthropology

are very difficult to refute. Nevertheless it must be admitted that the feverish and multiform activity which characterized Davenport's life resulted in large gains to the several areas of zoology, biometry, ecology, genetics, eugenics and physical anthropology. This is an impressive reward for a lifetime of unflagging effort. Davenport was unquestionably one of the leaders of biology in his generation; and his generation was one in which biology made phenomenal advances. It is almost certain that this leadership resulted mainly from his abilities as a promoter and organizer and less from his abilities as a scientific investigator. Administrative posts certainly aided him in the attainment of eminence, but from the standpoint of most of his superiors and subordinates he lacked the skills and traits of an administrator. His was an unusual personality, and he was peculiarly unable to estimate or sense the personalities of others. He recorded himself as of "nervous" temperament. In his promotional efforts, even where apparently or temporarily successful, it is probable that science was sometimes ultimately the loser; a lack of balance in Davenport's several abilities markedly limited the magnitude of his total contribution to science. Yet he achieved much more than personal success; he expanded several sides of his many-sided science.

In 1909, and several times later, Davenport again spent several weeks in Europe. At the outbreak of World War I he was attending a meeting of the British Association in Australia; this trip involved short stops at islands of the Pacific where, he noted, the native population stimulated his interest in anthropology. Later trips were made to Yucatan, Jamaica, and parts of Canada, all in pursuit of specific problems in race-crossing, eugenics and anthropology.

Man remained Davenport's subject from 1907 for the rest of his life, excepting a brief return to experimental work in 1925 and 1927 (mouse endocrines).[2] The publication of "Heredity in Relation to Eugenics," in 1911, presented evidence on a wide range of human traits. While this was impressive,

[2] Immediately succeeding statements are taken with little change from MacDowell's biographical study.

its continued usefulness was reduced by its hasty preparation and the lack of critical judgment in lumping together, indiscriminately, cases with ample and with insignificant evidence. The topics of Davenport's special studies were likewise highly diverse. Besides the more familiar subjects of stature, body build and longevity, he investigated goiter, otosclerosis, neurofibromatosis, pellagra, epilepsy, mental disorders, temperament, mental attributes of naval officers, mongoloid dwarfs, twinning, sex-linkage, and race crossing. The implications of eugenics for state, church, medicine, and society in general were discussed wherever he could find a platform and an audience. His scientific background and associations gave him the prestige of an authority in the eyes of those inclined to accept his position on the social and political aspects of eugenics. But the opposition of many, instead of quickening the search for more accurate and convincing evidence, called forth a defensive attitude which led to exaggerated emphasis and dulled objective thinking.

Through the initiative of a Committee on Anthropology of the National Academy of Sciences, Davenport was commissioned (1918) as a major in the Sanitary Corps and assigned to the Surgeon General's Office to summarize the physical records of recruits, with Lt. Col. Albert G. Love, M.D. Working through the greater part of the year in Washington, with frequent visits to Cold Spring Harbor to keep things going, Davenport cooperated in the preparation of four volumes largely filled with tables and graphs showing the frequency of the different conditions and defects recorded and their geographical distribution. This work gave an anthropometrical trend to Davenport's interests that grew and occupied more and more of his time, especially after retirement. By measuring institutionalized children as they grew, notably those at Letchworth Village, N. Y., he collected data for extensive studies on growth curves and changes in proportions accompanying growth. With the hope of creating renewed interest in child development, he published, in 1936, "How We Came By Our Bodies," a popular book of 401 pages and 236 illustrations describing, from the stand-

point of current sciences, the course of development and the role and origin of genes.

