

Legendary Hero: Dr. G.V. Black (1836-1915)

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The primary purpose of all professions is to nurture and refine hidden undiscovered talents. Dr. Greene Vardiman Black (Father of Operative Dentistry) was born in a farm near Winchester Illinois, USA to William and Mary Black on August 3, 1836. In childhood, he never took interest in studies rather developed interest in wildlife and nature. Instead going to school, he preferred hunting, fishing and roaming the woods. Studying plants and animals like wild turkeys, pigeons, deer, skunks, wolves, bears and foxes were more fascinating to him. Little boy Black seemed to be suffering from the same problem that Charles Darwin, Thomas Addison had in their boyhood [1].

He could learn more in the woods in an hour than in school in a week, once he said. People considered him dull, idiot and good for nothing. At that time his mother was the only one who understood him. Why waste time on school and work when there are more interesting things to do? He must have thought! [2].

He wandered in the forests trying to learn by himself, experimenting and exploring nature. This not only developed his sharp sense of observation and an analytical mind but also laid the foundation of his lifetime achievements. He had only 22 months of formal schooling yet keen to grab every golden opportunity to learn in his own way. Mr. Black was primarily self-taught; he earned the title of "The Father of Modern Dentistry".

In 1852, after 17 years at farm, Black decided to study medicine at his elder brother Thomas G. Black's office who was a physician at Clayton Illinois, a graduate of the Louisville Medical College. He got influenced by his career-oriented brother that was probably a first turning point of his life when he started thinking seriously about education. Here, he met a family friend Tom, senior by 11 years, a good instructor to Greene. Under Tom's direction Greene read medicine and during 4 years (1853-56), he gained enough knowledge in anatomy and medicine. Tom and Greene remained close and lifelong friends [2].

During ongoing process of self educating himself, young Mr. Black fell in love with Lady Jane Coughener, whom he later married. Then he came in contact with Dr. J.C. Spear, practicing dentistry in Mount Sterling, a neighboring town. Dr. Spear introduced him in the practice of dentistry where he found his true calling and realized that field of dentistry was highly under studied. He read all the books that Dr. Spear owned and revised.

After a year of apprenticeship under Dr. Spear, with gained confidence in dental skills, Dr. Black ventured out to start his own dental practice in Winchester, Illinois [2]. It was a great time and beginning of an active career and research in the field of dentistry. He became first dentist in Scott County [2].

At that time, dentistry was a part of medicine but far from being a science. He believed that dentistry should be seen as a profession that was independent of, but equal to medicine. If he had chosen medicine as his career, it would be a great loss to the field of dentistry [2].

When civil war broke out, young dentist served his nation as Union scout and got enlisted as one of the 129 Illinois volunteers in 1862. During service, he suffered a serious knee injury, leading to a long stay in hospital at Louisville, Kentucky. This made him ineligible to serve army which resulted in expulsion from army services. During his rough patch of life, he lost his first son however blessed with another son. His wife suffered from tuberculosis and died in 1863. The younger son was taken to grandparents home as the Winchester home was broken up.

"Which is due to happen always happens for sure. But struggler never puts an end as the game of destiny is here and was yet to come."

So is Dr. Black, he moved to Jacksonville, Illinois, a city of 10,000 inhabitants to practice dentistry. He began further study and though serious research in dentistry and met Miss Elizabeth Davenport, student at Jacksonville Female Academy in 1863. On September 14, 1865; they got married and brought their young son Carl home. Elizabeth Black, a well behaved, polite and social woman with pleasing personality, rare insight, tact and devotion filled a missing place in life of Dr. Black and his young son. Carl became young wife's boy in every sense of world [2].

Dr. G.V. Black was a set example of a great father and husband in the family circle, an ideal professional man in public life, a scholar and scientist who laboured in secrecy without any pompous show. Spending huge amount of time and money on extensive research, he graciously fostered his children, providing every educational advantage. He was pious too, sang in chorus of Christian church and loved music, played flute, violin and piano [2].

