

I-1.

Austin Bradford Hill: Observation and Experiment.
New England Journal of Medicine 1953; 248:995-1001.

My first choice for this section, Bradford Hill's "Observation and Experiment," is at once a product of its time and filled with advice as relevant today as in 1953. At that time there was still much skepticism concerning the value of nonexperimental (or "observational") research in epidemiology. Hill's comments on the subject came in the midst of an important controversy over the role of cigarette smoking in the etiology of human lung cancer. Bear in mind that when Hill wrote, no cohort studies of the matter had been completed, and the causal nature of the cigarette-cancer association was still contested by many respectable scientists, including no less a figure than Sir Ronald Fisher.

Hill defended nonexperimental methods in a constructive and instructive manner, presenting the problems we would today label as confounding, information bias, and selection bias as part of the researcher's task to solve, rather than as insurmountable flaws inherent in all nonexperimental research. One of the foremost medical statisticians of his day, he also took care to point out the danger of substituting statistics for thought in the analysis and presentation of data, as his discussion of field experiments so well illustrates. This message is, I believe, as timely today as ever. Finally, Hill recognized the importance of the interplay of imaginative theorization and logical deduction in research—a theme that we will encounter again in the readings on Popper's philosophy for epidemiologists.