At the time the work on army records began, Davenport had been directing simultaneously three institutions at Cold Spring Harbor for a period of eight years. During this time the growing concentration of his interest in eugenics did not prevent the material expansion of all three laboratories. The Eugenics Record Office had acquired a new building; so had the Station for Experimental Evolution, as well as an enlarged staff; the Biological Laboratory gained an endowment fund. The association of the three laboratories seemed to offer great strength; each had its own field and each had much to gain from the others. The one director for all seemed to guarantee effective cooperation. The vision and the goal were excellent, but the requirements for realization were not recognized. To secure support, put up buildings, and engage workers is not enough. There remained the need of fostering the integration of the work of highly individualistic investigators, in itself a biological problem of the highest order of complexity. Further, the successful administration of three adjacent laboratories with differing financial status, and governing boards with different points of view, called for extraordinary scrupulousness, tact, and understanding to avoid pitfalls. Instead of integration within and between the three laboratories, difficulties continually arose that blocked effective cooperation. Davenport gave his time and energy to the limit, but the days were not long enough to satisfy all the claims on his attention; and every move involved a choice, deliberate or not, between competing loyalties—loyalties to different institutions, to staffs, to family, to friends, to innumerable outside interests, to his early training, to his scientific ideals, his ethics, his objectives.

There was no time for, and, indeed, seemed to be little interest in, the deeper general significance of even his own studies. Thus, for the groups of scientists he had assembled he did not provide leadership on a philosophical plane. He did not inspire the mutual confidence on which the most effective operation of a group depends. He was criticised at home and abroad, but he

could not accept criticism objectively. His intolerance of criticism was frankly enough admitted by himself, but in the presence of those who might criticise, he became increasingly silent, constrained, and ill at ease. This applied to many colleagues, and especially to those of his own strong staff at the Station for Experimental Evolution, in whom an insidious atmosphere of apprehension was developed by his practice of saying little and announcing plans by action.

At the urge of Carnegie Institution, Davenport, still partly engaged in the Surgeon General's Office, resigned from the directorship of the Biological Laboratory (1923). This and the earlier consolidation of the other two laboratories at Cold Spring Harbor failed, however, to concentrate Davenport's activities. Following this retirement he accepted even broader responsibilities. At precisely this time the Brooklyn Institute of Arts and Sciences wished to relinquish its control of the Biological Laboratory; and so Davenport planned, solicited memberships and funds, and incorporated the Long Island Biological Association to assume ownership of the laboratory. Officially he was only its secretary, but he remained its leading spirit.

In discharging his duties as director of the Biological Laboratory, Davenport gathered around him each summer a body of enthusiastic young workers whose biological growth was shaped, as noted by G. H. Parker, by his example rather than his precepts. These workers were to him as apprentices to a master. In this way Davenport exerted during twenty-five years a generous and salutary influence over many growing biologists. These new recruits not only became interested in Davenport's field of research, but often added materially to the solution of its problems. In later years he attempted, with slight or partial success, to establish some all-year-round researches in that institution. Still later, and after summer classes had been abandoned, he assisted in arranging for each summer a short conference of specialists on some live biological topic, and for publication of the addresses and discussions in a volume of a now thriving series known as Cold Spring Harbor Symposia on Quantitative Biology.

Fascinated by organization since boyhood, Davenport never stopped organizing. Besides the Long Island Biological Association, he was a founder of the Galton Society, the Aristogenic Association, the Eugenic Research Association, the Tax Payers League, the Cold Spring Harbor Whaling Museum. At Chicago he was involved in an attempt to form a Western Branch of the American Society of Naturalists. Membership in a society usually meant action; it might mean committee work, collection of funds, or reorganization. He held many offices, including the presidency or vice-presidency of ten societies. MacDowell has classified his 64 memberships as follows: natural history (6), zoology (5), genetics (2), eugenics (7), anthropology (5), medicine (5), general science (11, nine being foreign), civic (10, several of these "Tax Payers"), social (5), and miscellaneous (8). Three societies awarded him honorary membership and one an honorary presidency; he was a Gold Medalist (1923) of the National Institute of Social Sciences; he was elected to the National Academy of Sciences in 1912 and to the American Philosophical Society in 1907.

