

John Hughlings Jackson and Thomas Laycock: Brain and Mind.

Laycock's influence on British Neuropsychiatry

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The place of the Yorkshireman John Hughlings Jackson (1835-1911) (figure 1) in the history of neurology is well documented, so much so that he has been described as the father of British neurology by Critchley and Critchley (1998). As physician to the newly established (1860) National Hospital for the Paralysed and Epileptic, and at the older London Hospital, he wrote extensively on the anatomical and physiological approach to neurological diseases, cortical localisation, epilepsy and the nature of the epileptic discharge, aphasia, paralysis and disorders of movement, neuro-ophthalmology, the brain as a sensorimotor machine, evolutionary neurophysiology and dissolution in neurological disease, and finally his doctrine of concomitance of the relationship of brain to mind (York and Steinberg 2006).

Thomas Laycock and his influence on Jackson

The influence of Thomas Laycock (1812-1876) (figure 2), also a Yorkshireman, on neurology is much less well recorded or appreciated, although as Jackson's teacher at the York Medical School from 1852-1855 he introduced him to neurology and greatly influenced his approach to brain function and diseases of the nervous system, especially through Laycock's theory of the reflex functions of the brain, which he presented to the British Association for the Advancement of Science in York in 1844.

Laycock studied medicine at University College London (1833-1835), followed by a session at La Pitié in Paris, where he absorbed the French clinical-anatomical-physiological-pathological method, which he later imparted to Jackson. He also graduated MD at Gottingen in 1839 before returning to York as Lecturer in Medicine. Unlike the philosopher physician Jackson he was fluent in French and German and took a scientific approach to medicine, becoming Statistical Secretary to the British Association for the Advancement of Science from 1844.

In 1855/1856 Jackson and Laycock headed in opposite directions from York. Jackson proceeded to London to complete his medical studies and later to develop his neurological career. Laycock successfully applied for the Chair of the Practice of Physic in Edinburgh, the first Englishman to be appointed to the most prestigious Chair in Medicine in the UK at that time. In addition to his teaching duties Laycock wrote widely on general medicine, including infectious diseases and public health, but from the beginning his overriding interest was always in nervous and mental diseases. His 1840 book, 'An Essay on Hysteria', was noted and commended by Charcot. In 1851 he translated 'A Dissertation on the Functions of the Nervous System' by G. Prochaska from Latin into English. In 1860 he published his magnum opus, 'Mind and Brain' in 2 volumes. Based on his encyclopaedic knowledge of the scientific, medical and

philosophical literature Laycock took an evolutionary view of brain and mind and of dissolution in disease. He viewed mental diseases as diseases of brain, based on continuity between physical, vital and mental energies. He advocated the study of medical psychology in health and insanity as fundamental to medicine, society and culture.

Accordingly, in 1859 Laycock established the first-ever University course on medical psychology and mental diseases, for which he was additionally appointed Lecturer in Medical Psychology and Mental Diseases. Earlier in 1856 he had been appointed a Fellow of the Royal Society of Edinburgh and Physician to the Queen in Scotland. In 1868 he was elected

President of the Medico-Psychological Association, giving his Presidential address in York to which Jackson travelled from London (Reynolds 2020).

Jackson's brain/mind theory - Sensorimotor machine and concomitance

Influenced by Laycock, especially his theory of the reflex functions of the brain, Jackson continued to search for fundamental principles of nervous action. Building on Laycock's theory he developed his own theory in the 1870s and 1880s that the brain is exclusively a sensorimotor machine associated with his doctrine of brain/mind concomitance. He viewed the central nervous system as made up of processes of increasing degrees of complexity representing impressions and movements. The whole nervous system was 'a



Figure 1: John Hughlings Jackson (1835-1911). Public domain

sensorimotor machine, a co-ordinating system from top to bottom'. Furthermore brain and mental states are intrinsically different, occur in parallel and have no causal interaction between them. There is no physiology of the mind any more than there is a psychology of the nervous system. Thus:

'States of consciousness (or synonymously states of mind) are utterly different from nervous states of the highest centres; the two things occur together, for every mental state there being a correlative nervous state; although the two things occur in parallelism there is no interference of one with the other' (Jackson 1887).

Curiously, Jackson does not acknowledge Laycock in his own evolutionary approach to brain and mind, including dissolution in neurological disease, but instead he cites the evolutionary philosopher, Herbert Spencer (1820-1903) (Reynolds 2020).

Laycock's brain/mind theory. Continuity and unconscious cerebration

In the meanwhile, however, Laycock had developed a very different concept of the relations between brain and mind. Although both saw the brain and mind as the highest point of evolutionary development, Laycock concluded from his theory that although much of human behaviour was reflex, automatic and involuntary, some was conscious and voluntary. Thus, he opened the door to what he called 'unconscious cerebration'. Furthermore, unlike Jackson he separated 'mind' from 'consciousness'. For Laycock consciousness was conscious awareness. Mind he described as an agency in man distinct from matter and organisation but dependent on organisation, i.e. the brain, for the due display of its effects. Mind originates motion or wills, perceives the qualities of matter, compares the perceptions, and thinks. Finite minds could not perceive matter without force (energy). Finite minds transfer force. The brain is adapted; the mind is the force that adapts to ends. All mental states are reflections in our consciousness of the vital laws and forces. Mental science is linked to physics through biology and the laws of life.

