NATIONAL ACADEMY OF SCIENCES
OF THE UNITED STATES OF AMERICA
BIOGRAPHICAL MEMOIRS
VOLUME XXIV—FIFTH MEMOIR

BIOGRAPHICAL MEMOIR

OF

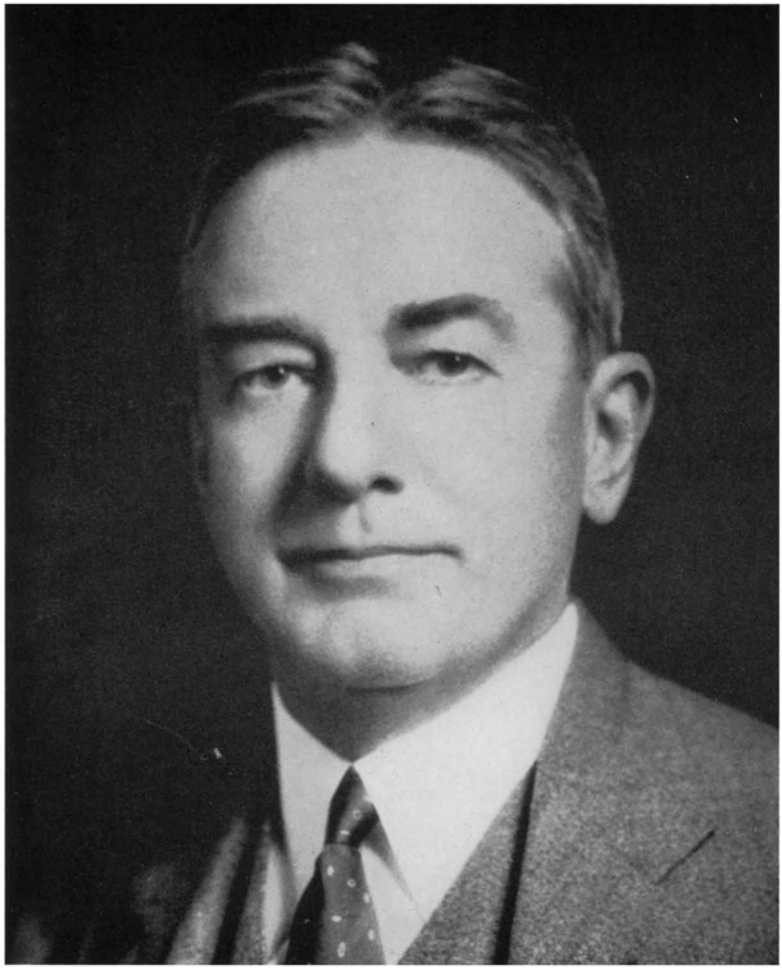
DOUGLAS WILSON JOHNSON

1878-1944

BY

WALTER H. BUCHER

PRESENTED TO THE ACADEMY AT THE ANNUAL MEETING, 1946



Douglas Johnson

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Family Background

Douglas Wilson Johnson was born into a thoroughly American family and environment not far from what was at the time the population center of the United States. His branch of the Johnson family had come to the New World not later than the beginning of the 18th Century. His great-great-grandfather, Abraham Johnson, had moved in 1750 from Essex County, New Jersey, to Patterson Creek on the Potomac, below Cumberland, Maryland, on the Virginia side (now West Virginia). Thence his grandfather, William Johnson, crossed the Alleghenies and took a homestead in the Ohio Valley at a place bearing the telling name "Long Reach," some thirty miles above Parkersburg, Virginia (now West Virginia). He cleared the land with the help of slaves, developed a farm, and bred cattle. He married twice, and reared thirteen sons and two daughters (four of nineteen children born to him died in infancy). He was a man of rigid standards of right and justice, and he was intensely religious. This made him a stern disciplinarian on the one hand, and on the other made him free his slaves and pay their way back to Liberia when he became convinced that slavery was wrong. He maintained a school at his homestead for his own children and those of the neighbors who wished to attend. Getting a good teacher was always more important than getting a good price for his cattle. The financial support of the country church devolved mainly on him, and often the preacher was also the teacher in his school.

The five sons from his first marriage and two from the second

[1] The materials presented in these pages were derived largely from the biographical record which Professor Johnson had filed with the National Academy of Sciences and from records made available by the Department of Geology of Columbia University. The writer is deeply indebted to Professor Johnson's sister, Mrs. Edward H. Reisner, who gave the writer a vivid picture of the family background and her brother's formative years. To Dr. Frank J. Wright, the writer owes special thanks for making available to him in manuscript form his comprehensive memorial to Douglas Johnson which has now appeared in print (Proceedings Volume of the Geol. Soc. of America, Annual Report for 1944, May 1945, pp. 223-239). An intimate portrait of Douglas Johnson from the subtle pen of Professor Armin K. Lobeck, helped round out the picture of the man whom the writer had known well only in his last years. (Annals Assoc. American Geogr., Vol. 34, 1944, pp. 216-22.)

became farmers; of the others, four turned to law, one ran a village store, and one entered the ministry. The latter, Thomas Carskadon Johnson, was for many years the leading Baptist clergyman in West Virginia, pastor of the First Baptist Church at Charleston, W. Va. The most prominent of those who made law their profession were Okey Johnson, Chief Justice of the West Virginia Supreme Court and later dean of the Law School of the West Virginia State University, and David Johnson of Parkersburg, West Virginia. The youngest of the sons who turned to farming, Daniel Dye Johnson had also studied law. He did much to foster scientific agriculture in his state and eventually helped to establish a department of agriculture at the University of West Virginia.

