ARTICLE VII.

WRIGHT'S "STORY OF MY LIFE AND WORK."[1]

BY PROFESSOR JAMES EDWARD TODD, A.M., AND
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THE Story before us is one of the most recent and one of the most interesting of autobiographies, for Professor Wright is a man of versatile talent, having attained distinction in several fields. He is a ready writer, simple in language, clear in statement, logical and scholarly. He has had unusual facilities for pursuing his chosen studies. Born January 22, 1838, he has nearly finished his eighth decade. He has lived when history has been making rapidly, and with tireless energy he has wrought his share in it.

His first sketches are of frontier life in eastern New York seventy years ago. When ready for college, he was drawn to Oberlin by the interest which some of his relatives had taken in the views for which Oberlin stood, viz., anti-slavery, coeducation, whole-hearted consecration, and New-school theology.

At the beginning of the Civil War he enlisted, but was early stricken with pneumonia, which prevented further service. After his graduation from Oberlin Theological Seminary in 1862, he served as pastor ten years in a little town in northern Vermont, and a second decade at Andover, Massachusetts. The first position gave him time for reading and study, and also for practical work with his parishioners. The second brought him in close acquaintance with leaders of religious thought in Andover Theological Seminary; while

[1] **The Story of My Life and Work. By G. Frederick Wright, D.D., LL.D., F.G.S.A. 12mo. Pp. xvi, 460. Oberlin: Bibliotheca Sacra Company. 1916. $2.00, postpaid.**

articles in the BIBLIOTHECA SACRA won their admiration and grew into volumes which found wide acceptance with thoughtful laymen and became textbooks in Christian Evidences, as the subject was usually called in those days.

Through the proximity of the Essex Institute (Salem) and the Boston Society of Natural History, he became favorably known to numerous prominent scientific men. This resulted from his original and satisfactory explanation of a puzzling glacial deposit (locally known as Indian Ridge) near Andover.

In 1880 Professor J. P. Lesley, state geologist of Pennsylvania, invited him to join with another of the Survey in tracing the southern limit of the glacial drift across that State. Soon after, having accepted the call to the chair of New Testament Greek in his Alma Mater, he was asked by the Western Reserve Historical Society of Cleveland to trace at their expense the same boundary across Ohio. This led to his engagement by the United States Geological Survey for the same work across Indiana and Illinois. This he did during his summer vacations, the Government publishing his report as Bulletin No. 58 in 1890.

In 1886, at the suggestion and by the assistance of a wealthy friend he visited Muir Glacier in Alaska. His report upon it aroused much interest, and the following winter he was invited to give a course of Lectures before the Lowell Institute in Boston on "The Ice Age in North America." These lectures formed the nucleus of the comprehensive work on the same subject, which was published by the Appletons in 1889 in a finely illustrated volume of 700 pages. It was eagerly read at home and abroad and caused its author to be favorably known throughout the scientific world. This is now in its fifth edition, having a constant sale.

In all of his study of glacial deposits, archæology and the antiquity of man have been a prominent factor in his interest. At several localities from New Jersey to Kansas human remains are believed to have been found so mingled with glacial material as to lead to the conclusion that man had

been contemporaneous with the latter part of the Ice age in North America, as he had previously been found to have been in Europe. The facts were presented in another course of lectures on "The Origin and Antiquity of Man" before the Lowell Institute, and in the publication of "Man and the Glacial Period" by the Appletons as one of the International Scientific Series.

The more significant relics of Glacial Man which Dr. Wright looks upon as genuine are human implements found in the gravel terrace at Trenton, New Jersey; at Steubenville, Ohio, in a high terrace of the Ohio; at New Comerstown, on the Tuscarawas, and at Loveland, on the Little Miami; human bones in the loess near Lansing, Kansas, and near Florence, Nebraska; and an earthen figurine from the depth of more than 300 feet, under sand covered by a thin capping of lava, near Nampa, Idaho. It is fair to say, however, that many students of these cases consider them not proven. But the author's statement of the evidence here and elsewhere is deserving of more candid and careful consideration than is sometimes given it. He is by no means alone in defending the authenticity of the discoveries.

