

A Fifth Postulate¹

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Often, in conversation and conference, those concerned with problems in leprosy are confronted with statements to the effect that even the cause of leprosy is not established, since Koch's postulates have not been fulfilled with respect to *Mycobacterium leprae*.

Robert Koch, it will be recalled, was a student of the pathologist Jacob Henle (1809-1885), who drew up a statement in 1840 of the conditions required to provide acceptable proof of a causal relationship between an infectious agent and a given disease. These conditions, though not appearing in concise form in Koch's writings, have come to be recognized universally as "Koch's postulates" and are generally listed as four entities:

1. The suspected pathogen should be found in all instances of the disease in question, and its distribution in the host should correspond with the distribution of observed lesions.

2. The organism should be cultivated outside the body of the host in pure culture for several generations.

3. The infectious agent so isolated should produce the disease in other susceptible hosts.

4. The responsible agent must be recoverable from the experimental host.

In a number of infectious diseases besides leprosy, notably some of viral and rickettsial etiology, the above named postulates have not been fulfilled; yet their etiology is not seriously questioned. This does not constitute an abnegation of the validity and priority of Koch's postulates, but is a tacit recognition of the additional, relevant technic now available, as, for example, the demonstration of specific host antibodies to the etiologic agent.

Rather than proliferating postulates and debating numerical priorities, it might be well to recognize, as a broad fifth postulate, the existence of a variety of technics other than the classic four that have validity in establishing etiologic relationships.

Such fifth postulate evidence applicable to the problem of the etiology of leprosy may be noted under a fifth heading.

5. Under specific therapy, when the suspect pathogen is reduced and eliminated, there should be concomitant resolution and elimination of the associated active lesions.

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