Douglas Johnson's father, Isaac Hollenback Johnson, was born in 1838, at Long Reach, Tyler Co., Virginia (now West Virginia). He worked on his father's farm as a boy, graduated from Marietta College, kept a country store for a few years, and then turned to law. But by that time an early interest in prohibition had risen in him to the flame of the reformer's zeal. He soon gave up his law practice to become one of the pioneers of prohibition, that most American of social experiments. His efforts led to the introduction of the first local option in West Virginia. He threw his whole energy and every cent he owned into the stubborn fight for the cause and especially into the maintenance of "The Freeman," the paper of which he was editor and part owner. Incessant financial and other worries undermined his strength. He went to South Dakota to regain his health, contracted pneumonia and died in 1891, at the age of 53.

Throughout this harrowing struggle, Isaac Johnson had the whole-hearted and able support of his gifted wife, Jane Amanda Wilson. Her maternal grandfather, Judge Israel B. Grant of Calloway County, Missouri, had been county judge and for a time member of the State Legislature. She had been educated in the Ladies' Seminary at Liberty, Mo., and had early shown talent for speaking and writing. Married at the age of 21 she shared the development of her husband into a crusader. With a

facile pen she contributed liberally to his paper. She worked untiringly as speaker and organizer for the Women's Christian Temperance Union. As chairman of that organization in the state of West Virginia, repeatedly re-elected, she showed great executive and parliamentarian skill. She was an ardent advocate of women's suffrage and took active part in all political affairs and church work.

She was highly intellectual, reading incessantly to keep informed on the problems of the day. She was, for instance, one of the first persons in her community to own a copy of Darwin's "Origin of Species," passing it about to her friends.

Jane Amanda Wilson Johnson bore six children of whom two died in early childhood. When her husband died, Sam was 23, Douglas 12, Elizabeth 9, and Ellen 7 years old. With the aid of her oldest son, Mrs. Johnson continued her life's work, ruling her children with a stern hand. At last her health declined. She had been an invalid from asthma for two decades, but tuberculosis set in at the age of 55, and she died in New Mexico, where she had sought recovery.

Formative Years

Into this home, rich with intellectual and reformative zeal, with writing, printing and speech making, and strained by incessant political and financial struggles, Douglas Johnson was born on November 30, 1878, at Parkersburg, W. Va. He was a frail, timid, shy child, often ill. He was an easy target for bullies when he entered school, until his older brother Sam spurred him to disregard mother's advice and fight back. He did so, though paralyzed with fear, and won victory and self-respect.

Initiative, creative urge, ambition, and imaginative power showed early in his life. Even as a young boy, when playing with his sisters and friends, Douglas took charge of planning and directing games. He delighted in creating occasions at which he would function as master of ceremonies. At the age of ten he would write out elaborate speeches and detailed pro-

grams for such occasions.[2] When twelve years old, he announced his intention to write a New Testament "in language that people can understand."

In school at Parkersburg, W. Va., he won the Prager prize three years in succession, the largest number of times its terms permitted it to be awarded to the same pupil.

As a boy, Johnson never took any interest in making collections of any kind. In later years, he did not even remember the large collection of Indian relics which his older brother Sam had made and later had given to the University of Arizona. Douglas' interest centered in declamation, oratorical contests, literary societies. He showed no scientific inclinations.

His mother had early realized that Douglas would have to make his living with his brain, and would, of course, go to college.[3]

In 1896, eighteen years old, Douglas went to Granville, Ohio, to enter Denison University as a student. During the two years he spent in that charming little college town he boarded in the home of a Baptist preacher, the Rev. Frank Adkins, a friend and college mate of his father's. Soon he found himself in love with Alice, the daughter of his host, a highly intelligent and sensitive girl who faced a life of blindness, her eyesight failing rapidly. With characteristic idealism and determination, Douglas wooed her and became engaged to her, a year after his arrival at Granville, undeterred by her affliction and by danger signs in his own health.

Fearing tuberculosis, Douglas transferred to the territorial University of New Mexico, at Albuquerque. Four years earlier, Professor Clarence Luther Herrick, one of the most beloved of

[2] For example; For the formal installation of a new toy elephant in place of one that had gone to pieces, he wrote out a program entitled, "Coronation of Prince Jumbo, *heir apparent to the throne of King Jumbo and Princess Georgiana.*" As *coronation* hymn, he used a Sunday School song: "My father is rich in houses and lands, he holdeth the wealth of the world in his hands."

[3] Young Douglas earned money where he could. Between his fourteenth and seventeenth year he helped his brother Sam in his job-printing office in the evenings. (Sam was mother's right hand after the father's death.) During the summer, Douglas helped on his uncle's farm. In the summer after his graduation from high school, he earned the money for his first year in college by selling "Doctor Chase's Receipt Book" in country districts, and teaching in a country school (for five months). After he had thus shown his mettle, his mother's cousin paid his college expenses as "loans." Secretly he tore up the notes.

Denison's teachers, had gone to New Mexico and had since become president of the University. He took a special interest in the newly arrived Denison student and gave him the opportunity of becoming his assistant in geological field work during the summer months.

