Science versus safety: who should judge the balance?

R. N. P. Sutton, of the Department of Virology, Wittington Hospital, Manchester, offers some reflections on the possible implications of increasingly stringent health and safety requirements for scientific research in Britain

EMMA LIVRY was a young and talented dancer in the Paris of the 1860s. She chose to ignore the management in a question of non-flammable material and, in consequence, was fatally burned during a performance at the Opéra. Mlle Livry weighed art against safety and paid the price.

I doubt whether such a conscious choice could be made today. Over the years, safety regulations have proliferated, culminating, as far as Britain is concerned, in the Health and Safety at Work Act of 1974. These regulations have mandatory force and, whether *post hoc* or *propter hoc*, we now have a universal obsession with safety. Living and working in a scientific community, do we expect too much when we hope that a fair balance can be struck between a crippling devotion to safety-first on the one side and a disastrous *laissez-faire* on the other? For the moment, let us confine ourselves to microbiology, for that is the field with which I am familiar.

Do laboratory workers handle pathogenic organisms carelessly? I hardly think so. In the diagnostic field, all are well aware of the dangers of hepatitis, tuberculosis and so on, probably more so than our colleagues in other disciplines. There has been much thought about the newer hazards, Lassa fever, Marburg and rabies viruses, and the risks in handling these agents are now well recognised. Special control measures to prevent the spread of infection by these and similar agents have been set up in Britain. The Dangerous Pathogens Advisory Group (DPAG), a body broadly analogous to the Genetic Manipulation Advisory Group (GMAG), has laid down procedures for the handling of these Category A pathogens. The procedures apply to laboratories which, as a matter of deliberate policy, hold or handle or might in future hold or handle these pathogens.

In laboratories with diagnostic responsibilities there are unavoidable risks in the handling of specimens. Where large areas, maybe including major seaports or international airports, are served, the chances increase of fortuitous encounter with dangerous pathogens. Facilities are required for safe handling of specimens from patients—and, indeed, the safe handling of the patients themselves—in whom exotic infections such as Lassa fever are suspected. At this stage, the practicalities of administration and finance become paramount. The necessity of expensive preparation for a rare event does not appeal to cost-effective administrators, hard-pressed by other and urgent appeals. There is a temptation to purchase a facade of equipment and, perhaps, to designate an empty room as a high security area. Justice, but not full justice, is seen to be done. In circumstances such as these, limited by unavoidable financial constraints, clinicians, nursing staff and laboratory workers may be edged into positions which are unacceptably dangerous.

But is not all this within the domain of the Health and Safety at Work Act? Here, it is expressly laid down as a duty that the exposure of persons to risks to their health and safety is forbidden. Yes, but . . . presumably, the legislators did not intend this Act to be read as forbidding nurses to dress infected wounds, laboratory workers to test infected specimens or doctors to attend to patients with contagious diseases.

Yet dangers exist and there would seem to be practical and financial difficulties in implementing the provision of safe conditions of work, in particular with respect to the rare, but real, hazards presented by Lassa fever and the like to the ordinary hospital and laboratory of any size. Implementation of the spirit of this law is much easier when we consider the planned investigation of known infectious agents. Here, we are often on different ground, and a fable comes to mind.

In a far away land, there was a tragic disease, well known to medical men. Rumours claimed that this disease could be transmitted to monkeys and two doctors decided to try the experiment. One told his colleagues about the exciting prospects of his investigation; these friends banded themselves into a committee and prudently forbade him to handle such a dangerous pathogen. The second doctor kept his counsel and success came his way.

I am not sure whether this fable could be held to apply to any known disease. Told twenty-five or thirty years ago, it might have applied to poliomyelitis: told today, to Creutzfeldt–Jakob disease. Times change, and it is interesting to speculate on what would have happened if the early work on poliovirus had been carried out in today's climate. Would we now have a poliovirus vaccine or would the experiments have been terminated, for the safety of the laboratory workers? Either way, patients with poliomyelitis would still have been cared for and pathological specimens subjected to routine examination without much regard for the letter of any safety legislature.

In the past, experimental risks were assessed by the scientist concerned. Accepted as being in possession of the facts, and capable of marshalling them with responsibility, his decisions were given due weight. Today this is not so and we have a society where everyone questions authority and claims the right to speak and act, often on topics beyond their competence.

In this way, bodies often effectively lay in composition can inhibit individual workers through decisions which are arrived at by processes which are essentially non-scientific (risk avoidance, responsibility spreading and undue reliance upon public opinion). Such decisions, although they may well implement legislation such as the Health and Safety Act, may equally well not be in the public interest (that is "Doing today those things that men of intelligence and goodwill would wish, five or ten years hence, had been done"—Edmund Burke).

How can we strike a fair balance between the demands of safety and those of the public interest? My concern is by no means theoretical and I know personally of recent instances where local bodies, acting in their own wisdom, have attempted, in the name of safety, to ban certain microbiological experiments. On both occasions, as it happened, the offending agents were slow viruses or possible slow viruses. Next year, perhaps, influenza virus vaccines will take over the role of bogeys for the timorous in the local safety committees—who knows?

A solution may lie in changing slightly the role of the DPAG. In the few programmes involving genetic engineering, control is rightly in the hands of the GMAG. In the many experiments involving micro-organisms, the ultimate sanction in questions of safety and the power of veto should be, not in the hands of local bodies, but in those of the DPAG. In this way both the public safety and the freedom of the investigator would be protected. □