The boy editor never stopped editing. He was on the editorial boards of Biometrika, Journal of Experimental Zoology, Zeitschrift Für Rassenkunde, Zeitschrift Für Menschliche Vererbung Und Konstitutionslehre, Psyche, Journal of Physical Anthropology, Eugenical News (which he started in 1916), Growth, and Human Biology. His projected Archives of Heredity and Variation, and Biological Journal did not appear.

The real estate office boy, as noted by MacDowell, never lost his delight in real estate transactions. He knew procedures; he could write a deed and survey a lot. At Harvard he bought for his family a house and lot that kept him in debt for many years. A lot was bought in Chicago early in 1902; six acres and a house on the shore at Cold Spring Harbor were bought personally in March, 1904, to rent to laboratory personnel and to build apartment houses for them. Next year a 19-acre farm was purchased in Mrs. Davenport's name, and property was later bought in nearby Syosset. The last purchase that Davenport negotiated was a tract of 32 acres for the Biological Laboratory. He so-

licited funds, arranged an exchange of Carnegie Institution property, steered the transaction, and had the property mapped out for a new community of biologists' homes. During the next twelve years only one such home was actually built.

On retirement (1934) a room in the Eugenics Record Office was assigned to Davenport, who became an Associate of the Carnegie Institution, with a grant for the completion of his anthropometrical studies. During his last ten years he wrote forty-seven papers, a book, and the fourth edition of his "Statistical Methods." Three of these papers were published posthumously with the editorial supervision of Dr. Morris Steggerda. He took an active part in civilian defense as an Air Raid Warden of the Nassau County Defense Council, and gave many hours to plane spotting as a Recognized Observer of the Ground Observers Corps of the Army Air Forces. Davenport was survived by his wife, and by his two daughters, Mrs. Millia Crotty Harkavy and Mrs. Jane Joralemon di Tomasi.

During his last years a district school was built across the road from his home. Here he spent much time talking to the classes on many subjects. He would take the children to gather frogs' eggs each spring; they would eat their lunch together by the pond and have a happy time. With them there was no defense and no embarrassment, and here he was content. Those children probably saw more clearly than anyone else the relaxed, unrepressed Charles Davenport, and they adored him.

In January 1944, it was learned that a killer whale had been beached at the eastern end of Long Island, and Davenport determined to secure its skull for the Whaling Museum at Cold Spring Harbor, of which he was Curator and Director. Many difficulties were overcome in moving the head to his home. Instead of using the slow but easy method of maceration in a pond he undertook to boil it, and for a fortnight he labored far into the nights in the intense heat of a cauldron in an open shed, with the bitter winter pressing in from all sides. He caught a cold and still worked on. The job was far from finished, when pneumonia developed. He had asked too much of his great ability to work. He died on February 18, 1944.

KEY TO ABBREVIATIONS IN BIBLIOGRAPHY

Amer. Anthrop. = American Anthropologist
Amer. Breeders' Mag. = American Breeders' Magazine
Amer. Jour. Insanity = American Journal of Insanity
Amer. Jour. Med. Sci. = American Journal of Medical Sciences
Amer. Jour. Men. Def. = American Journal of Mental Deficiency
Amer. Jour. Phys. Anthrop. = American Journal of Physical Anthropology
Amer. Jour. Roent. Rad. Therapy = American Journal of Roentgen Radiation Therapy
Amer. Nat. = American Naturalist
Amer. Statis. Assoc. = American Statistical Association
Anat. Anz. = Anatomischer Anzeiger
Ann. Amer. Acad. Pol. Soc. Sci. = Annals, American Academy of Political and Social Science
Ann. Rev. Physiol. = Annual Review of Physiology
Anthrop. Anz. = Anthropologischer Anzeiger
Arch. f. Ent. Mech. = Archiv für Entwickelungsmechanik
Arch. Internal Med. = Archives of Internal Medicine
Arch. Neurol. Psych. = Archives of Neurology and Psychiatry
Arch. f. Rass.-und Gesellschaftsbiologie = Archiv für Rassen und Gesellschaftsbiologie
Arch. Surg. = Archives of Surgery
Assoc. Res. Nerv. Mental Dis. = Association for Research in Nervous and Mental Diseases
Biog. Mem. Nat. Acad. Sci. = Biographical Memoirs, National Academy of Sciences
Biol. Bull. = Biological Bulletin
Bull. Amer. Acad. Med. = Bulletin, American Academy of Medicine
Bull. Brooklyn Inst. Arts Sci. = Bulletin, Brooklyn Institute of Arts and Sciences
Bull. Mus. Comp. Zool. = Bulletin, Museum of Comparative Zoology
Carnegie Inst. Wash. Pub. = Carnegie Institution of Washington, Publication
Carnegie Inst. Wash. Year Book = Carnegie Institution of Washington Year Book
Contrib. Embryol. = Contributions to Embryology
Educ. Rev. = Educational Review
Eugenics Res. Assoc. = Eugenics Research Association
Harvard Grad. Mag. = Harvard Graduate Magazine
Human Biol. = Human Biology
Internat. Rev. d. ges. Hydrobiol. u. Hydrogr. = International Revue des gesampte Hydrobiologie und Hydrographie