This association became crucial in Douglas' life. He had accepted the work primarily because it gave him the opportunity of living outdoors. But through it he came into close contact with a man who was famous for "his rare power of influencing young men." Professor Herrick set before this impressionable, idealistic, and ambitious young man an eloquent example of selfless devotion to natural science, a philosophic approach to scientific problems, conspicuous mental independence, and reckless industry and ceaseless drive. He turned the young man who seemed headed for a public and literary career, into a man of science and set for him the pattern that dominated his whole life. Fifty years later Johnson spoke with gratitude of the impact of this great teacher on his development.

In 1901, Douglas graduated from the University of New Mexico with the B.S. degree after having won the Finical gold medal in an oratorical contest. In order to finance graduate work, he taught in the high school of Albuquerque for one year and then went east for graduate work at Columbia University where he received the Ph.D. degree in 1903.

The Geomorphologist

Douglas Johnson began his academic career by accepting an instructorship in geology at the Massachusetts Institute of Technology, while continuing his graduate studies at Harvard University. In the same year, 1903, he married Alice Adkins.

In the preceding year, William Morris Davis' "Physical Geography" had appeared and for the first time made generally available in simple form the imaginative terminology which his genius had created, a terminology based on the innate logic that orders the multitude of topographic forms into ontogenetic series as inevitable as the growth stages of an organism. The eloquence with word and pen of this great master, who listed his courses

under the title of "Physical Geography," drew disciples primarily from the ranks of geologists. Douglas Johnson was one of them. He quickly made himself a master of Davis' method of deductive reasoning that draws forth the very last consequence from every working hypothesis. He also became thoroughly imbued with Davis' unrelenting zeal for clarity of exposition and punctilious care in the choice of words. Johnson may well be said to have been the most distinguished of the many disciples of William Morris Davis.

For years his connection with Davis was intimate, first as instructor and assistant professor in geology at the Massachusetts Institute of Technology (1903-1907) and then as assistant professor of geology at Harvard (1907-1912). During that time he edited Davis' "Geographical Essays," a book of 776 pages, published in 1909, thereby rendering a major service to geography and geology as well as to the master.

But, brilliant disciple that he was, he was too strong a man to remain a follower. While still at Harvard, he struck out on work in which he combined detailed observation with broad analysis along lines quite his own.

In 1911, a short note in *Science* revealed the first major task to which he turned his critical mind: the question of recent subsidence of the Atlantic coast. This had been calculated as one foot per century for the Massachusetts coast and as high as twice that amount for the New Jersey coast. Douglas Johnson challenged the validity of the criteria on which these figures were based. This led on the one hand to a critical study of all shore processes, and on the other to detailed studies of tidal gauge and precise leveling data.

The first line of study, in 1911, took the form of the Shaler Memorial Expedition, an elaborate and exhaustive study of the whole shoreline of Eastern North America from Prince Edward Island to the Florida keys. For comparison, Johnson visited the shores of England, Scotland, Sweden, Holland, and Germany. Throughout these travels he studied local details as guides to, and illustrations of, fundamental principles, never as ends in themselves. Out of these investigations grew two

books of outstanding merit: "Shore Processes and Shoreline Development" (1919) and "The New England-Acadian Shoreline" (1925). The latter was awarded the A. Cressy Morrison prize by the New York Academy of Sciences.

The second line of study led, in 1923, to the formation of a Committee on Shoreline Investigations by the National Research Council, with Johnson as chairman. Two projects were carried through by this committee with signal success.

(1) Johnson's concept of local variations in mean sea level was subjected to a rigid test, with the cooperation of the U. S. Coast and Geodetic Survey, the Department of Docks and the Department of Plant and Structure of New York City. The results were published in 1929 by Johnson as Bulletin 70 of the National Research Council: "Studies of Mean Sea Level."

(2) The second project, which was to stimulate interest in the systematic collection of data concerning changes in the beaches of the Atlantic seaboard, brought about correspondence and personal contacts with officials, especially in New Jersey, which eventually led to the formation of the American Shore and Beach Preservation Association which, in turn, was a factor in the formation of the Beach Erosion Board in the Corps of Engineers of the U. S. Army.

Douglas Johnson's intimate familiarity with the Atlantic coast of North America and that of Europe, led to critical studies on the correlation of marine terraces. He extended his personal observations to parts of Algeria and South Africa, Western and Southeastern Australia, New Zealand, Japan, and Hawaii. He saw and discussed classical localities under the guidance of those who knew them authoritatively. As president of the Commission for the Study of Pleistocene and Pliocene Terraces of the International Geographical Union (1934-38), he was in touch with terrace studies carried on in different parts of the world. He traveled again along the Atlantic and Gulf coasts to determine the causes of the wide divergence in the correlations of terraces in these regions. With characteristic patience and thoroughness he was gathering the materials for a major work on the correlation of terraces, one of the most intricate questions

in geomorphology and historical geology. But that work never took form. The presidential address of 1942, which was never presented and was published posthumously, deals only with basic questions of technique and analysis.

The development of stream systems, especially those of the Atlantic slope of the United States, constitutes the second major field of research with which Douglas Johnson's name has become identified. In his book on "Stream Sculpture on the Atlantic Slope" (1931), he challenged Davis' classical interpretation with arguments that are now widely recognized and may well prove permanently valid in the face of steadily growing factual knowledge and theoretical understanding.

