

REPORT

Airs, waters and places—II

An Environmental Health Service

A strong case for a 'National Environmental Health Service' was made at the second *Airs, Waters and Places* conference, at college headquarters on 20 September, 1972.

An eminent multi-disciplinary audience was welcomed by the President the College, Dr G. I. Watson, O.B.E., who referred to the original observations by Hippocrates from which the conference title had been derived.

Mr L. P. Smith

The opening paper was then given by Mr L. P. Smith (Past-President of the World Meteorological Organisation), who described himself as "a multi-disciplinary person but originally a pure mathematician." He showed how weather conditions may play a significant part in influencing the development or otherwise of disease outbreaks. For example, the pollen count in June and July is decided by weather in April and May. Weather also conditions the subject's response before exposure to the pathogen. In this way the explosive spread of the Black Death had been facilitated. Mr Smith gave illustrations of how phenomena may be investigated, starting on the macroscopic scale—"spotting the weather link" with a disease. The opposite approach on the microscale by laboratory investigation of single pathogens in controlled circumstances was often dishearteningly slow. In between was the in-depth study of outbreaks in which it was usually possible to make progress towards finding a meteorological linkage at least up to the 80 per cent success level. Following this, results could be fed back to laboratory and field workers.

With regard to data-gathering, meteorology was well served with networks of stations, 60 reporting hourly in the United Kingdom alone. On the disease side the situation is not so satisfactory, some official reports being of doubtful accuracy, relying as they do on the enthusiasm of individuals. Nevertheless, the people typified by the college audience were those who would be likely to be able to produce valuable data. The important thing was for scientists of different disciplines to work together. He warned however of the "terrible tendency to opt out of thinking" in the acquisition of data.

Dr E. Hamilton

Dealing with the subject of *Waters*, Dr Eric Hamilton, (Institute for Marine Environmental Research, Plymouth), asked for fears regarding certain potential hazards to be kept in balance. He no longer claimed even to understand what water is, as knowledge regarding its complex molecular configuration is still only partly known. Certainly, totally pure water does not exist. Surveys had shown that a surprisingly small amount of tap water as such, (50 ml) is taken by an average individual in 24 hours. The possible biological effects of water-dissolved elements when used in making beverages or cooking might be very different from when ingested in plain tap water.

There is a great deal of variation in the dissolved content of tap water, not only between different areas, but even in the same household supply at different times. He emphasized that when talking about water it was not possible to generalize. Referring to W.H.O. 'permissible levels' it was often difficult to see how they had been arrived at and very often little work had been done. Fortunately for consumers of water from undoubted arsenic-contaminated sources; due to various naturally occurring physical and chemical processes the arsenic disappears fast and is "almost negligible" as a result. He agreed, however, that it was possible that certain circumstances might occur which would alter this.

Contrasting the situation in different parts of the world, he pointed out that much if the world's population drank water which to us would be totally unfit whereas we throw 90 per cent of our purified water down the drain!

The recent correlation of 'hardness' of tap water with myocardial disease, was cause for *Journal of the Royal College of General Practitioners*, 1972, **22**, 852

concern. Some kind of electrolyte imbalance was possible but these studies were difficult. Further work should be carried out in a proper interdisciplinary manner.

The College could play a very important part by systematic observation, morbidity recording, and through its organisation involving other workers. In such research he would like to see account taken not only of water analysis, but urine, faeces and tissue analysis. He saw no reason why detailed studies in contrasted areas could not start now.

Dr R. J. F. H. Pinsent

Opening the following discussion, Dr R. J. F. H. Pinsent showed a slide of a Heron "doing a one-bird sampling of particulate matter flowing down the River Tamar" and likened it to college observers who with "feet in the mud" know their own territory in a way which gives them special advantages. The Heron, like man, was at the top end of its particular food chain. No-one was able to give us a "Certificate of Safety" of the water we drink and he instanced a nineteenth century mineral dump left behind in a newly created reservoir. We needed to know more about the "total environmental load"; for this, increased data-collection facilities would be necessary. Here the general practitioner would be valuable as an observer. He hoped we might soon be able to think of the strategy of such a development.