Jahrb. f. wissen. und praktische Tierzucht = Jahrbuch für wissenschaftliche und praktische Tierzucht
Jour. Agric. Res. = Journal of Agricultural Research
Jour. Amer. Med. Assoc. = Journal of the American Medical Association
Jour. Applied Psychol.= Journal of Applied Psychology
Jour. Dental Res. = Journal of Dental Research
Jour. Exper. Zool. = Journal of Experimental Zoology
Jour. Gen. Physiol. = Journal of General Physiology
Jour. Hered. = Journal of Heredity
Jour. Mam. = Journal of Mammalogy
Jour. Morph. = Journal of Morphology
Jour. Nat. Inst. Soc. Sci. = Journal of the National Institute of Social Sciences
Jour. Nerv. Mental Dis. = Journal of Nervous and Mental Disease
Jour. Physiol. = Journal of Physiology
Jour. Wash. Acad. Sci. = Journal of the Washington Academy of Sciences
Med. Rec. = Medical Record
Mem. Nat. Acad. Sci. = Memoirs, National Academy of Sciences
Nat. Educ. Assoc. U. S. = National Educational Association of the United States
Nat. Hist. = Natural History
N. H. Agric. Exper. Sta. Tech. Bull. = New Hampshire Agricultural Experiment Station, Technical Bulletin
N. Y. Med. Jour. = New York Medical Journal
Pop. Sci. Mo. = Popular Science Monthly
Proc. Amer. Acad. Arts Sci. = Proceedings of the American Academy of Arts and Sciences
Proc. Amer. Breeders' Assoc. = Proceedings of the American Breeders' Association
Proc. Amer. Phil. Soc. = Proceedings of the American Philosophical Society
Proc. Assoc. Res. Nerv. Mental Dis. = Proceedings of the Association for research in Nervous and Mental Diseases
Proc. Boston Soc. Nat. Hist. = Proceedings of the Boston Society of Natural History
Proc. Nat. Acad. Sci. = Proceedings of the National Academy of Sciences
Proc. Soc. Exper. Biol. Med. = Proceedings of the Society for Experimental Biology and Medicine
Proc. U. S. Nat. Mus. = Proceedings of the United States National Museum
Proc. Wash. Acad. Sci. = Proceedings of the Washington Academy of Sciences
Psych. Bull. = Psychiatric Bulletin
Psychol. Bull. = Psychological Bulletin

Rep. Amer. Breeders' Assoc. = Reports of the American Breeders' Association
Roy. Hort. Soc. = Royal Horticultural Society
Sci. Amer. = Scientific American
Sci. Mo. = Scientific Monthly
Zeitschr. f. induk. Abstammungs u. Vererbungslehre = Zeitschrift für induktiv Abstammungs und Vererbungslehre
Zeitschr. f. Morph. u. Anthrop. = Zeitschrift für Morphologie und Anthropologie
Zoöl. Anz. = Zoölogische Anzeiger

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