1) 

Learning of synaptic neural path resistance 

(synaptic resistance in simple or direct 

complex) 

growth of synapses 

morphological &'s left in tissue after 

excitations have passed 


2) 

Self-replicating circuits, dynamic memory, 

but ruled out by shock, coma, etc. 


3) 

Summary: long term memory one 

= dynamic + other morphological 

gradually wears in 


4) 

Facial set comes first, then 

little or no connection between S & R 


at organizational level that 2 ideas differ 

in one case direct association leads 

impulse deflected by: 

in such a way that ends up exciting 

facial set 

CR: what are the deflecting factors?
Neural Basis of the Conditioned Reflex

More than ten years after Pavlov's discovery of the conditioned reflex, we still lack a satisfactory explanation of the neural mechanism of conditioning. Even the general nature of the brain changes in this problem in terms of the flexibility of nervous activity.
At present the problem is still a matter of the general nature of the brain changes.

Not merely the details, but even the general nature of the brain changes remains obscure.

Essentially the problem is that essential alterations in the central excitations, that are responsible for deflecting the sensory inputs to channels that lead to the motor response. According to one of the simplest and earliest suggestions, it was supposed that during the formation of new central pathways, the sensory inputs were spread to new central pathways, directly formed during conditioning, between the receptor and sensory and motor centers of the cortex. The repeated association of excitations of the two central centers in association was supposed to leave a residual effect on the connecting pathways, that made it easier for excitations to spread along these channels in the future.
This simple concept has been found inadequate to account for the facts and has long since been replaced.

This simple explanation has now found the inadequate in its original form and has given way to various modifications. The idea that new channels are opened between the receptor and motor centers is still accepted in some quarters, but it is recognized that these central connections are not direct between the cortical centers involved but are complex and diverse.

9. Instead of residual effects upon the afferent neural pathways, there has been proposed that the conditioning process sets up a central order of self-perpetuating activity that percolates and acts to deflect subsequent excitation into the motor channels of the conditioned response. This dynamic view of conditioning, however, fails to account for the survival of conditioned reflexes following electrolytic shock or deep anesthesia, and states of coma in which such dynamic activity would be disrupted.

This has led to a combination of
Neural Basis of the Conditioned Reflex

Although efforts to analyze the conditioned response (CR) have been undertaken intensively ever since Pavlov's initial descriptions more than a century ago, we still lack today a satisfactory picture of the neural mechanism of conditioning. Even the general nature of the brain changes by which a conditioning stimulus becomes to evoke responses linked to the conditioned response remain uncertain.

The initial suggestion of Pavlov that conditioning involves the formation of new cortical associations connecting the receptor and motor centers of the brain has been generally discarded as being too simple and at variance with recent evidence. Many new centers have been identified as support a modification of this idea, maintaining that new neural pathways form between the receptor and motor centers must be formed between the receptor and motor centers must be much more sensitive and complex than originally conceived.
Kounin (1) suggests neuromodulation or
some other

have been evidence points

Others coming to a more
dynamic interpretation of conditioning
in which the linking between
the conditioned stimulus (CS) and CR is conceived to be an
active facilitatory set rather than new
structural pathways in the brain.

This hypothesis seems to have greater
promise in flexibility and explanatory
value than

According to this view, the new linkage
between stimulus and response is
achieved, not through the formation of new
neural connections but through
the organization of an appropriate facilitatory
set.
Physiology of the Conditioned Reflex
Central Mechanism of the Conditioned Reflex
Central nervous system

Neural Basis of the Conditioned Reflex

Efforts to analyze the conditioned response, although pursued intensively ever since Pavlov's initial reports more than a year ago, have been frustrated and studies remain inconclusive.

Although efforts to analyze the CR have been frustrated and studies remain inconclusive, today we still lack a satisfactory picture of the neural mechanism of conditioning. The initial suggestion of Pavlov that conditioning involves the opening of new neural pathways linking directly the receptor and motor centers of the cerebral cortex has been generally discarded as being too simple. At least in its original form, a modification of this traditional...
Physiology of Conditioned Reflex Learning

— years after Pavlov's first publication of the conditioned reflex, we still lack a satisfactory picture of the neural mechanism of conditioning.

Despite extensive efforts to analyze the conditioned reflex since its first discovery by Pavlov more than years ago,

Although efforts to analyze the conditioned reflex have been pursued intensively ever since P's original studies more than years ago,

classical explain in terms new cerebral centers between receiving & motor centers, nowadays end & data pointing to an explain in more dynamic terms in facilitatory set plays an important role. illus.
We are all uncertain of the nature of the human mind, but this uncertainty is not without a cause. A given set of circumstances can lead to a range of possible responses. Given the complexity of the human mind, it is difficult to predict or control the outcomes of certain actions or stimuli. The problem is that the nature of the changes that occur is always in flux, and our understanding of these changes is limited.