His curiosity did not end with dentistry so he experimented with himself and was successful in training himself to be ambidextrous by writing two letters simultaneously. To the extent of educating himself, he studied Latin, Algebra and Geometry to study works of other scientist. His command on French and German language made him invitee to deliver lectures to Germany and France on the results of his research. He ensured that he did not repeat his lectures rather updated them time to time [3].

DR. BLACK'S ACHIEVEMENTS

1870: Invented Cord driven foot engine with a foot motor. Used till late 90's by most of the dentists.

1871: Patented for an improvement in dental drills (US117733) and an improvement in universal joints (US117732).

1877: Reissued patent for his dental drill (USRE7452).

1883: Prepared first book "The formation of poisons by Microorganisms"

1890: Published first edition of his Dental anatomy followed by many phenomenal books namely Operative dentistry (2 volumes), The Periosteum and Peridental Membrane, Special Dental Pathology.

1891: Standardized the rules of cavity preparation and filling.

1896: Standardised the formula of amalgam with his knowledge of material science, had been used almost unchanged till date.

1896: Proposed classification of dental caries and standardized dental terminologies.

Credited with the first acceptable nomenclature for and classification of hand instruments.

Awarded '**Miller Prize**' for his contribution to the advancement of dentistry.

Awarded '**Doctor of Science**' by the Missouri Dental College and later by the Illinois College and University.

Awarded '**Doctor of Medicine**' by Chicago Medical College.

Awarded '**Doctor of Law**' by the North Western University Dental School.

Awarded '**Fellowship Medal**' by The Dental Society of the state of New York.

1897: Became second dean of Northwestern University Dental School.

In June 1866, Missouri State Dental Association was delighted to have Dr. Black as one of its members during first meeting itself. It was a blissful moment when he became one of the trustees of Missouri Dental College (chartered on September 15, 1866) where he served as a faculty member from 1870 to 1881 [1].

This grand old man of dentistry was a person with a class in himself, he was president of the Ward Republican Club, member of the Managing Committee of the Library Association, held as president of the Illinois State Dental Society, Illinois State Dental Board of Dental Examiners, National school of dental techniques, National

dental association, chairman of section of etiology, pathology and bacteriology at World Columbian Dental Congress and many more [4].

He was one of the first medical professionals to introduce nitrous oxide (laughing gas) as an anaesthetic in dentistry. This helped dentists to pull teeth without causing extreme pain to the patients and proved to be a safe and effective remedy for the anxiety and discomfort that a patient may get by a visit to the dentist on the other hand. This anxiety free dentistry is still in use helping us in achieving optimum dental health in the most comfortable way possible [5].

Dr. Black studied diseases of the mouth and made observations on the influence of acid or alkaline condition upon the teeth. He studied tissues and made microscopic slides of his own [5].