Discussion

Professor Bryce-Smith (University of Reading) said there was authoritative evidence of an extremely unsatisfactory situation in some parts of the country, for example the lead content of Glasgow drinking water. Dr Hamilton accepted this but wanted more evidence on what effect this is having. It had to be balanced from intake from other sources. Professor Melvyn Howe (University of Strathclyde) pointed out how the overall picture was complicated by other regional variations—such as eating habits. Nevertheless, maps of mortality showed extremely interesting concentrations such as higher mortality rates from carcinoma of the stomach in central and south Wales, which were possibly connected with defunct lead and zinc mines in the region.

Professor H. C. Hopps

Professor Howard C. Hopps (University of Missouri), known for his work on trace elements and co-founder of the Society of Geochemistry and Health, spoke on *Places*. For the first time we had arrived at the position of being able to handle all the data we can get, automatic data processing and computers opened a whole new era ahead.

It was not enough, however, to have the hardware. The thinking process was extremely important, but to ask the right question often required a spark of genius. Disease has multiple causes and in unravelling these the computer could help. For instance in the computerised mapping of disease and environmental data. In understanding their correlation visual display was important, especially so if presented in three dimensional form in the form of a block diagram or map. Maps can be extraordinarily effective research tools. Dot maps and cluster analysis allowed one to 'focus down'. By means of the cathode ray tube one could rapidly examine visual presentations, discard 100 and preserve one.

He concluded by saying there were two ways of detecting "something no-one can see".

1. Get in as close to it as possible.
2. Look at it from a new angle.

The fresh point of view of an unbiased mind was the most important tool of research.

Dr P. R. Grob

From the point of view of 'Strategy' the final paper by Dr Paul Grob (General practitioner, Surrey) was perhaps the most important. The time is now ripe he claimed to set up a national network of environmentally-orientated scientific observers in which the country's general practitioners would have a fundamental role to play. It is interesting that 120 years after John Snow took the handle off the Broad Street pump we are still looking hard at our water supplies. The towns of Camborne and Redruth in Cornwall were in every respect identical except for water supply. Yet one has 12 times as many cases of multiple sclerosis as the other (and 20 times the total heavy metal content in its drinking water).

Should the general practitioner get involved in an active way in an Environmental Health Service? He thought the answer was 'Yes'.

Changing work loads meant that many practitioners could find more time now that infectious diseases were less important and practices better organised.

Finally, the reorganisation of the Health Service in 1974 would mean a much closer linkage with our colleagues in hospital and public health sectors. He hoped the family doctor would have the inclination, the time and the opportunity to involve himself in this branch of preventive medicine. It should not be difficult, to co-ordinate morbidity findings in practices, with the geological, geographical, climatic and other community parameters. Measurement of the physical characteristics of the environment required sophisticated technical expertise which could be available in appropriate university departments. Hence, there should be an interdisciplinary venture with a central co-ordinating body equipped with data storage and retrieval methods.

Professor Melvyn Howe

Following Dr Grob's plea, Professor Melvyn Howe vigorously reminded the conference that geographers (of which he is one) are first and foremost environmentologists. Medical people were moving into the geographers' field and not always realising that special relationships are not necessarily the same as causal relationships. Geography has now become a very sophisticated discipline and he made a strong plea that in concerning ourselves with our heterogeneous environment, physical, man-made and biological, we should, at local level, look for help from the geography departments of our local universities.

The College Morbidity Study* was admirable but he was pleased that he had been asked to study the environment of the practices concerned.

Final discussion

The final, lively, discussion touched on such subjects as need for accuracy of data, variation of results between different laboratories—and of course money, which it was hinted might be available if “the project were properly handled”.

Dr Kuenssberg was optimistic about the co-operation of general practitioners as 1,200 were already involved in the oral contraceptive study without any coercion whatsoever. He was confident that in the present atmosphere we were in a position to think further and look at a wider horizon. He suggested that the conference be superseded by a forum of all interested people and attempt to pinpoint problems and proceed to organise administrative machinery.

Bringing the conference to its end, Dr B. Davies (University College of Wales, Aberystwith) brought us back to earth with the reminder that 80 per cent of people live in urban areas, to which attention should first be directed. A city was not only a “heat island” but a “metal sink”. There would be need for much co-operation between “strange bedfellows” and a lot of hard logging to get data—*but don't be put off by thinking about the difficulties—Let's do something.*

*Previously referred to by the President as “the College's biggest single contribution to the study of disease.”