Perhaps his most important contribution to geomorphological theory is the concept of rock fans and its application to the interpretation of pediments. His classical paper on rock fans in arid regions was presented at the Tulsa meeting of the Geological Society of America and was published in 1932. In the summer of the following year, Professor Johnson gave an *ex tempore* exposition of his views on the origin of rock fans and pediments before an international party of geologists that was touring the West under the auspices of the 16th International Geological Congress. For clarity of reasoning and beauty and simplicity of speech this address stands unrivaled in the writer's memory.

In the last years of his life, Douglas Johnson turned his powers of analysis on two features of the Atlantic slope that had come to the forefront of interest among geologists and geomorphologists only relatively recently: The submarine canyons, and the strange, widely scattered so-called "meteorite scars" of the Carolina coast, the "Carolina bays." The book on "The Origin of Submarine Canyons" appeared in 1939, that on "The Origin of the Carolina Bays" in 1942. In a review published in the *Geological Magazine* (London), C. A. Cotton characterizes the latter, the last of Johnson's larger works as "a model of scientific method." "It is equally a model of literary style," he wrote. "The book is the work of a teacher and a scholar and, above all, of a gentleman."

The subjects so far mentioned represent the central thread of major investigations in geomorphology, his central field of research. Around it he wove the strands of shorter studies that grew, directly or indirectly, out of field work with Herrick's survey of New Mexico (1889-1901) and with the United States Geological Survey (1901, 1903, 1904, 1905), and later out of independent field studies and observations, and, especially, out of his teaching. They range from the physical history of the Grand Canyon district, the hanging valleys of the Yosemite, nature and origin of fjords, mussel distribution as evidence of drainage changes, to map projections and map drawing in schools.

With advancing years, Professor Johnson turned his attention more frequently to the formulation of the principles involved in scientific reasoning. The paper he read in 1933 as retiring vice-president and chairman of Section E of the American Association for the Advancement of Science, on the "rôle of analysis in scientific investigation" (1933)[4] stands out as a companion to G. K. Gilbert's famous address on "The inculcation of scientific method by example" (1886), T. C. Chamberlin's "The method of multiple working hypotheses" (1897), and W. M. Davis' on "The science of geographical investigation" (1911).

In this paper, speaking of inductive and deductive reasoning he remarks: "The wise investigator will use one to supplement the other; for he secures a great advantage if he first employs inductive reasoning to derive from observed facts certain general conclusions, then reverses the process and, using the conclusions as working hypotheses, deduces their reasonable consequences, checking these last against observed facts as the best proof of the correctness of his reasoning." In this skillful interplay of induction and deduction he was a master, tireless in the search for data, rigorous in their analysis, fertile in the invention of working hypotheses, stern and insistent in his logical conclusions.

[4] A treatment of the same and related subjects, planned on a larger scale, was begun in the "Journal of Geomorphology" under the title "Studies in scientific method," but remained incomplete, in fact, never reached the major topic at all.

The Teacher

The qualities just mentioned, combined with a wholehearted enthusiasm for his scientific work and an inborn desire to share it with others, made him an outstanding teacher who left an indelible impression on all who came under his influence. The distinguishing feature of his instruction was the emphasis on method in reasoning and on precision in the oral and written presentation of results. His graduate seminar in geomorphology was perhaps unique along these lines. It was devoted to reports by the students on their progress in research undertaken in connection with higher degrees. Each student was given fifteen minutes for one report and was held strictly to the time limit. He was expected to prepare what he had to say with the same care he would devote to the presentation of a paper before a learned society. The seminar was, in fact, designed deliberately to prepare the students for the delivery of scientific addresses and for public debate. As part of this training, each student had to prepare and post a typed abstract of his next report well ahead of the day of presentation. The form and adequacy of this abstract as well as the soundness of reasoning and method of presentation were then critically analyzed by the whole class, in addition to the subject matter itself. Professor Johnson reserved comment until the students had exhausted their criticism. Then he weighed the arguments, exposed errors, castigated loose thinking and lax speech, and bestowed praise where it was deserved. Though he encouraged free discussion, he maintained throughout a rigid formality that set the master apart from the disciples.

While he budgeted his time with utmost care, he gave of it freely to those who wrote theses under him. He spared no pains, scrutinizing every phrase, demanding revision after revision with the same unbending rigor that he applied to his own work. He did nothing casually and demanded the same of his students.

He organized field trips with the same scrupulous attention to all details. In the summers, he spent much time in the field

with students working on problems under him. In later years he took all such students in motor cars into the field as a group, giving all the benefit of the critical examination of the results achieved by each in his area. It was in the course of one of the last, if not the last, of these joint trips that the present writer first learned to know Professor Johnson as a teacher. It was an unforgettable experience, of which more will be said later.

Professor Johnson began his academic teaching career as instructor in the Department of Geology at the Massachusetts Institute of Technology in 1903. He was made Assistant Professor in 1905, and stayed until 1907, when he transferred to Harvard University, (where he had already begun to teach in 1906), with the rank of Assistant Professor. In 1912 he accepted the position of Associate Professor at the Department of Geology in Columbia University where he remained the rest of his life. In 1919 he was made Professor. From 1937 to 1944 he served as Executive Officer of the Department. In 1943 Columbia University bestowed on him the special honor of the Newberry Professorship.

