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https://www.100test.com/kao_ti2020/491/2021_2022_2007_E8_8B_B1_E8_AF_AD_c67_491264.htm Passage Thirty-four (The Relationship between Brain Process with Mental Experience) By 1950, the results of attempts to relate brain processes to mental experience appeared rather discouraging. Such variations in size, shape, chemistry, conduction speed, excitation threshold, and the like as had been demonstrated in nerve cells remained negligible in significance for any possible correlation with the manifold dimensions of mental experience. Near the turn of the century, it had been suggested by Hering that different modes of sensation, such as pain, taste and color, might be correlated with the discharge of specific kinds of nervous energy, However, subsequently developed methods of recording and analyzing nerve potentials failed to reveal any such qualitative diversity. It was possible to demonstrate by other methods refined structural differences among neuron types. however, proof was lacking that the quality of the impulse or its conduction was influenced by these differences, which seemed instead to influence the developmental patterning of the neural circuits. Although qualitative variance among nerve rigidly disproved, the doctrine was generally abandoned in favor of the opposing view, namely, that nerve impulses are essentially homogeneous in quality and are transmitted as “ common currency ” throughout the nervous system. According to this theory, it is not the quality of the sensory nerve impulses that determines the diverse

conscious sensations they produce, but, rather, the different areas of the brain into which they discharge, and there is some evidence for this view. In one experiment, when an electric stimulus was applied to a given sensory field of the cerebral cortex of a conscious human subject, it produced a sensation of the appropriate modality for that particular locus, that is, a visual sensation from the visual cortex, an auditory sensation from the auditory cortex, and so on. Other experiments revealed slight variations in the size, number, arrangement, and interconnection of the nerve cells, but as far as psychoneural correlations were concerned, the obvious similarities of these sensory fields to each other seemed much more remarkable than any of the minute differences. However, cortical areas as diverse as those of red, black, green and white, or touch, cold, warmth, movement, pain, posture and pressure apparently may arise through activation of the same cortical areas. What seemed to remain was some kind of differential patterning effects in the brain excitation: it is the difference in the central distribution of impulses that counts. In short, Brain theory suggested a correlation between mental experience and the activity of relatively homogenous nerve-cell units conducting essentially homogeneous impulses through homogeneous cerebral tissue. To match the multiple dimensions of mental experience psychologists could only point to a limitless variation in the spatiotemporal patterning of nerve impulses. 1. Up until 1950, efforts to establish that brain processes and mental experience are related would most likely have been met with [A]. vexation. [B]. irritability. [C]. discouragement [D]. neutrality 2. The

author mentions “ common currency ” primarily in order to emphasize the [A]. lack of differentiation among nerve impulses in human beings.[B]. similarities in the views of the scientists.[C]. similarity of sensations of human beings.[D]. continuous passage of nerve impulses through the nervous system.

3. Which of the following theories is reinforced by the depiction of the experiment in lines 16-19?[A]. Cognitive experience manifested by sensory nerve impulses are influenced by the area of the brain stimulated.[B]. Qualitative diversity in nerve potentials can now be studied more accurately.[C]. Sensory stimuli are heterogeneous and are greatly influenced by the nerve sensors they produce.[D]. Differentiation in neural modalities influences the length of nerve transmissions.

4. It can be inferred from the passage that which of the following exhibit the LEAST qualitative variation?[A]. Nerve cells. [B]. Nerve impulses.[C]. Cortical areas. [D]. Spatial patterns of nerve impulses.

Vocabulary

1. mental experiences 精神感受
2. discharge 释放
3. negligible 微小的，可以忽略不计的
4. manifold 多种多样的，多方面
5. neuron 神经元/细胞
6. neural (中枢)神经的(系统)
7. qualitative diversity 质的多样性，量变的
8. disprove 反驳，反证
9. homogeneous 相似的
10. sensory nerve 感觉神经
11. cortical 外皮的，皮质的
12. cerebral cortex 大脑皮层
13. locus 地点，区域
14. psychoneural 精神神经
15. heterogeneous 异源的，异种的，异体的
16. spatiotemporal 时空的

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