HARVEY CUSHING—A MASTER MIND*

His life was gentle and the elements so mixed in him that Nature might stand up and say to all the world this was the man.

That was Harvey Cushing, a man whose life led the medical world to assume the highest of human values. Seemingly, men of eminence were dropped on to Earth's lap in 1869 and that year has been profoundly significant in the world's context. The birth centenary year of Gandhiji runs parallel with that of Cushing. Gandhiji who lived to emancipate the human mind from the shackles of ignorance and bondage while Cushing made known to the modern world of medicine the art of probing into the human brain to rectify wrongs in the master construction of Nature.

Harvey Cushing was born on 8th April, 1869 at Cleveland, U.S.A. He was the youngest of 10 children. His lineage and dignity enabled him to attain the glory of a master mind of Medicine. He emerged as a true scientist, pathfinder, artist, writer and bibliophile. He was, above all, a fine doctor. He was a man of pleasant manners and personal charm and one who attracted students from all over the world. He remains unexcelled in the way of life he led. His intellectual curiosity often led him into many highways and byways; yet, he struck the right goal in all the intellectual games he played. It could be well said of him that he "lived as to die tomorrow and learned as to live for ever".

Cushing further thought with Talmud that:

"The day is short and work is great
The reward is great and the Master praises
It is not incumbent on thee to
complete the work but thou must not
therefore cease from it".

Harvey Cushing spent his student days at Yale and his early career at Harvard and Johns Hopkins serve as a perpetual source of inspiration to medical students and members of the medical profession. In every activity he participated, he aimed at perfection—be it in the experimental laboratory, his theatre for skilled surgery, in the playground or at art. It thrills the reader to note that Cushing's contacts and contemporaries included Sir William Osler, Sir Charles Sherrington, Dr. I. P. Pavlov, Walter Cannon, Halsted, Welch, Klebs, Sir Henry Hald and such other workers on the harmony of life.

It would be a formidable task indeed to narrate the full life of Harvey Cushing, in the manner that the famed physiologist and doyen of medical historians, Dr. John F. Fulton,

*Based on the deliberations convened at the birth centenary commemoration meeting on “The Life and Work of Harvey Cushing”—March, 1969 under the auspices of the Indian Association of History of Medicine.
Cushing was a lover of books and to his credit stands the great library he bequeathed to Yale. His remarkable manners as a man of letters are evident in the address he made on the occasion of the inauguration of the Dudley Allen Medical Library in Cleveland in November 1926. He emphatically said “Great benefactions start with a gift of books. Some of our great Universities have come from equally modest beginnings, books having proved a surer way of making a start than a gift of money. So it was that Yale, for example, was founded. Books are tangible property and their sponsors must not only provide for them but make it possible for others to use them. Money gets dissipated and it is disagreeable as to how it had best be invested or expended. No such question arises when books are concerned. The soul of an institution that has any pretence to learning comes to reside in its libraries, no less than it is the soul of a profession or of an individual. If you are to infect the young with the reading habit, you must start a trap for them, so baited that they will walk into it unawares. Books must be made accessible”. Cushing had on one occasion made a witty remark that he had a friend whose “metabolism and pulse rate in the presence of other people’s books ran high and he grew exophthalmic with hyperbiblism”. Cushing’s biography of Sir William Osler, “the world’s best doctor”, has had and shall continue to make its immense impact on posterity. This masterpiece made Cushing the most talked of man in medicine. The “Osler biography” brought for Cushing the Pulitzer Prize in 1926. He was a devout admirer of Osler and he followed Osler’s bright epigram “Promptness is the quality in a physician necessary for success”. Cushing further made a dedication to medical students of John Hopkins “in the hope that something of Osler’s spirit may be conveyed to those of a generation that has not known him”. One recollects at this moment what was said of Cushing by Sir David Cheever when the latter presented him the Bigelow Medal for his gracious and noteworthy services to John Hopkins. The tribute to Cushing by Cheever ran thus: “Somehow in your busy life, you have found time to indulge in your love of the humanities. You are a bibliophile and have assembled a notable library, whence the stimulating traditions of medical history have seeped by way of your talk and writings into the minds of those about you. Two hundred and fifty titles scarcely comprehend the total of your contributions to medical and lay literature—papers whose scientific importance is equalled by a fertility of imagination and a charm of literary style which make their reading a double pleasure. And then your admiration for one of the greatest figures in contemporary medicine led you, in recording imperishably the life of Sir William Osler, to write one of the greatest of medical biographies” — Cushing was possessed of a philosophy characteristically inspired by George Eliot’s lines:
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Medical Library in Cleveland.
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2. If you are to infect
3. They will walk
4. A devilish attention to patching up a torn back or corner of
5. And with their mild persistence urge

Thus is this infinitesmally wee epitome of one of Cushing's facets as “a man of humanities”.