As Executive Officer of the Department of Geology, and as chairman of the University's important Committee on Graduate Instruction (1938-42), he worked unceasingly for the promotion of creative scholarship at the highest academic level. The complete sincerity and balanced decisiveness of his judgments, his fine tact and world-wide experience made him a leader in the affairs of Columbia University, which he served with great loyalty and zeal.

In 1923-24, he extended his influence as a teacher to Europe. As exchange professor to France, he lectured at twelve universities, representing seven American universities (Columbia, Cornell, Harvard, Johns Hopkins, Pennsylvania, Yale, and the Massachusetts Institute of Technology). Out of this experience grew his volume entitled, "Paysages et Problèmes Géographiques de la terre Américaine," (1927) which introduced the French scientific public to the American method of geomorphological analysis.

War Geography, National and International Contacts

Creative work in his chosen field in pure science and the training of research men and teachers were the central purposes of Douglas Johnson's life. Yet he was early drawn into practical applications that brought him into close contact with world affairs and the men behind them.

From the beginning, Johnson followed the First World War in detail with the aid of large-scale maps, "anxious to discover how far modern military operations are still affected by the element of terrain." This led to several papers that were published in the Bulletin of the American Geographical Society and its successor, the Geographical Review. Some of these were reprinted in the Journal of the Military Service Institution. These, together with new materials, were put in book-form and published in 1917 under the title "Topography and Strategy in the War."

These researches led to a major's commission with the Intelligence Division of the U. S. Army. At the request of the Secretary of State, Douglas Johnson was directed to proceed to Europe "for the purpose of making special studies in military geography for the use of this Department (of State) in connection with the work being done at the direction of the President by Colonel E. M. House." With a view to future peace conferences and the inevitable rival claims, he was to secure firsthand information concerning the strategic and tactical value of landforms under the then modern conditions of warfare. With generous financial support from the American Geographical Society, which was then housing the staff of the "Inquiry" assembled under Colonel House's direction, and accompanied by one of his former students, Lieutenant S. H. Knight, professor of geology in the University of Wyoming, he visited the Belgian, British, French, American, Italian, and Balkan fronts. The war offices at London, Paris, Rome, and the various regional headquarters made available large-scale maps, relief models, and other facilities. In the field, a staff member familiar with the terrain and the military actions that had taken place on them was generally

assigned to accompany Johnson and to assist his studies. The results of these were published in 1921 by the American Geographical Society under the title "Battlefields of the World War." In a foreword, General Tasker H. Bliss gives rare praise to this volume:

"It is difficult to say whether this work of Professor Johnson has been written more for the benefit of the geographer and geologist, or of the military student, especially the student of the operations in the Great War, or of those who like to read charming descriptions in sweetly flowing English, of the physical landscapes in both their gay and gloomy moods. . . . To all of them it will be a classic, and to none more than to another."

At the conclusion of hostilities, Johnson was assigned to geographical investigations in preparation for the Peace Conference, and then went to Paris as Chief of the Division of Boundary Geography on the American delegation and as technical adviser to various commissions. Later he served as a member of several of the International Territorial Commissions, passing judgment on the strategic and tactical value of the terrain along certain proposed frontiers. Thus he gained a political perspective and made personal contacts that would have lured many another from the quiet academic goals of his youth. But in 1920 Johnson was back in his professor's chair, turning again to the problems of geomorphology with unimpaired enthusiasm.

He served repeatedly as consulting expert in boundary disputes and other legal cases that involved questions of a geomorphological nature. In 1926 he was called by the Canadian Government to act as consulting physiographer in the Labrador boundary disputes. Yet he never allowed commercial employment to become an end in itself. He wanted to be above all a student and a teacher.

In 1934, he accepted the difficult task of conducting an intensive investigation of the surveying and mapping activities of the U. S. Government for President Roosevelt's Science Advisory Board, as chairman of a committee on Mapping Services of the Federal Government. The resulting report of 163 pages "is

certainly the most exhaustive study ever made" of the tangled and overlapping surveying and mapping activities of 28 Federal Agencies. This included conclusions and recommendations "based on unanimous agreement of the committee." It is unfortunate that this important document is so little known and even a greater pity that it did not lead, at the time, to reorganizations which, if effected, would have been of incalculable value in the emergency of the second world war, apart from a saving of millions of dollars.

In the course of his career he became a member of many scientific societies and organizations. For his achievements he was awarded eight prizes and medals, and honorary degrees from six universities, three American and three European. Among the former was Columbia University which made him honorary Doctor of Science twenty-six years after it had granted the promising young student the degree of Doctor of Philosophy. Nine foreign learned societies made Johnson an honorary member and France and Yugoslavia decorated him. (For details see the Appendix.)

The Political Writer

Johnson's vigorous mind followed closely the shifting scenes of national and international contemporary history. He had no time to take an active part in local and national politics. But in the great crises of his time, unlike most other men of science,[5] he was not content to formulate the issues in his mind as sharply defined opinions, but translated them into convictions that led to action. He employed his forceful pen in the aid of the causes he considered just and aligned himself with organizations that worked for them.

