My dear Wilson,

I was glad to get your letter, as I always am, especially as intelligent comments on the cigarette affair are so rare.

Of course I agree that the controls in Doll and Hill's "prospective" study were inadequate, and can only be excused on the supposition that they at first regarded their work as no more than exploratory, and only later were induced by the fanatics to claim that they had made an important discovery, and to accept the view that important discoveries in medicine can be made with no trouble at all!

I have never criticised this aspect of Hill and Doll's work, partly on the ground that their second or "prospective" study, though equally incapable of proving causation, was at least well controlled.

The points I have preferred to make are: (i) That if Hill and Doll were justified in inferring from their data that cigarette smoking was a cause of lung cancer, they would equally be justified in inferring from the same data (and by the same reasoning) that inhaling cigarette smoke afforded a protection against lung cancer. To draw both inferences seems very like a reductio ad absurdum, and I have suggested that in these circumstances it would be scientific to draw neither.

(ii) I have stressed as a regrettable fact that in the prospective study undertaken after the puzzle of inhaling had shown itself, the question of inhaling was not put to the large body of physicians who had shown themselves willing to cooperate in the enquiry. The opportunity of getting accurate data on inhaling was then lost, and I do not think you ought to assume the physicians who have since died of lung cancer did not have a lower proportion of inhalers. Had the data been obtained, the other causes of death could have been subdivided on the basis of death certificates. There might have been an excess of coronary inhalers, but this cannot now be asserted for lack of data.

I do not see how anyone who is sophisticated enough to draw the distinction between correlation and causation can take seriously the "generally lethal" theory. Good practice in medical research seems to require the identification of the causal agent, and of the choice of causation. To a geneticist, the type of argument which dispenses with this is a mere quagmire.

Yours sincerely,