A New Science

In the 1890s, when Alexander first developed his Technique, very little was known about the nervous system. However, during his life significant advances were made in the infant science of neurophysiology and Alexander derived great satisfaction from the fact that, as new understanding developed in this field, his own observations were confirmed and more fully explained.

Over the years, the work of a handful of pioneering scientists has become associated with the Alexander Technique.

Charles Sherrington

British physiologist, 1857-1952.
In many ways the father of modern neurology, Sherrington discovered and named such fundamental structures of the nervous system as the *neurone* and the *synapse*, and was awarded the Nobel Prize for Physiology or Medicine in 1932. Sherrington established the classification of the sensory organs, including the proprioceptors. He also discovered the process of reciprocal inhibition, whereby the excitation of one muscle group causes a simultaneous predisposition to release in the opposing muscles. This demonstrates, in a simple way, the fundamental necessity of muscular release in the initiation of movement.

Appreciating the neurological complexity of the simplest of movements, Sherrington wrote:

> Mr Alexander has done a service to the subject by insistently treating each act as involving the whole integrated individual, the whole psychophysical man. To take a step is an affair, not of this or that limb solely, but of the total neuromuscular activity of the moment – not least of the head and neck.[1]

George Coghill

American neurologist, 1872-1941.
The first researcher to demonstrate the direct correlation between the physical structure of the nervous system, and the range of behaviour available to an animal. He carried out his observations on the salamander *Amblystoma*, in which he discovered that the movements of swimming and walking emerge in the growing embryo as part of a generalised development of the nervous system's capacity to direct movement throughout the body. This generalised development expresses itself through movements, initially of the head, which progress tailwards throughout the spine before radiating out into the limbs. Coghill saw that this Total Pattern of behaviour remained dominant even when, at a later stage, Partial Patterns of behaviour (for example, the isolated movement of one limb) became available, and that,

> In the interest of the welfare of the organism as a whole, partial patterns must not attain complete independence of action; they must be held under control by the process of total integration.[2]

Coghill's hopes that his findings might, at least partly, be applicable to human development were fulfilled through later research, in which,

> Every bit of evidence ... indicates that the responses of human foetuses to tactile stimulation follow a Coghillian sequence.[3]

Of Alexander, Coghill wrote:

> The practice of Mr F Matthias Alexander in treating the human body is founded, as I understand it, on … well established biological principles. ... These principles I have established through forty years of anatomical and physiological study of *Amblystoma* of embryonic and larval stages, and they appear to hold for other vertebrates as well.[4]

Rudolf Magnus

German neurologist, 1873-1927.
Magnus worked on the neurology of mammalian posture. He discovered the location (in the brain stem) of the main nervous centres for the postural reflexes. He named the integrating function of this part of the nervous system the *zentralapparat* (central apparatus), a concept which been linked to Alexander's primary control. Of all of Magnus' research, perhaps the most interesting to the Alexander student is that concerning the righting reflexes. These reflexes tend to return the body to "neutral" in between voluntary movements towards a specific purpose. The appropriate "allowing" of the righting reflexes seems to be part of the Alexandrian skill of non-doing.

Nikolaas Tinbergen

Dutch zoologist, 1907-1988, pioneer of modern ethology. Tinbergen refined Coghill's ideas, noting that many patterns of behaviour more complex than the early development of locomotion do *not* "crystallise out" of the Total Pattern but appear to arise separately, to be harmonised with the Total Pattern only later. Towards the end of his life Tinbergen became a keen student of the Alexander Technique. In 1973, when he shared the Nobel Prize for Physiology or Medicine with two other ethologists, Tinbergen devoted part of his acceptance speech to Alexander, pointing out the similarity between his own observational methodology and that of Alexander. Both Tinbergen's own work, and Alexander's (he said) showed the scientific importance of "watching and wondering".[5]

1 *The Endeavour of Jean Fernel*, 1946.
2 *Science*, August 1933, "The Neuro-embryologic Study of Behaviour".
3 *Yale Journal of Biology and Medicine*, No8 1936, D Hooker, "Early Foetal Activity in Mammals".
4 *The Universal Constant in Living*, FM Alexander, 1941 "Appreciation".
5 *More Talk of Alexander*, edited by Wilfred Barlow, 1978, Chapter 30 "Ethology and Stress Diseases".