

No 18 Rudolph Magnus (1873-1927)(III)

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1. The last two talks were about Rudolph Magnus, the scientist who investigated the working of the postural system in vertebrate animals.
2. His key finding from our point of view was that there is a set of nerve centres, which he called a “*central apparatus*”, close to each other in the brainstem whose

... function is to compound the activity of the whole body musculature to what we call “posture”...¹

3. The important point here is that because our natural posture is controlled from the brainstem it is an automatic or reflex activity. It works without any involvement by the cortex, the thinking part of the brain.
4. This means that, in principle, when we stop and “*allow standing to happen*” the postural reflexes automatically put our whole neuromusculature into its most natural and integrated state. This is why it is often said by AT teachers that if we stop doing the wrong thing, the right thing does itself.
5. This sets the AT apart from other approaches to health and well-being. It is normally taken for granted that the cortex should be involved in the more important activities of human beings. Staying upright and using the body in a balanced and harmonious way are such important aspects of living that one might think that posture should be subject to the conscious control of the cortex.
6. But Magnus argued precisely the reverse and says that in the case of posture:

It seems to be of the greatest importance, that the whole central apparatus...is placed subcortically in the brainstem and by this means withdrawn from all voluntary action.²

7. The reason is that when we consciously decide to do something, the motor cortex sends out the necessary signals and the muscles contract and do whatever the brain thinks is necessary to perform the action. These conscious actions override the postural reflexes.

¹ Magnus (1925)p340

² Ibid.349

8. And when the action is over, Magnus says:
- “The brainstem centres... restore the disturbance and bring the body back into the normal posture so that the next cortical impulse will find the body prepared to start again.”³*
9. In other words, when we have completed the action and are no longer interfering with the operation of the inbuilt reflex postural mechanisms, they do their job and get things back to the normal resting position again. We are back in tune with ourselves and ready to do the next thing.
10. This role is one of the most important functions of the postural reflexes. It is also at the heart of the AT and gives it its special characteristics. We stop and “allow” the correct thing to happen rather than deliberately “do” something.
11. The problem is that though this is absolutely correct as a statement, it is a lot more easily said than done.
12. This is because as human beings we have a uniquely powerful capacity to interfere with the working of our postural reflexes. We know how easy it is to pull our head back and down when we are getting up from a chair.
13. At this stage we need to look at the question of habit. A habit is something we learn, either consciously or unconsciously. Once we have learned it, we do it without any conscious thought.
14. A habit is therefore very like a reflex. Once it is learned, it happens without thinking.
15. The practical result of the years of hard work we put into learning our bad habits, like pulling our head back and down, is that they increasingly displace and override our postural reflexes and we do not have any ready or easy means of distinguishing between them.
16. As a result, people very often think they are “allowing” standing to happen but they are actually “doing” their standing in their habitual way.
17. Alexander described this inability to know exactly what we are doing – to distinguish between doing things in an habitual way and allowing them to happen as they should – as faulty or

³ Ibid.349

deceptive sensory appreciation. He also refers to it rather more dramatically as a:

*...debauched kinaesthesia, the result of imperfect co-ordination, imperfect adjustment, and unreliable and delusive sensory appreciation.*⁴

18. This is where we come into the picture as AT teachers. An important part of our role when we are working with a pupil is to help them become conscious of their habits of misusing themselves so that they can get rid of them.
19. Coming back to Magnus and it is important for us to be clear about what he actually discovered. He identified a set of nerve centres in the brain stem that controlled posture. He described them as a *complicated central nervous apparatus that governs the entire body posture in a coordinated manner.*⁵
20. This leads us into a discussion of what became known as the “*primary control*”. We need to be aware that what Alexander called the “*primary control*” is not the same as the “*central apparatus*” in the brainstem described by Magnus – even though Alexander thought it was.
21. This is discussed in the booklet on Magnus that Walter Carrington wrote in 1950 when Alexander was still alive and reprinted unchanged by STAT in 1994.⁶
22. In this, Carrington does not go as far as to say that Alexander was mistaken in his belief that his primary control and the central apparatus described by Magnus were the same thing; that was not his way.
23. He nevertheless makes it perfectly clear that what Magnus had discovered was not Alexander’s “*primary control*”. So if you are trying to talk to a neuroscientist about the AT you need to be aware that they will no idea what your are talking about if you refer to the “*primary control.*”
24. The way Carrington put it was:

Thus, Mr Alexander’s term “primary control” describes something far more extensive than Magnus’ “central apparatus”, for it embraces all the postural activities of the organism, not only the “brain-stem” mechanism but

⁴ Alexander (1923) 61

⁵ Magnus (1925)p653

⁶ Carrington (1994)

also the higher centres of the brain, and in particular, the cortical centres which Magnus did not investigate.⁷

25. He then goes on to say:

The whole basis of Mr Alexander's Technique is the teaching of how to eliminate interference with the autonomic functioning of the organism.

26. This is as good a one-line description of the AT as I have come across.

27. If you want to find out more about the whole question of the primary control you can look up a paper on my website at <http://www.geraldfoley.com/Primarycontrol.html> where you will find a more detailed discussion than most of you will ever need or want. One of the things I discuss in detail is how Alexander's ideas on "*the primary control*" vary throughout his books.

28. For the rest of time today, I am going to look at Magnus' lecture called *The physiological a priori* and the remarkable extent to which it parallels Alexander's thinking and provides us with some extremely interesting ideas.

29. Magnus died before he gave the lecture but his notes for it were published in a book in 1930 by Stanford University⁸.

