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B·A·T INDUSTRIES

To Dr. R.E. Thornton
SOUTHAMPTON.
Ref GKR/JC.

From Keith Richardson
Date 27th April, 1984

Dear Ray,

Thank you very much for your letter of 6th April. I tried to call you but I gather you were not well this week. I trust you are now feeling better and let me offer you some first thoughts.

I like your outline very much. But even now I feel that the conceptual difficulties are very great and it is vitally important that we lead people gently into this very difficult subject.

I also feel there is so much to say about lung cancer that it would be very desirable to concentrate on this single issue alone.

I could imagine an outline for an extremely interesting short book which might be on the following lines.

(1) There exists a major controversy about smoking and health. But although many people believe that the "case for the prosecution" is absolutely clear cut and proven, the hard fact is that there are many anomalies in the evidence. The more we apply modern techniques of research, the more anomalies we find. It is the aim of this book to examine some of the anomalies and to show that the whole subject needs far more objective investigation.

(2) The people who attack the tobacco industry shift their ground frequently, but it is fair to say that lung cancer is a key issue. The Royal College of Physicians claims that 90% of all lung cancer deaths can be attributed to smoking. There can be no doubt that this is widely believed to be true and that lung cancer is the most emotive single issue. If we can cast doubt on the relationship between smoking and lung cancer then we have cast doubts on the entire case against smoking. So let us look at the evidence on lung cancer in more detail.

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(3) In the UK the number of deaths from lung cancer is declining fast. Give a chart illustrating the crude figures of deaths per year. This alone casts some doubt on the relationship. But we also know that the rate of smoking is declining and that the tar content of cigarettes is declining. Therefore the vital question we need to consider is this. When precisely did the lung cancer down-turn begin? Only then can we consider how that down-turn relates to the down-turn in the smoking habits.

(4) We introduce the idea of epidemiology - a statistical analysis of possible associations between deaths and other factors. (We use this moment to stress the lack of direct causal evidence, so that statistics are all we have to go on.) We also introduce the role of the computer in analysing masses of data.

(5) We introduce the Government publication "Trends in Cancer Mortality". We explain who its authors are, what they are trying to do, and why it is analysing by the year of birth rather than by the year of death - in other words, we explain the concept of cohort analysis. The authors are trying to show what are the real trends in each different type of cancer. With reference to lung cancer they are in a position to show the real date of change of trend. Remind the reader why this was the crucial question.

(6) We introduce the simple charts on pages 28 and 29, by which I mean the bottom right-hand chart showing the cohort value only, a simple one-line chart in each case. We quote the conclusions given by the authors and intepret them to mean that the change in trend applied to the cohorts born in 1900 (men) and 1925 (women).

(7) We then introduce the other charts on the page and explain them. Then we move on to the more complicated chart shown on page 3 (figure 1) on your own paper and cite what Osmond and Gardner said about this. In this way we have now established the lung cancer trend with absolute clarity.

(8) We turn to the evidence on smoking and show the crude yearly smoking figures. But again we explain why these are not an adequate guide. What matters is the quantity of smoking over a period by each cohort. So we now chart the amount of smoking up to the age of 33, as done in your paper, but explaining the figures in full.

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(9) Only now, for the first time, do we have comparable evidence which gives the lung cancer death rates and also the smoking rates for the same groups of people, cohort by cohort. Emphasise the importance of this as the only method which can give reliable results.

(10) Then superimpose the smoking and the cancer charts for both men and women.

We conclude that the lines on the chart are very far apart and suggest no relationship whatsoever - to many people this is an astonishing result which is why it is so important to lead up to this point only very slowly, building up the argument step by step.

(11) But all this only confirms what many experts already believed, that there were far too many anomalies in the evidence.

(12) We now examine some of the other anomalies, giving detailed figures, charts and maps in each case.

(i) Many non-smokers get lung cancer.

(ii) Many heavy smokers don't get lung cancer.

(iii) Lung cancer rates are lower among inhalers than among non-inhalers.

(iv) The number of non-smokers who get lung cancer may be rising.

(v) There are continuing errors in the diagnosis of lung cancer, especially when these are checked against autopsy results going back to the 19th century.

(vi) 30% of lung cancer is secondary and has no statistical correlation with smoking.

(vii) Lung cancer rarely occurs in both lungs although they are equally exposed to smoke.

(viii) Lung cancer in non-smokers is identical to lung cancer in smokers.

(ix) Lung cancer risks vary widely according to occupation, diet, race, constitution and psychology.

(x) Lung cancer risks vary according to place of residence.

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(13) Examine the experience of other countries in as much detail as possible. How do lung cancer death rates match smoking rates? What is the correlation between them? What are the trends? Is any cohort analysis available on any of them? Draw appropriate conclusions.

(14) All this suggests there is no valid relationship. But how does it square with other bits of evidence? Examine some of the most telling arguments cited in the RCP Report, etc., and show some grounds for doubt, (such as non-randomness of the data base and other statistical failings).

(15) But if smoking is not the cause what is the cause? Explain the general problem of the biology and causation of diseases.

(16) Modern research into cancer causation. What we know about the mechanics. Why is causation such a mystery? What exactly is the problem?

(17) An alternative analysis. The Burch theory that cancer has little or nothing to do with any environmental factors.

(18) We draw only this modest conclusion. That the evidence is still inadequate and the case is not proven either way.

(19) Hence the need for more research and how it might be organised.

(20) But it would help the cause of good health if doctors understood the facts and if everybody stuck to the truth.

I am sorry this is muddled but I hope you find it helpful. Let us talk again soon

Keith