During the first World War, he became one of the organizers and chairmen of the Executive Committee of The American Rights League which was founded in 1916 to secure American entry into the war. He wrote two booklets which reached very wide circulation and exerted a powerful influence in favor of

[5] See his editorial, "The Scientist as Citizen," Journal of Geomorphology, vol. 1, No. 1, Feb. 1938, pp. 62-63.

the Allied cause. The first one was originally not written for publication at all. It was a long and pointed reply to one of similar length received from a German colleague which like many others received after the outbreak of hostilities attempted to justify the German cause. In the hope that such an explicit statement of American opinion "might be some comfort" to his French colleagues, Johnson sent a copy of the letter to personal friends at the Sorbonne. It was translated and published, with his permission, in the *Revue de Paris* of September, 1916 and later issued in brochure form under the title "Lettre d'un Américain à un Allemand." The publicity department of the British Government then printed the English text as a pamphlet entitled "Plain words from America: a letter to a German professor" (1917). Extracts from the letter were translated into most of the languages of Europe. In America, Johnson's letter and the one to which it was written in reply, were published under the title "My German Correspondence" (1917).

An address, given before the annual convention of the Iowa Bankers Association at Des Moines two months after the United States had declared war on Germany, was printed under the title "The Peril of Prussianism." Its substance was reproduced in motion pictures for use in the American campaign of education.

These two booklets are documents that are worth reading today. Let three sentences be quoted from "My German Correspondence." They were addressed, not to a "Nazi" of our day, but to an intellectual leader of 1916:

"Your greatest enemy is not the Russian, nor the French, nor the British government. They might defeat you in war, but they never could take away your honor. . . . Your greatest enemy is the Government which stifles your individual development by making you the obedient tools of the "State," which smothers your free thought by a muzzled press under police control, which makes your learned men ridiculous in the eyes of the world by training them to blind, unthinking support of the Government and credulous belief in whatever falsehoods it chooses to impose upon you for military and political purposes, which hurls you into a disastrous war without your knowledge or consent, and which brings down upon you the contempt of the whole world

for crimes you would not yourselves commit, but which you must forsooth defend 'for the good of the State'."

The second occasion that called Johnson into political action was the change that took place in Washington after Franklin D. Roosevelt had assumed the leadership of a bewildered nation. As Johnson saw it, what happened was that "the letters spelling *New Leader* were shifted about, and the *New Dealer* began to play the leading role."[6]

Again Johnson weighed the issues and made up his mind. He set his face against the New Deal and the great man behind it. He joined the National Committee to Uphold Constitutional Government and put his pen to work. We find an article by him, directed against "bureaucratic control of industry and union tyranny over labor" in a pamphlet entitled "America's Future: one's right to work and how to implement it." In 1937, he wrote a seventy-page booklet: "The Assault on the Supreme Court—President's Purpose Exposed—Hidden Motives Bared." Over 300,000 copies were distributed by the Committee. Johnson felt deeply stirred and wrote with scathing effect.

One wonders what position this man with such a trenchant pen and such power of action might have achieved in public life had not that kindly quiet man in New Mexico taken him on long days in the desert and shown him the calm majesty of impartial scientific thought and the beauty of a life devoted to it.

One also admires the skill with which Johnson kept his life as a scientist separate from that of political action into which he was drawn from time to time. He pleaded "that scientists fight political battles with political weapons, and that they do all within their power to keep our academic halls and research laboratories sheltered from political storms, safe havens of intellectual sanity, calm judgment and free search for truth in a world gone mad."[7]

With the outbreak of the second World War we find him again taking part in public discussion. He wrote letters, some of which were sent to every daily paper in the United States

[6] Quoted from his foreword to the book by Samuel B. Pettengill, "Jefferson—the forgotten man."

[7] Quoted from his reply to a "Manifesto by a Physicist," 1939, p. 248.

on such subjects as "Repeal false Neutrality" and "An Answer to Colonel Lindbergh." The latter ends with words that have the old ring:

"To Lindbergh's pessimistic wail: 'France waited until it was too late. England waited until it was too late. We in America have waited until it is too late,' the American people will answer in true American fashion: 'Not on your life, Colonel! We haven't even begun to get ready yet'."

But his health was undermined. He had become a spectator rather than an actor, and soon the questions of the coming peace occupied him as much as those of the war's whirlwind. On that subject the writer knows of only one printed comment.

On September 24, 1941, Johnson gave the address at the opening of the fall session of Columbia University on "The next armistice—and after," devoted to a single thought. It is a fallacy to speak of "the ideal of justice against the practice of force." The opposite of "justice" is "injustice," not "force." The opposite of "force" is "weakness" or "impotence," not "justice" or "law." The obvious consequence he sums up in Pascal's words: "Justice without *force* is impotent. Force without *justice*—tyrannical. We must, therefore, combine *justice* with *force*."[8]

The Man

As a boy, Johnson saw early that great things were expected of him, and he resolved to make good. He also determined to strive positively for righteousness and to take a determined stand on all questions of personal and public conduct. With unrelenting drive and unerring purpose he followed this course throughout his years.

He ordered his life with rigid discipline and worked with steady concentration. He demanded the utmost of himself and expected no less of others. He did not drink or smoke and, at least in his younger years, did not hesitate when the occasion demanded to tell others how he felt in such matters. His was a stern sense of justice, inculcated no doubt by his mother's

[8] Quoted from "International Conciliation" No. 375, Dec. 1941, pp. 715-720.

Spartan discipline which he defended even as a boy. He was scrupulous in the fulfillment of even the smallest obligation. "To him it was a sin to fall down on an assignment," and he hated sin.

But decisiveness was perhaps his most striking trait. In matters of *mores,* morals, and politics he drew sharp lines between "good" and "bad" in a manner that set him off against the sophisticated groping and wavering of our day. Opinions became convictions with him, to be proclaimed and defended.

