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Mini Review

Nobel Prize in “Physiology or Medicine” for 2021

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Conspectus

Human experiences and historical explanations: We, homo sapiens sense heat, burning taste of chili peppers, cold, pain and touch inadvertently. For a 16th century man, it was obvious and convincing explanation offered (then sufficient) was that it was a natural phenomenon. A painful burning sensation when a foot is touching an open flame was rationalized by René Descartes, a 17th century philosopher, with a concept that particles of fire send a mechanical signal by pulling a thread between the skin and brain. In the 1880s, distinct sensory spots on the skin were invoked which react to specific thermal (heat or cold) and touch (pressure/mechanical) stimuli.

Nobel prize winning research: Updated information, knowledge, embedded intelligence, discoveries and inventions push towards peace of life in human subjects in their interactions with inside and outside environments. The scientific outcome for good of humankind has been honoured with Noble awards for scientists who are responsible for it. During the period 1901 to 1945, four Nobel Prizes were awarded in Physiology or Medicine for knowledge extraction about neurons and nervous system. The focal themes were elucidation of the structure of the nervous system, anatomical description of the somatosensory assembly (1906), function of somatosensory neurons (1932), sensory function of the Vagus nerve in reflexes/ aortic mechanisms in the regulation of respiration (1938), differentiated functions of single somatosensory nerve fibers that react to distinct stimuli, like in the responses to painful and non-painful touch (1944).

During later period of 1950s, it was found that capsaicin induces ionic currents and act on sensory nerves.

Unsolved riddles: What was not clear by then was

- ! How the chemical actually exerted this function?
- ! Was the ion channel itself function as a transducer?
- ! What are the ultimate sensors of touch and mechanical stimuli in humans?
- ! How it is converted into electrical impulse (action potentials) within the somatosensory nerve fibres?