Cushing and Neuro-Surgery

It was during the years that Cushing spent and worked at Peter Bent Brigham Hospital
in Boston that he consolidated his ideas on neurosurgery. During the period 1895-1907,
Cushing attained renown as a ‘brain surgeon’. Patients began to come to him from all parts
the world. Cushing's interests in neuro-surgery where his own and not the outcome of
circumstances or to personalities around. He was particularly fond of neurophysiology as a
student at Harvard Medical School. He attempted tackling several categories of lesions in his
early days while at this great speciality. The outstanding cases of neurological interest
commented upon as those in which Cushing participated with surgical skill, were those of
Jordan Hunter and John Maloney, whose records are still preserved (1895-1896). His work on
“haematomyelia from gunshot wounds of the Spine”, “surgical relief of trigeminal neuralgia”,
“the Gasserian ganglion operation”, “mapping of dermatomes”, “problems of peripheral nerve
degenerations”, “lesions and tumours of the cerebral hemispheres” were some of his realms
of enthusiastic study as an early investigator towards the “birth of a great speciality”. In
November, 1904, he made his first report on the special field of neurological surgery in an
address before the Academy of Medicine at Cleveland. He wrote “I shall attempt to formulate
some personal views concerning a branch of surgery, which in this country at least, largely
ewing to the allurement of other and more promising fields of operative endeavour has hardly
received the attention it deserves". ("The special field of neurological surgery" Cleveland Medical Journal, January 1905) Cushing laid the foundations for the broad based scientific study of the natural history of brain tumours and he recognised that some tumours were more favourable for surgical intervention than others. In the years that followed, Cushing through his extraordinary and exquisite skill emerged as a "master—pioneer neurosurgeon".

Cushing—the Pituitary and the Hypothalamus

The magnificent contributions of Cushing to present knowledge of the "hypophysis cerebri" make very valuable study. It was on the 28th December, 1909 when, at a combined meeting of the American Physiological Society and the American Association for the advancement of science, Cushing in his wonderful oration gave out a summary of the functions of the pituitary gland. In June 1909, before the Section of Surgery of the American Medical Association, he presented a paper on the pituitary introducing to the medical world the terms "hypo" and "hyper" pituitarism. In so doing, he paved the way for the clinical distinction now fully recognised between states caused by excess secretory activity of the pituitary and its under function. (Publication—The hypophysis cerebri-clinical aspects of hyperpituitarism and of hypopituitarism"—Journal of the American Medical Association, 24th July, 1909). Later followed Cushing's deep interests in everything relating to the pituitary. He began "attacking" surgically the cases of pituitary tumours. Cases of acromegaly were surgically treated by him. (Partial hypophysectomy for acromegaly with remarks on the function of the hypophysis, Annals of Surgery, December 1909). It is exciting to recall Cushing's fascination for the circus, particularly for its side-shows wherein the players included giants, dwarf fat women and midgets. He kept in close touch with such circus personalities. It is mentioned in the recent history of medical science that Sir Arthur Keith, the distinguished curator of the Hunterian Museum consented, on Cushing's insistence, to remove the top of the skull of the famous Irish giant in order to ascertain the condition of the sella turcica wherein the pituitary body was lodged. On one occasion, during the hot summer of 1929, after his family went on holiday, Cushing filled the house with dwarfs on whom he made attempts to test the efficacy of recently prepared growth hormones.

To the clinical world, Cushing brought to light his observations on yet another endocrine syndrome. It is a fact of great impact that one of Cushing's most original contributions to clinical medicine was made when he was in his sixty-third year. By dint of hard work he made out his notes on a special group of "pituitary patient" labelled as "polyglandular syndrome". It was not until 1930, that Cushing could find a basophilic tumour of the pituitary in some of these cases. It was known that tumours of the adrenal cortex may be associated with a clinical picture closely similar to that of pituitary basophilism. Cushing's deductions on "Cushing's basophilism" as referred to these days were that the basophilic cells of the pituitary body exerted their hyperactivated effects on the adrenal cortical cells. He published his findings in 1932—"The basophil adenomas of the pituitary body and the clinical manifestations (Pituitary basophilism)" March 1932.
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It is of remarkable note to recapitulate Cushing’s statements on the hypothalamo-pituitary links too. Describing his concept of hypothalamic mechanisms (1930) at the age of 61, he said “The pituitary body is a combined neuro-epithelial organ present in all craniates. . . . The infundibular lobe is an expansion of that ancient portion of the cerebrum, the diencephalon, which retains its simple structure in all creatures that can boast of a brain . . . . Herein lie ancestrally important mechanisms common to all species, which have to do not only with their vegetative functions, but with their primitive instincts, in mating, in satisfying hunger and thirst, in restoration from fatigue by sleep, in regulation of body temperature, in self-protection by combat or escape . . . . Cushing quoted Thomas Willis on the hypothalamus thus “There is nothing in the whole fabric of an animal body more worthy of admiration, nothing can be conceived as more skilful and nothing which argues more forcefully the providence of a divine Author”.

Thus worked the “hypothalamo-hypophyseal” mind of Cushing. He published a marvelous monograph in highly technical language on “The pituitary body and its disorders”.

Cushing did much more to elevate the scientific standards of surgery besides improving surgical technical skill. He endeavoured to see that X’Rays were employed for diagnosis and therapy. This was his pioneer effort in the U.S.A. He was responsible for enforcing the idea that the patient’s blood pressure should be recorded during surgical procedure. He adopted the methods of electrocautery in neurosurgery.

It is difficult indeed to offer a detailed coverage on this multifaceted, magnetic man of medical science who steered his ship of life to a celestial shore. He led a simple, unostentatious life seeking truth in science. He had fully adapted to the circumstances around him. His friends included many illustrious great and reading their correspondence sets the hearts into heaves.

Cushing was one of the greatest of men known—a wonderful surgeon, the acknowledged master of all the intricacies of the convolutions of the human brain. He returned to his Maker when his mortal heart ceased to play its physical notes at 2-45 a. m. on 7th October, 1939—at the age of 70.

Yet, Cushing remains immortal to medical students and men of the medical profession. He was a man of “CHARACTER” and on such “Character” he once quoted thus:

“Fame is a vapour, popularity an accident, riches take wings, those who cheer today will curse tomorrow, only one thing endures character—that ‘supreme quality that stirs within us’”

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