Jackson on the other hand considered consciousness and mind to be synonymous terms. He never defined 'mind', although he considered the brain and perhaps the whole body to be 'the organ of mind'. He struggled with the concept of unconscious states of mind which he considered a contradiction and rejected. Whereas Laycock envisaged higher centres in the brain serving instincts, feelings, knowledge and reason, Jackson claimed that it was impossible to locate mental function because the nervous system is exclusively sensorimotor. Although mental disease may be present, he viewed

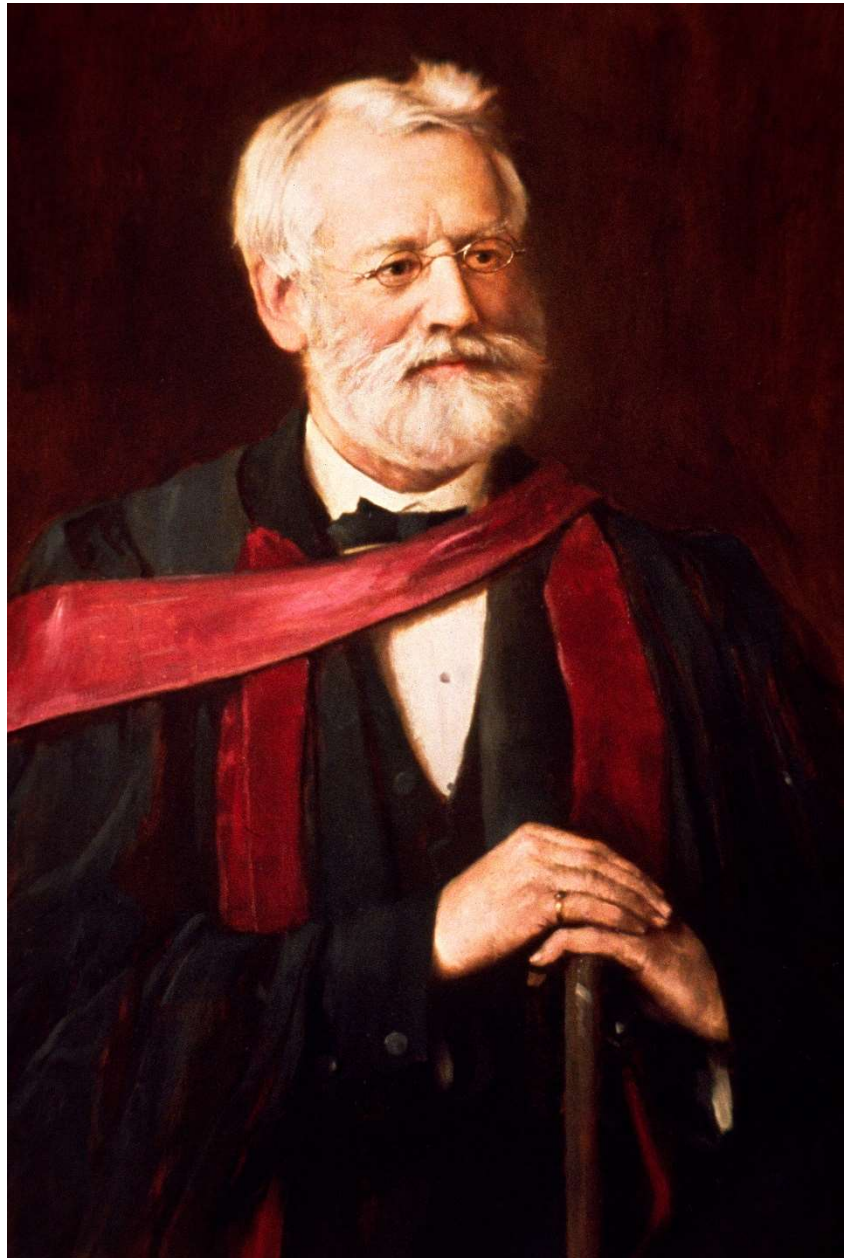


Figure 2: Thomas Laycock(1812-1876). Reprinted by kind permission of the Royal College of Physicians of Edinburgh.

its nature as beyond the purview of medical science (Reynolds 2020).

Laycock's Influence on British neuropsychiatry

Laycock's teaching courses on Medical Psychology and Mental Diseases were his most popular, contributing to a new generation of neurologists and Asylum superintendents, some very distinguished and who acknowledge their debt to him.