This was equally true in his scientific thinking. He had little patience with the polite inertia with which ideas are too often met today in scientific circles, as if nothing were ever worth attacking or defending. He spared no pains to inform himself on all aspects of a controversial subject. Then he made a decision. Fully convinced of the thoroughness and impartiality of his analysis, he considered the position reached as final. He rarely, if ever, changed it.

Yet Johnson welcomed opposition if it was free from personal motives. Years ago, the writer met him in the field on one of his cross-country trips with a group of graduate students, to defend the published interpretation of a certain region which one of Johnson's students tried to explain in a radically different way. At the time the writer did not know that Johnson had spent many days in this region the year before and that in his graduate seminar during the preceding winter he had leaned heavily toward the new interpretation. For three days the argument was carried on in the field. The writer spoke his mind plainly and emphatically before the man he had known so far almost solely by reputation, who was ten years his senior. I insisted at the start that it was useless to apply physiographic reasoning to a problem that was essentially of a stratigraphic nature, and that it was evident that neither Johnson nor his student possessed the detailed knowledge of the local stratigraphy and fossils needed in this case. This was as uncomfortable a charge as any man of Johnson's standing could face in the presence of his own students. Yet he admitted at once that it was justified, with that honesty which only a truly great

man can achieve. Like a student, Johnson asked to be shown the critical details over and over again with charming simplicity and directness. At intervals, and again at the end of the trip, he summed up the pros and cons, leaving it to everyone to attach his own weights to each. There was no victory on either side, but there was a superb demonstration of fairness and grace in a controversy. What might have led to bitterness ended in a warm friendship.

The steadfastness with which Johnson adhered to his convictions, he showed in his human relations. His judgments of men, favorable or unfavorable, were as nearly immutable as his other convictions. He watched over his graduate students with paternal interest and provided for them the best be could secure. Friendship was to him a sacred obligation to which he lived up with touching consideration.[9]

Johnson was intimate with but very few. This was due partly to his inflexible attitude toward social customs of which he disapproved, but more to an air of formality which surrounded him as an essential part of the deliberate pattern into which he had fashioned his life. If he did not achieve intimacy, his integrity, his great ability, and his loyalty won him the affection and admiration of those who knew him well.

In fact, this man of great power of mind and will needed for his sense of achievement the tangible approval, if not the praise, of his fellow men; for intellectual satisfaction, the give-and-take of kindred minds; and for happiness, the warmth of true affection.

With the *naiveté* of a high school athlete who exhibits his trophies, Johnson framed and displayed on the walls of his office and of adjoining rooms every document that told of honors received. He called this exhibit "my vanity corner." To him they were tangible measures of hard-earned progress on the road to "success." Not every man needs them. He did.

The deeper human need of an active mind that craves companionship in its wide interests and response to his joy in beauty

[9] Johnson loved good company and entertained with grace and gusto. He enjoyed telling and hearing stories. He had a real sense of humor, though he did not readily turn it on himself. He took himself too seriously.

was filled in Johnson's life in a unique way through his marriage with Alice Adkins. She was such an integral part of thirty-five years of Johnson's life that to understand him, one must know her.

When Alice became engaged to Douglas, she still could see dimly. She tried every medical advice. An operation promised restoration of sight in one eye, but ended in total blindness.

With admirable determination and courage, Alice rose above her affliction. She learned to walk with such sure-footed confidence that strangers discovered with surprise that she was blind. She became a gracious hostess who knew how to put newcomers at their ease. "I cannot see you," she would say, "you will have to make advances."

She had a receptive and tenacious memory and loved the beauty of words. She wrote sensitive poetry and was a brilliant conversationalist. She knew French, Italian, and German. She played the piano and used the typewriter.

All who knew her, admired her; above all, they respected her boundless courage. Undaunted, she went with her husband wherever he traveled—whether it be up the rocky slopes of Mt. San Francisco or through the art galleries and cathedrals of Europe. She accompanied him on trips in most of the United States and through parts of three other continents. Wherever they went he took pains to convey to her in vivid words what lay before them, training and refining unwittingly his natural gift of apt and graphic speech and his quick grasp of what is essential in what the eye beholds.

The joint life of Alice and Douglas ripened to a companionship of epic quality. She released in him a tenderness and chivalry that few men can achieve. It was as delicate and sincere as it was immutable, and she quickened and spurred in him all the powers of mind and heart.

On October 11, 1938, Alice died. Douglas stood tragically alone.

In 1942, after a summer spent in part in the field, in New Mexico and Arizona, Johnson suffered a severe heart attack, while visiting his beloved Granville. Recovery was slow, but

living strictly according to doctor's orders, he regained strength steadily. His confidence rose and when his physician gave him at least eight years to live, he decided to marry again. While visiting a niece in Louisville, Kentucky, he had met Edith Sanford Caldwell, the widow of Dr. M. A. Caldwell, who had been head of the department of psychology in the University of Louisville. This acquaintance had become a friendship which held promise of a happy companionship. On September 8, 1943, Edith Caldwell became Mrs. Johnson. Proudly Johnson brought her to New York and introduced her to his circle of friends. Three months later they started south to spend the winter in Florida. On the way down, their train was involved in a wreck which cost the lives of at least eighty-two fellow passengers. "There was only one car between us and disaster," he wrote. Two months later, on February 24, 1944, he succumbed to a heart attack in his winter quarters at Sebring, Florida.

