The neurone Z may well, therefore, be the field of coalition, and the organ where the summational and inductive processes occur. And the morphology of the neurone as a whole is seen to be just such as we should expect, arguing from the principle of the common path.

With the phenomenon of “ interference ” the question is more difficult. There it is not clear that the field of antagonism is within the neurone Z itself. The field may be synaptic. We have the demonstration by Verworn that the interference produced by A at Z for impulses from B is not accompanied by any obvious change in excitability of the axone of Z. Z, if itself the seat of inhibition, might have been expected to exhibit that inhibition throughout its extent. This, as tested by its axone, it does not. There exist, it is true, older experiments by Uspensky, Belmondo and Oddi, &c., according to which the threshold of direct excitability of the motor root is lowered by stimulation of the afferent root. This points to an extension of the facilitation effect through the whole motor neurone, conversely to Verworn’s demonstration for central inhibition. Verwom’s experiment and its result is very clear. It leads us to search for some other mechanism common to A and B to which might be attributable their mutual influence on each other’s reactions. But if we admit the conception, argued above, that at the nexus between A and Z, *i.e.* at Synapse A Z, and similarly between B and Z, *i.e.* at synapse B Z, there exists a surface of separation, a membrane in the physical sense, a further consequence seems inferable. Suppose a number of different neurones A, B, C, &c., each conducting through its own synapse upon a neurone Z. The synapses A Z, B Z, C Z, &c. are all surfaces or membranes into which Z enters as a factor common to them all. A change of state induced in neurone Z might be expected to affect the surface condition or membrane at all of the synapses, since the condition of Z is a factor common to all those membranes. Therefore a change of state (excitatory or inhibitory) induced in Z by any of the neurones A, B, C, &c., playing upon it would enter as a condition into the nervous transmission at the other synapses from the other collateral neurones. In harmony with this is the spread of refractory state in the neurones as mentioned above. A change in neurone Z induced by neurone A playing upon it, in that case seems to effect its point of nexus with the other neurones B, C,&c.,also. It is conceivable that the phenomena of interference may be based in part at least on such a condition. The neurone threshold of Z for stimulation through B will be to some extent a function of events at synapsqs A Z.

*Factors Determining the Sequence.—*The formation of a common path from tributary converging afferent arcs is important because it gives a co-ordinating mechanism. There the domi­nant action of one afferent arc, or set of allied arcs in con­dominium, is subject to supercession by another afferent arc, or set of allied arcs, and the supercession normally occurs without intercurrent confusion. Whatever be the nature of the physio­logical process occurring between the competing reflexes for dominance over the common path, the issue of their competition namely, the determination of which one of the competing arcs shall for the time being reign over the common path, is largely conditioned by four factors. These are spinal induction, relative fatigue, relative intensity of stimulus, and the func­tional species of the reflex.

I. The first of these occurs in two forms, one of which has already been considered, namely, *immediate induction.* It is a form of “ bahnung.” The stimulus which excites a reflex tends by central spread to facilitate and lower the threshold for reflexes, allied to that which it particularly excites. A constellation of reflexes thus tends to be formed which reinforce each other, so that the reflex is supported by allied accessory reflexes, or if the prepotent stimulus shifts, allied arcs are by the induction particularly prepared to be responsive to it or to a similar stimulus.

Immediate induction only occurs between allied reflexes. Its tendency in the competition between afferent arcs is to fortify the reflex just established, or, if transition occur, to favour transition to an allied reflex. Immediate induction seems to obtain with highest intensity at the outset of a reflex, or at least near its commencement. It does not appear to persist long.

The other form of spinal induction is what may be termed *successive induction.* It is in several ways the reverse of the preceding.

In peripheral inhibition, exemplified by the vagus action on the heart, the inhibitory effect is followed by a rebound after­effect opposite to the inhibitory (Gaskell). The same thing is obvious in various instances of the reciprocal inhibition of the spinal centres. Thus, if the crossed-extension reflex of the limb of the “ spinal ” dog be elicited at regular intervals, say once a minute, by a carefully adjusted electrical stimulus of defined duration and intensity, the resulting reflex movements are repeated each time with much constancy of character, amplitude and duration. If in one of the intervals a strong prolonged (*e.g.* 30") flexion-reflex is induced from the limb yielding the extensor-reflex movement, the Iatter reflex is found intensified after the intercurrent flexion-reflex. The intercalated flexion-reflex lowers the threshold for the aftercoming extension-reflexes, and especially increases their after-discharge. This effect may endure, progressively diminishing, through four or five minutes, as tested by the extensor reflexes at successive intervals. Now, as we have seen, *during* the flexion-reflex the extensor arcs were inhibited : *after* the flexion-reflex these arcs are in this case evidently in a phase of exalted excitability. The phenomenon presents obvious analogy to visual contrast. If visual bright­ness be regarded as analogous to the activity of spinal discharge, and visual darkness analogous to absence of spinal discharge, this reciprocal spinal action in the example mentioned has a close counterpart in the well-known experiment where a white disk used as a prolonged stimulus leaves as visual after-effect a grey image surrounded by a bright ring (Hering’s “Lichthof”). This bright ring has for its spinal equivalent the discharge from the adjacent reciprocally correlated spinal centre. The exalta­tion after-effect may ensue with such intensity that simple dis­continuance of the stimulus maintaining one reflex is immediately followed by “ spontaneous ” appearance of the antagonistic reflex. Thus the flexion-reflex, if intense and prolonged, may, directly its own exciting stimulus is discontinued, be suc­ceeded by a "spontaneous ” reflex of extension, and this even when the animal is lying on its side and the limb horizontal— a pose that does not favour the tonus of the extensor muscles. Such a “ spontaneous ” reflex is the spinal counterpart of the visual " Lichthof.” To this spinal induction, as it may be termed, seems attributable a phenomenon commonly met in a flexion-reflex of high intensity when maintained by very pro­longed excitation. The reflex flexion is then frequently broken at irregular intervals by sudden extension movements. It would seem, therefore, that some process in the flexion-reflex leads to exaltation of the activity of the arcs of the opposed extension-reflex. An electrical stimulation of the proximal end of the severed nerve of the extensor muscles of the knee (cat), though it does not, in the present writer’s experience, directly excite contraction of the extensors of the knee is on cessation often immediately followed by contraction of them.

As examples of the rebound exaltation following on inhibition the following may also serve. The so-called " mark-time ” reflex of the “ spinal ” dog is an alternating stepping movement of the hind limbs which occurs on holding the animal up so that its limbs hang pendent. It can be inhibited by stimulating the skin of the tail. On cessation of that stimulus the stepping movement sets in more vigorously and at quicker rate than before. The increase is chiefly in the amplitude of the move­ment, but the writer has also seen the rhythm quickened even by 30% of the frequence.

This after-increase might be explicable in either of two ways. It might be due to the mere repose of the reflex centre, the repose so recruiting the centre as to strengthen its subsequent action. But a similar period of repose obtained by simply supporting one limb—which causes cessation of the reflex in both limbs, the