tute and the French National Centre for Scientific Research.

Except for pharmaceuticals, industrial-scale use of microbes today is largely confined to the manufacture of bread, cheese, wine, and beer. However, the range of things which microbes could produce includes fuels, dyes, vitamins, and the chemical precursors of a host of products ranging from plastics to pesticides. Technical problems, such as keeping large vats of microbes stirred and aerated without damaging them, often prevents a microbe-based manufacturing process from being economically feasible. The Penn State–Pasteur Institute team believes that making the organisms float could improve the economic picture.

According to Dr Bryant, work on the flotation gene began at Penn State in 1984 when Dr Marsac visited him. The two scientists are specialists in the study of Blue-green Algae (Cyanophyta or Cyanobacteria). These 'have internal structures called gas vesicles that are simply spaces within the cell filled with gas,' Dr Bryant explained. 'These "gas balloons" give the cell buoyancy. By balancing the production and destruction of these gas vesicles, cells can position themselves in the ponds where they normally live, to obtain just the right amount of sunlight to make food *via* photosynthesis.' 'We reasoned that if one could clone the genes for the gas vesicles into other industrially important organisms, one could make them float when wanted. Flotation would make it easier to grow and collect the cells. Ultimately, we want to be able to make mammalian cells float. Mammalian cells are notoriously difficult to process in large quantities because they are so fragile. They are heavy and difficult to stir. If one could make them float, they would be much easier to process.'

In addition to Dr Bryant, the Penn State group includes Dr S. Edward Stevens, associate professor of Microbiology, and Dr Ronald Porter, associate professor of Microbiology and Molecular Genetics.

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Environmental Damage Liability: Need for Legal Instruments

European Justice Ministers, at a meeting in Oslo during 17–19 June 1986, stressed the need for adequate measures to protect the environment, and underscored the international nature of environmental pollution to which the Norwegian Prime Minister, Mrs Gro Harlem Brundtland, also referred in her opening address to the Ministers. She commented further: 'Our peoples have recently been shaken by the catastrophe in Chernobyl—[which] underlines the fact that we are all dependent upon one another for our security in a wide sense, indeed for our future'.

Recognizing that damage to the environment will never be entirely prevented in all cases, the Ministers said it was essential that adequate compensation be given for damage suffered. They noted the need for a civil liability regime based on presumption of fault or strict liability, and for a collective compensation system based on insurance or a fund.

Other measures advocated by the European Justice Ministers include compulsory restoration or cleaning up of the damaged environment, especially where the general interest is affected. They also called on the Council of Europe to give high priority to the problem of compensation for damage to the environment, with a view to preparing an appropriate legal instrument.

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Simulating a Major Disaster in Europe: Studying the Lessons of Chernobyl

The Ministers of southern Europe* who are responsible for preventive action and protection against major disasters, met for the third time in Ravello (Italy) on 24 and 25 May 1986, at the invitation of the President of the European University Centre for the Cultural Heritage in Ravello, Professor Jacques Soustelle, and with support from the Council of Europe. Studying the lessons of recent major disasters, in particular Chernobyl, they hope that each of the countries concerned will set up an information unit responsible for:

- Collecting data in the competent departments;
- Making these data available to nongovernmental users;
- Carrying out the necessary syntheses for information of governments; and
- Ensuring that government announcements are expressed in a coherent and consistent fashion.

The activity of these national units must be coordinated at European level with a view to standardizing information procedures in the event of major disasters.

A joint *disaster simulation exercise* will be carried out early in 1987 to contribute to the preparation of a homogeneous doctrine by the various countries concerned, and to test the machinery for information and cooperation to be used in organizing assistance between the countries of southern Europe.

The exercise-to-be is defined as follows:

- Pilot country: Italy;
- Type of disaster simulated: destruction of industrial installations by a major earthquake releasing highly toxic chemical materials over the ground and into the sea and air in a coastal tourist region;
- Preparation of the exercise: cooperation between Italy and France to decide on the location and details of the exercise; and
- Information: to all the countries of southern Europe taking part in the exercise, particularly regarding cooperation in organizing assistance.

Approval was also given for the establishment in the Republic of San Marino of a European Centre for Medical Care in Disasters. The centre will be responsible for preparing information programmes, and for training and

* Portugal, Spain, France, Italy, San Marino, Greece, Malta, Cyprus, and Turkey.