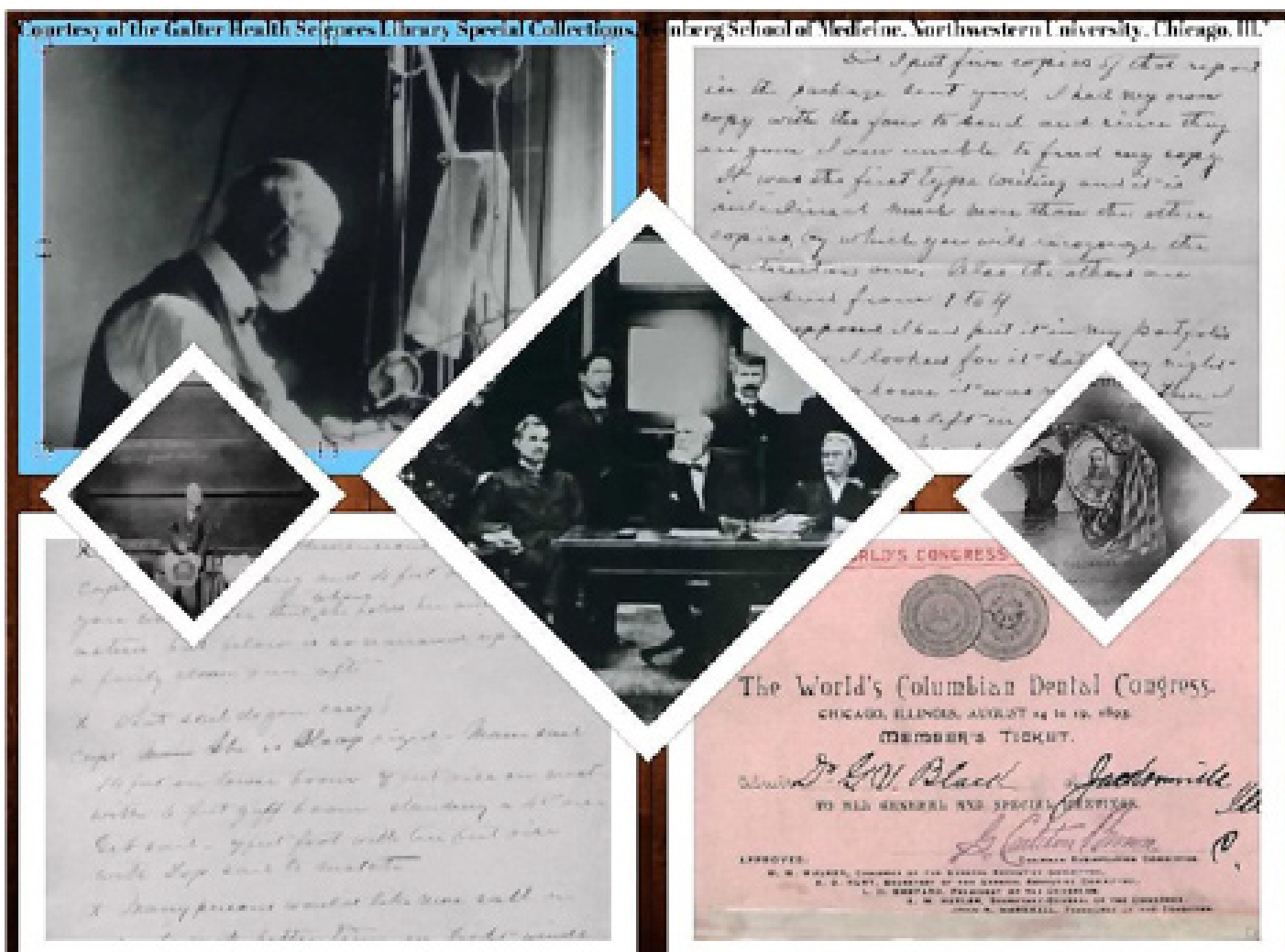
Emerging discoveries of that time fired the mind of this dentist. In 1883, he prepared first book, "The formation of poisons by Microorganisms". In 1890, appeared the first edition of his Dental anatomy followed by many phenomenal books namely Operative dentistry (2 volumes), The Periosteum and Peridental Membrane, Special Dental Pathology [1].

In addition to it, he had published more than 1300 papers from 1864-1915 [2].

As we all know prevention is better than cure, a case in point from 1891 when Black introduced an idea to prevent recurrence of dental caries by publishing his concept 'EXTENSION FOR PREVENTION' in an article in Dental Cosmos. This was to obtain self cleansing benefit to prevent food lodgment In Northwestern University once Dr. Black told his students that "The day is surely coming and perhaps within the lifetime of you young men before



[Table/Fig-1]: Dr. G.V. Black in his dental office "Courtesy National Museum of Dentistry, Baltimore, Maryland."



[Table/Fig-2]: Photographs "Courtesy of the Galter Health Sciences Library Special Collections, Feinberg School of Medicine, Northwestern University, Chicago, Ill."

Upper left: Dr. Black as a scientist (at a marble grinding machine making thin tooth section).

Upper right: Letter to Dr. F.S. McKay Colorado springs Colorado in Dr. Black's handwriting from Chicago Sept.6, 1907.