Among the neurologists were Sir David Ferrier and Sir Byrom Bramwell in

Edinburgh, along with Hughlings Jackson and Sir Jonathon Hutchinson in York. Among the Alienists, later called psychiatrists, were Sir Thomas Clouston and Sir James Crichton-Browne. As a new superintendent of the Edinburgh Asylum the young Thomas Clouston facilitated and contributed to the teaching course of Laycock who he greatly respected. After the death of Laycock in 1876 Clouston was appointed Lecturer in Mental Diseases in 1879 and went on to develop Edinburgh psychiatry for which he was later knighted.

James Crichton-Browne was first in Laycock's class and was soon appointed superintendent of the West Riding Lunatic Asylum in Wakefield from 1866 to 1876. Influenced by Laycock's teaching of the need for scientific study of insanity, he transformed Wakefield into the leading Asylum in Victorian Britain by introducing scientific research and teaching in addition to its humanitarian care (Rollin and Reynolds 2018). He established laboratory space for pathological, physiological and histological brain research for his own research staff, including Herbert Major and William Bevan Lewis, who both later succeeded him as superintendent, and also prominent external medical researchers, notably David Ferrier, now at Kings College London and Thomas Clifford Allbutt, senior physician at the nearby Leeds Medical school, who later went on to become Regius Professor of Medicine at Cambridge as well as a Commissioner for Lunacy. Crichton-Browne also initiated and edited the now famous Annual Reports of the West Riding Lunatic Asylum between 1871 and 1876 to which leading British neurologists and alienists contributed, including Hughlings Jackson, David Ferrier and John C. Bucknill. Together with his colleague Allbutt in Leeds Crichton-Browne was the first to establish teaching courses on brain and mental diseases for medical students from 1868 onwards. This eventually led to the first UK University Professor of Mental Diseases or Psychiatry at Leeds in 1908, the first holder being William Bevan Lewis from Wakefield.

When Crichton-Browne left Wakefield in 1876 to become Lord Chancellor's Visitor in London publication of the Annual West Riding Reports ceased but he then initiated in 1878 the journal 'Brain' edited by himself, Hughlings Jackson, Ferrier and Bucknill, and which is now the longest established and most prestigious neurological journal in this or any other country. Laycock had therefore taught 3 of the founding editors of Brain.

Influenced by Laycock's teachings a new scientific approach to Mental Diseases spread southwards from the Leeds-Wakefield axis to Cambridge, London and beyond, assisted by other Yorkshire influences, including the earlier new moral approach to care initiated by the Tuke family at The Retreat in York, as well as by Henry Maudsley in London after his initial experience at Wakefield (Rollin and Reynolds 2018).

Interestingly, in Hunter and Macalpine's classic 'Three Hundred Years of Psychiatry 1535-1860' (1963) the last chapter is about Laycock and includes extracts from his own classic 2 volume 'Mind and Brain'. This is a fitting acknowledgment of Laycock's work and his subsequent influence.

Conclusions

Laycock was the primary and most significant influence on Jackson's interests and approach to diseases of the nervous system. Jackson's view of the brain as an exclusively sensorimotor machine and his doctrine of concomitance of brain and mind were founded on Laycock's theory of the reflex actions of the brain. Laycock, however, moved on, separated mind from consciousness and viewed his reflex theory as opening the door to unconscious and conscious brain activity, both of which Jackson rejected. Laycock considered mind to be causally linked to the brain through physics and biology and urged the study of mind in health and insanity through medical

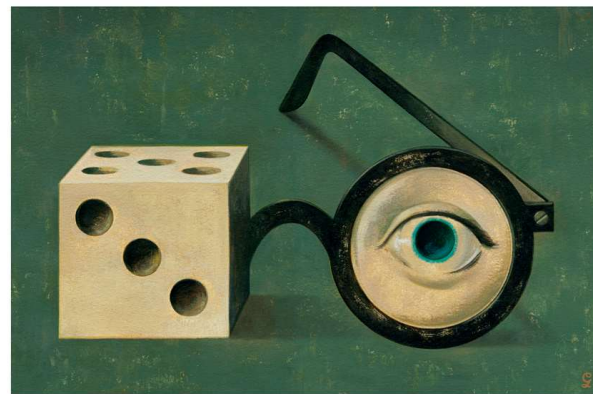
science. Laycock's brain/mind concepts are nearer to current concepts than those of Jackson and he would have approved of the modern neuroscientific approach to mental illness which he first promoted. For many reasons, Jackson is rightly respected as a seminal influence on neurology. Laycock, however, is a rather neglected figure, although his views of brain, mind and disease are nearer to our modern concepts than those of Jackson. In Edinburgh and York Laycock taught a distinguished generation of neurologists and psychiatrists who profoundly influenced the development of neurology and psychiatry in Britain in the second half of the nineteenth century. If Jackson is the father of British neurology, Laycock has some claim to be considered father of British Neuropsychiatry.

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Statement

This article is based on the study by Reynolds E.H. John Hughlings Jackson and Thomas Laycock: Brain and Mind. *Brain* 2020; 143: 711-714



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