30. Coming to the lecture itself, one may ask why Magnus gave it the name *The physiological a priori* ?

31. Magnus was an admirer of the German philosopher Immanuel Kant (1724-1804). Kant's great philosophical work was called the *Critique of pure reason*. I had been hoping to provide you with a quick and easy summary of his thinking but I think one thing most people would agree on about Kant is that he is difficult.

32. One of Kant's big philosophical concerns was how we know about things. He concluded that the mind has certain innate or *a priori* ideas which influence the way we do our thinking.

33. Kant was talking about philosophical ideas but Magnus felt it also applied to the way we gain our sensory impressions. Magnus saw that the condition of our senses affects the sense impressions we receive.

⁷ Ibid.52

⁸ Magnus (1930)

34. Magnus says:

In this book Kant showed that in all our observations and in the conclusions we draw from them, in short, that in everything we know of the outer world, there are numerous elements which are given a priori, and which we are therefore compelled to employ in any experience in thinking and in drawing our conclusions.⁹

35. Magnus extended Kant's thinking and said that in addition to the philosophical *a priori* which governs the way we understand the world, we are also trapped in a physiological *a priori* in the sense that we are limited to the perceptions that our sensory organs are able to deliver.

36. As an example, he takes colour-blindness. He points out that if I am colour-blind, my sense impressions of the outside world will be different from those of a person with full colour vision.

37. He says:

The nature of our sensory impressions is thus determined a priori, i.e. before any experience, by this physiological apparatus of our senses, sensory nerves and sensory nerve centres... Here we have to do with fixed mechanisms of our body, with permanent states of our sensory and nervous apparatus, and these will determine the nature of our observations and experiences... But beside these, other "active" processes (reflexes), acting through the central nervous system, also influence our sensory observations and help to determine them a priori.¹⁰

38. Our physiological state, the quality of our sensory awareness, and the way our body is functioning at any particular time have an influence on how we perceive the world about us. This will have an effect on how we respond to the world from which we are gaining these sense impressions.

39. Some of us, to take an example, if we have a few glasses of wine, begin to perceive and respond to the world in a different way. We may come to believe that we are more perceptive, witty interesting and physically attractive than we are at other times. The world remains the same but the way we perceive it and ourselves in it is altered.

⁹ Ibid.97

¹⁰ Ibid.99

Magnus also saw the postural reflexes playing an important role in stabilising our perceptions of the world by a process he called “*recalibrating the senses*”. This process is necessary because when we prepare to perform an action and then perform it, not only is the normal resting relationship between the body parts changed, the body’s relationship with the external world is also changed.

40. After the action is finished the body should come back to its normal balanced and relaxed posture. This is where the postural reflexes play a major role.

41. As he says:

By the action of the subcortical mechanisms described in these lectures the different sense organs are always brought into the normal relation with the external world...In this way the action of the involuntary brain-stem centres plays a very important part in conscious activities, especially as regards spatial sensations.¹¹

42. This seems reasonable. When we stop doing a thing the body restores itself to the normal.

43. But the AT makes us realise that this is not always the case. After we have had a few AT lessons, we begin to realise that the body does not always restore itself and that we carry round a lot of the bad postural habits we have acquired at our desk, in the gym our going about our daily life

44. But it is what Magnus goes on to say that is so remarkable:

Since all study, analysis, and understanding of the events in the outer world are conducted through the medium of the senses, a scientific worker surely ought to know what are the fundamental mechanisms of his body and of his nervous system which determine the results of his work.¹²

45. This is where most scientists would tend to part company with Magnus. They might be prepared to accept that the various back and neck aches they are suffering from are a result of misusing themselves but few would be prepared to admit that the results of their work are influenced in any way by the state of functioning of their postural reflexes.

¹¹ Magnus (1926b)p588

¹² Magnus (1930)103

46. They would argue that the use of measuring instruments and the scientific habit of looking for independent confirmation of results goes a considerable way to eliminate the dangers of conclusions being distorted by the deficiencies of individual scientists, from whatever cause these may arise.
47. But Magnus was quite clear in what he said. Our perception of the external world comes to us through the filter of our senses. If we have impaired the workings of our postural reflexes to an extent that they are not performing their sensory recalibration task effectively, our perceptions will indeed be distorted.
48. This is something really profound and important and we could usefully have a whole workshop to explore it. One of the obvious implications is that science is not quite as objective as it thinks it is and the physiological state of individual scientists influence the judgements they make.
49. This would help explain the bitterness of the arguments that scientists can have over the interpretation of exactly the same data and experimental results.
50. The compatibility between Magnus and what Alexander said in *The use of the self* is remarkable. Alexander says:
- We must therefore see the danger of continuing to base our efforts to help ourselves or other people upon beliefs, judgements and convictions which have their source in sensory experiences, without ascertaining whether the mechanisms through which these experiences are conveyed are functioning satisfactorily.*¹³
51. I think you can see why I feel that Magnus still has a great deal to offer us when we are looking at the scientific underpinnings of the AT.

References

- F. M. ALEXANDER (1923) *Constructive Conscious Control of the Individual* - Mouritz, London 2004 edition
- F. M. ALEXANDER (1932) *The use of the self* - Gollancz, London, (1985 edition)
- W. CARRINGTON (1994) *The foundations of human well-being. The work of Professor Magnus and the Alexander Technique* - STAT Books, London
- R. MAGNUS (1925) *Animal posture* - Proceedings of the Royal Society of London. Series B. Vol 98 339-353
- R. MAGNUS (1930) *Lane lectures on experimental pharmacology and medicine* - Stanford University Press, Stanford
- R. MAGNUS (1926b) *Some results of studies in the physiology of posture, Part II* - The Lancet, Vol 208 585-588

¹³ Alexander (1932)p108