History Online Projects 2019

**Project Title \***

History of Neurology in India: From the Ancient to the Modern Period

**Type of Project \***

**Project Short Description \* 800 words**

The history of neurology in India is still a fairly unknown subject even within the subcontinent. With the advent of modern medicine, psychiatry and psychology into the education system, interest in indigenous ideas about such subjects has not received the attention it deserves. This is regrettable as Indians have made contributions to the field of neurology since ancient time right up to the modern age.

This project will develop a website to host information on the history of neurology in India with interactive graphics, animations and texts. It will present information from the earliest recorded neurological diseases through the medieval period and up to the modern age. This tripartite division will form the broad basis for the website from which will branch off additional information from source texts (and their translations), images and interactive graphics. The basic structure of the website will be coded using PHP and Cascading Style Sheets (CSS) which will enable the coding of interactive content.

The Atharva Veda (circa. 800 BCE), Sushruta Samhita and the Charaka Samhita present the earliest description of neurological disorders and neuroanatomy. The explanations for neurological disorders in these texts is based on the theory of the three humours: vata (air), pitta (bile), and kapha (phlegm). Imbalance of these humours was hypothesised to produce neurological disorders such as epilepsy (apasmrti), Parkinson’s disease (kampavata), chronic headaches (shiroruk), numbness of the feet (paada suptata), sciatica (gridhrasi), hemiplegia (pakshavadha), tremors (vepathu) among many other carefully classified maladies. These will be presented with graphics, original Sanskrit texts along with English translations and commentaries comparing their diagnoses with modern equivalents. Along with the classification of neurological disorders, these ancient texts also show an appreciation for classifying neuroanatomy. Sushruta discovered ten cranial nerves and attempted to associate them with sensory functions such as sight, hearing, taste, smell and touch. He reports to have been able to identify the optic, auditory and olfactory nerves by dissections of patients who had suffered from blindness, deafness and anosmia.

The medieval period consisted of established centres of learning such as the Universities in Taxila, Kashi and Nalanda. These promoted the writing of commentaries on the earlier texts and the reinterpretation of these in the light of new discoveries. Buddhists, Jains and Hindus along with all other religious communities in India contributed to this venture at these centres of learning. Buddhist texts such as the Lotus Sutra, Milinda Panha, Maha Vagga and Chula Vagga describe ayurvedic principles. Buddhist ideas such as vipassana yoga have had far-reaching influences in modern psychological techniques such as mindfulness meditation (which has been shown to be effective in treating depression).

Western approaches to neurology were introduced by the British government with various government acts such as the Quarantine Act (1825), Vaccination Act (1880), Birth and Death Registration Act (1896) and Epidemic Act (1897). The first medical colleges were established in Kolkata and Chennai (in 1835) and Mumbai (in 1843). This was followed by further medical colleges in Hyderabad (1846), Lahore (1860), Pune (1878) and Sindh (1881) so that by 1946 there were about 2400 colleges all over British India. The Medical Council of India was established in 1934 to oversee these institutions. Rapid establishment ensued after Indian independence in 1947 but neurologists and neurosurgeons were still trained abroad until the latter part of the 20th century. The first recorded neurosurgical procedure was a transsphenoidal hypophysectomy conducted in 1935 and while the early 20th century was dominated by neurosurgeons, other researchers started to emerge. Professors K. P. Bhargava, B. N. Dhawan, M. Hasan, S. S. Parmar and P. K. Seth collectively formed the Indian Academy of Neurosciences in 1982 which has grown to 800 members now. There are numerous other pioneers who introduced new techniques and research methods into India.

Currently, studies have found that 54.76% neurologists spend less than 5 hours a day in teaching and about 16% of neurologists spend up to 2 hours a day on research. India is 21st among 26 countries surveyed on neuroscience publications, citations and international collaborations. This has to change and further funding for appropriate research has to be initiated. With neurological disorders such as stroke becoming a leading cause of death and disability adjusted years in India, neurology is set to become increasingly important to the Indian Healthcare System.

This brief history is just a taste of the plethora of information that is not fully available to the general public. This project will remedy that with our interactive website which we will also promote in appropriate forums such as the American Psychological Association, British Neuroscience Association, Indian Academy of Neurology, Neurological Society of India, and Federation of European Neuroscience Societies among others. Engaging students, researchers and the general public on these issues will be sure to develop interest in a region that is in need of further neurological research.

**Description of Timeline/Workflow \* 700 words**

The project will begin with information gathering, setting goals and refining the definition of the target audience. This will allow us to fine tune the manner of presentation and the types of interactive content that will be required.

At the planning stage, we will prepare a sitemap sketch and a mock-up of the website. This will also include designing the connections between pages and the overall look of the website. We will also begin purchasing the required hardware and software for the project.

At the design stage, we will prepare page layouts using cascading style sheets (CSS). CSS will allow for the modification of the website design during the development stage and during maintenance as they allow us to define an overall design for the website without having to modify the code on each webpage. We will get feedback from colleagues and students in our department to improve the layout.

We will then begin migration of the information into the website. We will also develop the graphics, illustrations and interactive content (*e.g.*, maps of neurological colleges, maps of ancient universities, and anatomical guides from ancient to modern times). These will be included into the webpage and integrated in a manner that will allow for an immersive experience for the user.

The website will then be tested for irregularities and uploaded into the web server. We will again test all the links, graphics, and interactive content for errors. Then the website will be launched for the general public.