

The control animals showed a normal rate of eruption and a normal radiographic and histologic picture of the dental tissues. Those of the experimental animals that were studied preceding the injuries showed a normal rate of eruption and a normal appearance of the teeth.

In 85% of the experimental animals, the result of the injuries were: (a) Considerable retardation in eruption and (b) more or less severe histo-pathologic changes in the dental tissues, particularly the enamel and the enamel epithelium, in the injured teeth and in varying degrees in the uninjured teeth as well.

The changes were progressive and more or less permanent. In some cases they appeared within a week following the operations.

Series of histologic and experimental studies are being made to investigate the possible mechanical (functional), neural, cytolytic, or other explanations of this reaction, which reminds one of "sympathetic" ophthalmia. The first explanation seems to be ruled out in certain cases where practically normal function was maintained throughout the post-operative period.

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Relation of Induced Anoxemia to the Pain of Muscular Exercise.*

MILTON KISSIN. (Introduced by L. N. Katz.)

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Exercise of the forearm during the time that the arterial blood oxygen is progressively lowered will initiate pain in the exercised muscles. The pain disappears when the blood is suddenly saturated with oxygen although the exercise be continued. If the same exercise is performed at the same rate while the arterial blood remains saturated with oxygen, no pain appears. Increasing the frequency of the exercise may cause pain to appear even when the blood is saturated with oxygen. Decreasing the frequency of exercise while maintaining the arterial oxygen at a low level may result in no pain.

This work can be correlated with the reports of MacWilliam and Webster¹ and of Lewis, Pickering, and Rothschild,² who found that

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¹ MacWilliam, J. A., and Webster, W. J., *Br. Med. J.*, 1923, **1**, 51.

² Lewis, T., Pickering, G. W., and Rothschild, P., *Heart*, 1931, **15**, 359.

exercise of a muscle that had been made ischemic, results in pain. Their work showed that inadequate blood supply to a working muscle causes pain. In my experiments the blood supply, save for the lowered oxygen content, was unaltered in composition, yet pain appeared during exercise. This shows that oxygen want is the the chief contributing cause of pain developing in an exercised muscle. It is, therefore, suggested that the cause of pain in muscular exercise is the incomplete oxidation of the products of muscle metabolism. The same process may be responsible for the pain of angina pectoris (Rothschild and Kissin³) and of intermittent claudication.

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Filter-Passing Bacteria in Polluted Water.

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References to epidemics of gastro-enteritis attributable to polluted drinking water are numerous in the literature. Usually these outbreaks are followed by cases of typhoid fever; occasionally they consist only of acute intestinal distress without the subsequent development of cases of typhoid fever. A series of such epidemics in the Ohio River valley was investigated recently by Veldee.¹ He stated, "There is no epidemiological evidence to show that the ailment was produced by a viable organism contained in the water supply, unless we are to assume the sudden appearance of some bacterium or virus whose presence was not indicated by the established methods of water analysis."

The possibility of the presence of some such microorganism in sewage-contaminated water was investigated. This report concerns the isolation and preliminary study of a form of viable organism from polluted river water, the filtrates of which were apparently sterile when tested by ordinary bacteriological methods.

A sample was taken from the Chicago River at a point where it was heavily polluted with domestic sewage. After filtration through

³ Rothschild, M. A., and Kissin, M., *PROC. SOC. EXP. BIOL. AND MED.*, 1932, **29**, 577.

¹ Veldee, M. V., *Am. J. Pub. Health*, 1931, **21**, 1227.