Lynch stresses that in this case, as in the case of the neutral object found in May, the SLAC-LBL physicists are not making a flat-out claim of naked charm, but the characteristics and behavior of the new particles seem to fit what theory prescribes for nakedly charmed particles. This is especially true, he says, of their decay modes. They decay by the so-called exotic channel, which involves a different combination of two measurable characteristics (electric charge, and strangeness) from that involved in the normal channel, by which uncharmed particles decay. □

China earthquake largest in series

Perceptible motion of the giant plates of the earth's crust has apparently set off this year's series of more than a half-dozen major earthquakes, including last week's temblor near Peking. That quake, measuring 8.2 on the Richter scale, was the largest to occur anywhere in the world since 1964.

Though the exact plate movements are hard to determine, some seismologists say the African and Indian continents have moved noticeably northward over the last several months, setting off a series of quakes along a rim stretching from Italy (quake on May 6) to the islands north of Australia (the New Hebrides was shaken Aug. 2 by a quake measuring 6.9). The first of this year's series of major quakes was in Uzbekistan, USSR, on April 8, and measured 7.0 on the Richter scale.

The Chinese quake, on July 28, was by far the largest of the series and took place in the most densely populated area. Though casualty figures were not released by the Chinese government, diplomats in Peking estimated the death toll in the hundreds of thousands. The industrial city of Tangshan, some 100 miles southeast of Peking, was reportedly flattened by the quake and more than 125 aftershocks of Richter magnitude 4.0 or greater were counted in 48 hours.

Perhaps the most disturbing aspect of the aftershocks has been that their centers seem to be progressing northward toward Peking. The area affected by the quakes contains some 20 million people, many of whom have been sleeping in the open to avoid collapsing buildings. Dependents of foreign diplomats began leaving Peking over the weekend, after being requested by Chinese officials to stay away for at least a month.

Though Chinese seismologists had seen some signs of an impending quake near Peking, they were unable to pinpoint its time as they had apparently done in Liaoning last year (SN: 7/26/75, p. 55). They had only been able to say a major quake should occur before 1980. This week, however, continuing ominous signs—including unusual restlessness among animals in the Peking zoo—led the scientists to warn that more strong quakes in the area are likely soon.

In a program broadcast on Shanghai radio, Chinese seismologists said they may see "very obvious" signs foretelling a quake, but that these may often be misread. "Earthquake forecasting in our country has made great headway," the program said. "Instances of accurate and relatively accurate forecasts increase each year." However, the scientists admitted that due to the complexity of the phenomenon, such forecasting remains "in a primitive state at present."

The Chinese use basically the same indications of an impending quake as those used in the West: changes in local magnetic, electric and gravitational fields, bulging of the land, changes in subterranean water level and chemical content of the water, and restlessness of animals.

* * *

A National Research Council panel last week issued a study calling reliable earthquake prediction "an achievable goal" for the United States within 10 years, provided a national commitment to a long-term research program is made now. Such a program would require "several times the current annual expenditures for prediction research," the report concludes.

The panel calls for increased study of how people would respond to earthquake predictions, and suggests creation of a formal evaluation panel to advise public officials on predictions. Also, the panel concluded, "earthquake prediction now looks so promising, and its social consequences are potentially so profound," that an advisory unit should be established to advise the new White House Office of Science and Technology Policy in such matters. □

No vacation for DNA issue

There hasn't been a dull moment in the field of recombinant DNA research since California biologists stumbled onto the gene-grafting enzymes four years ago. This summer seemed to hold a refreshing potential for quiescence, following the release in June of long-awaited formal guidelines to govern the field and considering, as well, the traditional vacation-time lull. All is far from quiet, however, and there has been, during the past three weeks, an attempt to patent the new techniques and a barrage of letters between congressmen, an environmental group and the White House.

Stanford University and the University of California have applied jointly for a patent on certain recombinant DNA techniques. (Nobody is saying which ones right now.) The application is pending; processing takes several months.

Although details from Stanford's technology licensing office are necessarily scanty at this point, the basis for the patent application seems to be the ground-breaking research done by Stanford biologist Stanley Cohen and by Herbert Boyer at the University of California at San Francisco. They first demonstrated in 1973 that restriction enzymes could be used to transfer gene sequences.

The patent, according to Stanford's technology licensing manager, Niels Reimers, would cover only commercial uses of certain basic recombinant techniques and only in the United States. These commercial applications might include large-scale production of biologically active substances, such as insulin, hormones or antibodies, by genes transplanted to bacteria. Cohen, Boyer and both universities say they will assign any royalties from commercial use of the techniques to fellowship and research.

The first public discussion of the previously quiet intention to patent recombinant DNA techniques surfaced at the Miles symposium in June (SN: 6/19/76, p. 389). Some scientists worried that the patents would limit research, lead some industries to seek less-safe but patent-free techniques or inhibit industrial use.

The first concern is groundless, Reimers told SCIENCE NEWS, since research uses would not be patented. Second, the patents would apparently cover such key steps that "less-safe, patent-free" approaches are unlikely. And patents, Reimers says, would probably increase, not decrease, industrial safety and applications. A pharmaceutical company is more likely to spend large sums to develop an application if some exclusivity is assured, he says. Participating companies, moreover, could be required by patent provisions to adhere to the NIH guidelines for safe containment of recombinant organisms. Adherence is now voluntary for all those not receiving NIH funds.

Concern over industry's freedom from regulation led Senators Edward Kennedy (D-Mass.) and Jacob Javits (R-N.Y.) to send a letter to President Ford. In it, they urge an "executive directive and/or rule-making" to assure compliance throughout the research community—a task, they imply, Congress would undertake if the White House doesn't. The senators praised the NIH guidelines as "a responsible and major step forward."

That praise was not evident in a second set of letters from volunteers at the Friends of the Earth, a national environmental organization, to Kennedy, Javits and several other congressmen and to NIH Director Donald S. Fredrickson. In their letters, Francine Simring and Lorna Salzman formally requested that NIH "cease and desist" funding recombinant DNA research

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