French medical research organization INSERM, would like to go further. He suggests that, at least when a local institution feels unable to handle a particular, and potentially serious, case, only an INSERM committee with members drawn from other European countries could come up with the necessary expertise and distance from local academic politics to be able to carry out a truly independent investigation. The European Science Foundation is considering whether such a committee should be set up under its aegis.

In contrast, even other Scandinavian research organizations that have adopted the Danish model, including Norway, Sweden and Finland, do not require institutions to refer cases in the first instance to the national committee. Local institutions can choose to conduct preliminary investigations.

In Norway, there were strong objections even to the concept of a national committee. Jarla Ofstad, a professor of medicine at the University of Bergen, and a former chairman of the Norwegian Medical Ethics Committee, argued strongly against the creation of the Norwegian Committee on Scientific Dishonesty because it would "create too much bureaucracy around an infrequent problem". Including a judge in each of the Scandinavian committees turns them into "amateur courtrooms", he says.

The Committee for Publication Ethics, an informal group of British medical journal editors, has long campaigned for a UK national committee to handle all incidences of misconduct, at least in medical research. This proposal is currently being discussed by a committee set up by the General Medical Council, which sets professional standards, including research standards, for clinicians.

In Germany, however, where there is strong distrust of any institution with centralized power, opposition to a national body to investigate misconduct remains strong.

German complacency ended

Germany is the most advanced of the non-Scandinavian European countries in instituting procedures for handling and preventing scientific misconduct. Procedures for handling allegations were drawn up by the Max Planck Society in 1997, only months before the first of a series of major fraud scandals shattered German complacency that the country was culturally immune to what had been seen as an 'American scourge'.

The Deutsche Forschungsgemeinschaft (DFG), Germany's main grants agency, was deeply shocked by the first case, when local investigation committees announced in 1997 their "strong suspicions" that 47 papers by two high-flying cancer researchers, Friedhelm Herrmann and Marion Brach, had included fabricated data (see *Nature* **387,** 750; 1997).

Former DFG president Wolfgang Frühwald had said with some pride in 1995 that "the incentive [for a researcher] to falsify data to accelerate his career is greater in [the US] system than in the German research system, which is tightly controlled by self-regulation". Almost as a gesture of atonement for this naive assumption, he ensured that the first guidelines for good scientific practice in Germany were rapidly developed before his term of office expired at the end of 1997.

These guidelines are intended to tighten up self-regulation rather than provide a substitute for it. Their publication prompted action by research organizations elsewhere in Europe, which had previously been considering in a more leisurely manner how to develop procedures for handling — and preventing — scientific misconduct.

In Britain, the Biotechnology and Biological Sciences Research Council launched good practice guidelines at the end of last year, and other research councils are following suit. In France, INSERM distributed guidelines to its institutions last month, and the biggest French research organization, CNRS, is currently debating the issue.

There is little to differentiate the good practice guidelines that have been developed within different research organizations. All

US stalls on new definitions of misconduct

The US Office of Research Integrity defines misconduct as "fabrication, falsification, plagiarism ['FFP'], or other practices that seriously deviate from those that are commonly accepted within the scientific community for proposing, conducting, or reporting research. It does not include honest error or honest differences in interpretations or judgements of data".

Most US organizations have adopted this definition, with minor amendments or additions. Three years ago, however, the Commission on Research Integrity — which had been set up by Congress to, among other things, refine the so-called 'FFP' standard — proposed that there should be a more precise definition.

The commission suggested that a new definition would help the courts to decide complex cases. One suggestion was that the term 'elimination' should be included, referring to the deliberate omission of data considered inconvenient in ensuring the desired result.

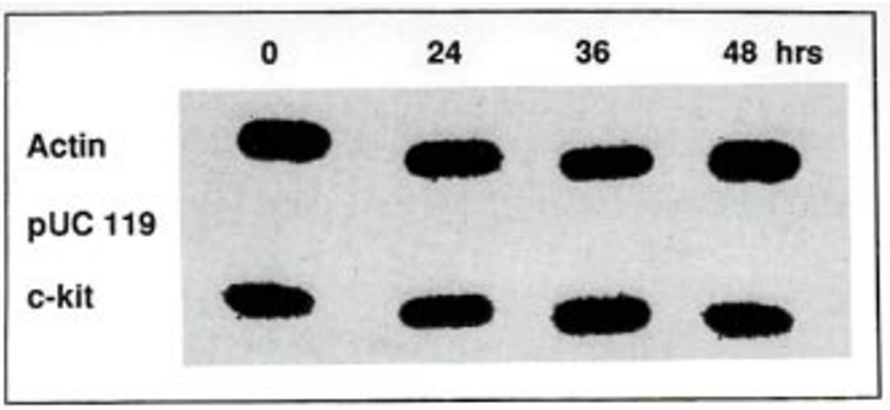
But the proposed changes have encountered considerable hostility from scientists. Many fear, for example, that identifying such a practice as misconduct could lead to sloppy record-keeping becoming grounds for career-damaging misconduct allegations.

The recommendations are currently being tossed around the White House's Office of Science and Technology Policy, and this has given scientists another reason to worry. This is because any new definition to emerge from this office may apply government-wide, covering research funded by the National Institutes of Health, the National Science Foundation, and many other agencies involving energy, defence, education and veterans' hospitals.

Kenneth J. Ryan, a Harvard University physician and professor emeritus who chaired the Commission on Research Integrity, says that policymakers are aware of the hostility surrounding the proposals, and have therefore been in no hurry to conclude their deliberations, which have now stretched over years.

Some federal officials working on the new policies say that the slow pace is to be expected, given the importance of the issue. "It did, after all, take nearly a decade to formulate new regulations for human subjects research," says one official.

But scientists and officials involved in the work of the commission fear the importance of the issue has "dropped off the radar screen", and that it will stay there until an egregious case reaches a high enough profile to prod policymakers into action. R. D.



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Smoking gun: investigators in the Herrmann and Brach case electronically separated the components of this autoradiogram and found it to contain duplicate data. Lane 1 (0 hrs) is the same as lane 4 (48 hrs), and lane 2 is the same data as lane 3, but part of the figure is rotated.