APPENDIX

I. Membership and offices held in learned societies

1. U. S. A.

a. General

National Academy of Sciences, elected 1932
National Research Council, Division of Geology and Geography
Member at Large, 1917-23, 1927-29
Committee on the Development of the Geographical Societies, 1920-23
Committee on Shoreline Investigations, Chairman, 1923-26
Member, 1927-33
Committee on the International Geographical Union, 1928-37
Chairman, 1933-37
Committee on Fellowships, 1931-37
American Philosophical Society
Councilor, 1942-44
American Academy of Arts and Sciences
New York Academy of Sciences
Vice-president, Section of Geology, 1916-17
Councilor, 1919-21, 1927-29, 1940-42
American Association for the Advancement of Science
Vice-president, Section E, 1931

b. Geography

Association of American Geographers
President, 1928
American Geographical Society
Geographical Society of Philadelphia

c. Geology

Geological Society of America
Vice-President, 1927, 1940, 1941
President 1942
Councilor, 1943

2. Foreign

a. General

British Association for the Advancement of Science
Vice-president and guest, 1928

Académie Royale Serbe
(Corresponding member)

b. Geography

Société Royale Belge de Géographie
(Corresponding member)
Bordeaux Geographical Society
(Honorary member)
Société de Géographie de Beograd
(Honorary member)
Svenska Sällskapet för Antropologi och Geografi
(Foreign member)
Geographical Society of Finland
(Foreign member)
Société Russe de Géographie
(Corresponding member)

c. Geology

Geological Society of London
(Foreign member)
Société Belge de Géologie
(Corresponding member)
Geological Society of China
(Coresponding member)

3. International

International Geographical Congress, Paris, 1931
President, Section of Physiography and Geography
International Terrace Commission
President, 1934-38

II. Special Honors

1. Honorary degrees

University of Grenoble, France, 1924
(Docteur, honoris causa)
Columbia University, U. S. A., 1929
(Sc. D.)
University of Nancy, France, 1932
(Docteur, honoris causa)
Denison University, U. S. A., 1932
(Sc. D.)
University of Montpellier, France, 1933
(Docteur, honoris causa)
University of New Mexico, U. S. A., 1942
(L.L.D.)

2. Medals and prizes

Walker Memorial Prize,
Boston Society of Natural History, 1906
Janssen Gold Medal,
Société de Géographie de Paris, 1920
Elisha Kent Kane Gold Medal,
Geographical Society of Philadelphia, 1922
Medal of the University of Nancy, 1924
Gaudy Medal,
Société de Géographie Commerciale, Paris, 1925
A. Cressy Morrison Prize,
New York Academy of Sciences, 1924 and 1930
Cvijic Medal,
Geographical Society of Belgrade, 1935
Cullum Medal,
American Geographical Society, 1935

3. Decorations

Chevalier,
Légion d'honneur, France, 1924
Cross of St. Sava with star,
Yugoslavia, 1934

KEY TO ABBREVIATIONS IN BIBLIOGRAPHY

Am. Geog. Soc. Bull. = American Geographical Society, Bulletin.
Am. Geol. = American Geologist.
Am. Jour. Sci. = American Journal of Science.
Am. Phil. Soc. Proc. = American Philosophical Society, Proceedings.
Am. Scen. Hist. Pres. Soc. = American Scenic and Historic Preservation Society.
Am. Shore Beach Pres. Assn. = American Shore and Beach Preservation Association.
Ann. Géog. = Annales de géographie.
Assn. Am. Geog. Ann. = Association of American Geographers, Annals.
Boston Soc. Nat. Hist. Proc. = Boston Society of Natural History Proceedings.
Bot. Gaz. = Botanical Gazette.
Bull. Geog. Soc. Phila. = Bulletin, Geographical Society of Philadelphia.
Columbia Univ. School of Mines Quart. = Columbia University School of Mines Quarterly.
Cong. Int. Géog., C.R. = Congrès International de Géographie, Comptes Rendus.
Denison Univ. Sci. Lab. Bull. = Denison University Science Laboratory, Bulletin.
Ecol. = Ecology.
Econ. Geol. = Economic Geology.
Geog. Jour. = Geographical Journal.
Geog. Rev. = Geographical Review.
Geog. Soc. Phila. = Geographical Society of Philadelphia.
Geol. Soc. Am. Bull. = Geological Society of America, Bulletin.
Geol. Sur. N. J. Bull. = Geological Survey of New Jersey, Bulletin.
Harvard Grad. Mag. = Harvard Graduate Magazine.
Hist. Out. = Historical Outlook.
Int. Geog. Cong. Rpt. = International Geographical Congress, Report.
Jour. Geog. = Journal of Geography.
Int. Geol. Cong., C.R. = International Geological Congress, Compte Rendu.
Jour. Geol. = Journal of Geology.
Jour. Geom. = Journal of Geomorphology.
Nat. Hist. = Natural History.
Nat. Res. C. Bull. = National Research Council, Bulletin.
N. Y. Acad. Sci. Annals = New York Academy of Sciences, Annals.
Pop. Ed. = Popular Educator.
Pop. Sci. Mo. = Popular Science Monthly.
Rice Inst. Pam. = Rice Institute Pamphlet.
Sci. Mo. = Scientific Monthly.
Tech. Quart. = Technology Quarterly.
U.S.G.S. = United States Geological Survey.

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