In 1899, through the generosity of his friend, S. Prentiss Baldwin, he took a trip around the world, with his son as a companion. He visited Japan, China, Manchuria, Siberia as far east as Omsk, thence by a tarantass drive of 1,400 miles he went south to Samarkand and west to Baku and Trebizond and through the Caucasus Mountains to Petrograd, and thence to Odessa and Constantinople and Palestine. His purpose was to settle some questions concerning the former extent of glaciers, the distribution of loess, etc.

One result of the trip was a large two-volume work on "Asiatic Russia," of which the first edition was quickly exhausted. The author gives a very hopeful view of the Russian people. He found them prosperous and religious, having flourishing churches, the best religious music in the world, the Bible well circulated, excellent libraries and museums in

all the large cities and towns, and temperance prevalent among large classes.

Among the scientific results of this expedition, he emphasizes the very limited extent of former glaciation in northern Asia, the absence of glaciers in Mongolia and southern Siberia, where they had been provisionally marked by Geikie. and concludes, that while much of the loess in China is eolian, at lower levels it is aqueous, and that in Siberia and Turkestan it seems to have been washed from the mountains on the southeast and deposited in deltas formed in a shallow sea which then covered the region to the north. In harmony with this theory he found an old beach near Trebizond 625 feet above the sea. This has since been corroborated and extended by other eminent scientists.

He would connect these traces of a shallow sea with the "Rubble Drift" of Prestwich in western Europe and the destruction of ancient life near Palermo, Sicily, as evidence of a great temporary inundation in the latter part of the Glacial period, either one or several successively, of which the Noachian deluge may have been a portion.

While we may admit the force of the author's reasoning, to many it seems difficult to conceive that these inundations could have been so brief as appears to be indicated in the Scripture account. Moreover, in the opinion of many orthodox interpreters, it is open to question whether the Bible teaches that it was coextensive with the distribution of man at that time; since it mentions people, the Emim, Anakim, Rephaim, and others who are not included among the descendants of Noah; and Professor A. Guyot years ago taught that Noah was perhaps the progenitor of the white race only.

The ripest fruitage of this Asiatic expedition was presented as the Stone Lectures at Princeton Theological Seminary in 1904, and after revision published as "Scientific Confirmations of Old Testament History" (now in its 3d edition).

Dr. Wright appropriately closes with a statement of his creed both religious and scientific. His scientific creed is,

briefly, that the primal, self-existent, eternal Reality was spiritual and personal; that God created the elements out of which have been evolved the universe; that life was also created with the capacity of evolving myriad forms, but not certainly specific forms, by the action of inherent forces of nature alone; that whatever may be true of the organic connection between Man and the lower animals, "man with his present physical and spiritual characteristics appeared suddenly on the earth, at no very distant time, as geologists count time"; that there was a Glacial epoch which was so exceptional in its occurrences as to render many archæological estimates of time untrustworthy, and that it continued down to historic times.

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THROUGH forty years I have had acquaintance and association with Professor George Frederick Wright, whose mature life has been primarily devoted for fifty-five years to the Christian ministry and to teaching the language and literature of the New Testament and the harmony of science and revelation, but whose chosen diversion during all this long time has been practical field observations and writings in glacial geology.

By his numerous glacial essays, state and United States reports, and more extended popular books on the Ice Age and the antiquity of man, Professor Wright has attained an assured leadership in the branch of geology that deals with the Quaternary era, in which the Glacial period and the origin of man attract the interest of all readers. Here his service to the world ranks beside that of James Geikie, of Lamplugh, Falsan, Penck, Nikitin, De Geer, Holst, and Brögger, leaders in glacial geology in Great Britain and central and northern Europe.

Professor Wright's glacial studies were stimulated during the ten years of his pastorate in northern Vermont by the

interesting nature of the field surrounding him. He was situated in the wide opening between the Green Mountains and the Adirondacks, leading from the level plains of the St. Lawrence region through that of the Champlain and the Hudson Valley far down into the State of New York. With this whole region he became intimately acquainted during his summer vacations. Concerning the glacial phenomena of this region he writes:—

"In the light of our present knowledge of the progress of events during the recession of the continental glacier, we interpret the facts as follows: The retreat of the ice was accompanied both by the withdrawal of the southern front, and by the lowering of the surface by melting. Thus the mountain tops would at length reappear above the glacial tongue which filled the Champlain Valley. One result of this would be that the reflected heat of the sunshine from the mountain sides would make the ice lower at the margins than in the middle, so that there would be established lines of drainage along the sides, with the ice maintaining the level on one side of the stream and the mountain on the other. Marginal lakes would likewise be formed at these levels on the serrated flanks of the mountains. And such are found on the flanks of the Green Mountains up to a level of one thousand feet or more. At the time when I became familiar with these gravel terraces it was generally supposed that they indicated a former submergence to that extent below the ocean, and hence they were called 'marine terraces.' If I had only known their proper explanation during those first ten years of my ministerial labor it would have lent a wonderful charm to the recreation of vacations and blue Mondays, and would have afforded me abundant material to interest the members of my parish both young and old" (pp. 124–125).