Centre from left to right: Dr. Black as a teacher (with teaching models of tooth), Dr. Black as an administrator, Document pertaining to world's Columbian dental congress.

Lower left: Dr. Black's conversation with Captain regarding "Microbe".

Lower right: Dr. G.V. Black's member ticket of The world's Columbian dental congress.

me, when we will be engaged in practicing preventive, rather than reparative, dentistry. "He standardized the rules of cavity preparation and fillings [4].

He proposed classification on his own name 'Black's Classification of Caries Lesions' that was used unchanged for more than a century, just modified by adding one category to his classification system recently.

He standardized operative procedures and credited with the first acceptable nomenclature and classification of hand instruments. His classification of types of tooth decay known as Black's classification of caries lesion is still in use. He advocated conservative dental treatment thus innovated formula of amalgam which was boon of that time and revolutionized dental practice. Till 1945, army dentists inserted 68,170,326 permanent restorations and most of them were amalgam [2].

Dr. Black taught at several dental schools in the area. He invented almost all of his instruments including cord driven dental engine with a foot motor in 1870 and gnathodynamometer for measuring bite force and used this instrument every year to make a trial of the force of the teeth among the students in his classes [3].

Dr. Greene had hardly any interest in patents and raised dentistry from trade to profession. He invented dozens of new instruments and materials. Instead of commercializing his amalgam formula, he gathered manufacturers; taught them to make the alloy in a nominal fee and left business details to them [6].

At the time of searching google patents, only two patents were found to be issued on the name of Dr. Greene Vardiman Black on

August 8, 1871. One is an improvement in dental drills (US117733) and the other is improvement in universal joints (US117732). On Jan 2 1877, a reissue patent for his dental drill (USRE7452) is credited on his account [7].

In 1897, he left his dental practice of Jacksonville and became second dean of Northwestern University Dental School which became well known, largest and outstanding institution of its kind under his proficient administration of 17 years [Table/Fig-1].

At that time etiology of mottling of enamel was unknown. There was no treatment of unaesthetic white and brown spots on teeth. Dr. Black spent summer of 1909 with his friend Dr. Frederick S. McKay in Colorado Springs, to study Colorado brown stain [8].

With the years of hard work and research, he not only carved new paths for field of dentistry, but also extricated time to design his own sloop-rigged boat as a passion towards nature since childhood and named it 'Microbe' [5] [Table/Fig-2].

In the wake of shed loaded innovations and fame, one may presume that Dr. Black might be wealthy too!! Right? If he had taken an interest in economic side of his inventions and applied for patents aggressively, he would have left huge amount of wealth for his coming generations. However, he chosen wealth of knowledge, experience and guidance for future dentists as he was a person with simple living and high thinking. Although, he left a rich heritage of four children of the same splendid qualities and enough for his dependents when he died in 31st August 1915 at the grand age of 79 years. Eventually he was buried at the Diamond Grove Cemetery, Jacksonville [1].

Soon after Black's Death in 1915, the National Dental Association appointed sculptor Fredrick Cleveland Hibbard to fabricate the seated statue of Dr. GV Black. Frederick C. Hibbard, creator of Black's monument is well known for the series of sculptures related to civil war. In 1918, more than 1500 members eye witnessed the inauguration function of the statue in Lincoln Park, on North Avenue at Astor Street Chicago [6].

It is a famous saying by William Shakespeare: "Be not afraid of greatness: Some are born great, some achieve greatness and some have greatness thrust upon them" Dr. Black's magnificent contributions and unselfish devotion stamped the impress of greatness. Indifferent to money, this tirelessly inventive man is a true legendary hero.

Posthumously he was inducted into the International Hall of Fame of Dentistry of the Pierre Fauchard Academy on February 25, 1995 [3]. Dr. Black once pedagogue to his students that "The professional person has no right to be other than a continuous student". This phrase fits like a hand in glove on the current trend of Continuing Dental Education these days [4].

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