Wright's second field of pastoral work, extending through ten years, from 1872 to 1881, was in Andover, Massachusetts, adjoining the south side of the Merrimack River. There a very interesting subject of glacial investigations was found in a remarkable series of gravel and sand ridges, knolls, and small hills, reaching, as explorations later showed, from Malden and Melrose northward to Andover, Lawrence, and Methuen, a distance of twenty-five miles, and continuing into New Hampshire. This series of kames, later called eskers, was first extendedly described by Wright in a paper entitled

"Indian Ridge and its Continuations," published in 1875 by the Essex Institute. The next year he published in the Proceedings of the Boston Society of Natural History a more full account, with three maps, of these eskers, and of another nearly parallel series eight to ten miles farther east, running from Beverly and Wenham northward to cross the Merrimack River in the east part of Haverhill, and likewise extending onward in New Hampshire, to an entire length of fully forty miles. In 1878 this subject and its maps were also presented in the third volume of "The Geology of New Hampshire."

The origin of the eskers, studied out at nearly the same time by Hummel and Holst in Sweden, James Geikie in Great Britain, Wright in northeastern Massachusetts, Stone in Maine, and the present writer in New Hampshire, was by deposition of their gravel and sand in the ice-walled channels of glacial rivers near their mouths.

In 1881, by invitation of Professor J. P. Lesley, director of the Second Geological Survey of Pennsylvania, Wright spent his summer vacation in geologic field work with Henry Carvill Lewis in tracing the terminal moraine of our continental glacier across that state. Their report, prepared by Lewis, is Volume Z in the Survey publications, entitled "The Terminal Moraine in Pennsylvania and Western New York," with an appended paper by Wright on its continuation in Ohio and Kentucky, thus including a part of his later work previous to 1884, when this report was published.

These very important contributions in description and mapping of the marginal drift had been preceded in 1878 by studies of Chamberlin on a part of this transcontinental morainic series in Wisconsin; in 1879 by the present writer on the two nearly parallel moraines of Cape Cod, Nantucket, Martha's Vineyard, and Long Island; and in 1880 by Cook on the course of the outermost moraine across New Jersey.

Since 1907, as a pensioner of the Carnegie Fund, he has continued his active interest and frequent publications in this branch of geology. His most widely known work, "The Ice

Age in North America and its Bearings upon the Antiquity of Man," first issued in 1889, reached its revised and enlarged fifth edition in 1911, with many new maps and illustrations. In 1912 he published more full studies in a part of this great field, entitled "Origin and Antiquity of Man." His latest book, the autobiography, contains plentiful summaries of these lifelong researches, the recreations and yet very earnest pursuits of a pastor and theological teacher.

The last chapter of this last book is entitled "My Creed," comprised in nineteen sections or articles. In five of these articles, numbered 6 to 10, with comments following each, Professor Wright presents his beliefs in the fields of biologic evolution, anthropology, and glacial geology, which therefore are here copied as his mature conclusions from fifty years devoted largely to these sciences.

"6. *I believe that, after the introduction of life into the world, there was an orderly progress from lower to higher forms, as, in the geological ages, conditions became favorable for their maintenance. But I do not have sufficient evidence to believe that this progress has been due wholly to the inherent forces of nature.*

"I would not, however, set hard and fast limits to the power of variation in plants and animals, and to the power of natural selection in preserving variations adapted to new conditions. Since we know that man, by selection and protecting care, can produce in species such varieties as we have in domestic plants and animals, we would not say that the Creator may not go farther in the use of natural forces to produce variations which we should call species, — the difference between varieties and species being largely one of definition.

"7. *I believe that, whatever may be true about some organic connection between man and some unknown species of anthropoid apes, man with his present physical and spiritual characteristics appeared suddenly on the earth, at no very distant period, as geologists count time.*

"The peculiar characteristics both of mind and body which constitute man are too numerous and peculiar to have come in by slow increments. The average human brain weighs three times as much as the average brain of the gorilla. The average brain capacity of the earliest prehistoric skulls yet discovered is equal to that of existing races. The upright position of man; his free and shorter arms, with the delicately adjusted thumb and fingers upon the

extremity; his well-developed lower limbs, and the broad-soled foot with the stiff projecting big toe; the absence of a hairy covering, together with the mental capacities enabling man to make fire at will, to construct implements of stone and bone and wood, create spoken language and means of perpetuating his thoughts by hieroglyphs and alphabetical characters; especially his powers of inductive reasoning by which he learns the courses of the stars and studies the history of the earth in its rocky strata, and through a variety of sciences learns the history of man in the past and forecasts his future both in this world and the next — such a combination of bodily and mental characteristics could not have been produced by piecemeal. Without the mental characteristics those of the body would be disadvantageous. Without the bodily characteristics, the mental developments would be useless. Such complicated accidental combinations are inconceivable. They can occur only as the product of design, which is equivalent to creation.

"8. *I believe in a Glacial epoch, the magnitude and complication of whose effects few as yet begin to comprehend.*

"It would seem incredible, if the evidence were not overwhelming, that the warm climate of the Tertiary period should have been succeeded by climatic conditions which compelled the snows of the north to accumulate till they pushed the vast mass of glacial ice, a mile thick, in North America, down to New York City, Cincinnati, Carbondale in the southern part of Illinois, and Topeka in Kansas, covering in all four million square miles; and in Europe filling the North Sea and covering the British Isles almost down to the latitude of London, and extending to the mountain barriers south of Berlin in the center of Germany, and to Kiev in Russia, covering, in all, two million square miles. But such are the facts.

"9. *I believe that the conditions of the Glacial epoch were so abnormal that they render nugatory a vast amount of reasoning by which archæologists draw, from present conditions, inferences concerning the events of the past.*

"In connection with the advance and retreat of the glacial ice, there was a great destruction of animal species that were contemporaries of man, and a remarkable development and redistribution of species both of plants and animals. There is abundant evidence that great changes of land level occurred in the Northern Hemisphere, first in its depression during the accumulation and climax of the period, and again in its reëlevation after its close. This postglacial depression amounted to 600 feet at Montreal, and 1,000 feet farther north in America and in corresponding latitudes in northern Europe; while there is distinct evidence of a depression in Central Asia, amounting to 700 feet, and much evidence of its extension to 2,000 feet. At the same time, the floods connected

with the final melting of the ice were perfectly enormous in their amount, and incalculable in their destructive effects on animal life. During that period the Missouri River was compelled to handle, during the summer months, twenty-five times its present volume of water, causing floods 200 feet in height; while the Mississippi River was compelled, at the same time, to dispose of sixty times its present volume. Let him who can, picture to himself the significance of these facts.

"10. *I believe that the Glacial epoch continued down to historical times.*

"The evidence is such as should convince any one who candidly considers all the facts, that glacial ice did not retreat from southern Sweden until 7,000 years ago. Nor did it retreat from central New York and northern Minnesota at a much earlier date. It is still retreating at a rapid rate in Alaska, the Muir Glacier having retired seven miles and a half in the last twenty-five years, and nearly all the other glaciers proportionally. Thus it would appear that when the civilization of Egypt, Babylonia, and Central Asia was at its height, the most populous present progressive centers of the world were buried beneath a glacial covering. Any one who draws inferences concerning the earliest history of mankind, without duly considering these facts, and others correlated with them, is sure to be misled" (pp. 421–426).

The comment on a later article of the Creed refers to the wonderful harmony of the Bible account of the creation with the recent development of exact knowledge in astronomy, geology, and physical science. This is nearly the same in its central thought with what Dana had long ago written in his Manual of Geology, and it forms one of the strongest arguments for the Divine origin and inspiration of the Holy Scriptures. To the mind of the present writer it seems an incontrovertible testimony, affirmed by Professor Wright as follows, that at least the story of the creation is a revelation from God.

"The first chapter of Genesis stands unrivalled, as a comprehensive and brief statement of the origin of the universe and the development of the world up to the introduction of man. No unaided human intellect could, in the period when the first chapter of Genesis was written, have framed a cosmogony with which modern science could find so little fault" (p. 427).

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