induced to emit light, and a resonator. In its simplest form, a resonator may consist of nothing more than a pair of mirrors at either end of the lasing medium. Light bounces back and forth between the mirrors to stimulate the emission of additional radiation, building up the emitted light into a strong beam.

Lawandy and his colleagues dispense with the mirrors. They use green laser light having a wavelength of 532 nanometers to excite molecules of a rhodamine dye dissolved in methanol. The dye in turn emits orange light with a wavelength of 617 nanometers. Adding titanium dioxide particles, averaging 250 nanometers in diameter, to the dye solution greatly amplifies the emitted light.

The surprise is that a medium containing particles that reflect light in all directions can somehow amplify the emitted radiation. Generally, fabricators of lasers go to a lot of trouble to make the lasing medium as uniform as possible, eliminating any impurities or inhomogeneities that might scatter light and degrade the laser's performance.

"As lasing and disorder appear to be incompatible, it would seem to be folly to attempt to promote lasing by deliberately introducing scatterers into a medium," Azriel Z. Genack of Queens College of the City University of New York in Flushing and J.M. Drake of Exxon Research and Engineering Co. in Annandale, N.J., comment in the same NATURE. But that's precisely what Lawandy and his colleagues accomplished.

It isn't clear yet why a suspension of titanium dioxide particles in a liquid works effectively as a resonator and amplifier. Lawandy and his collaborators are now conducting several experiments that may lead them to a theory of how this effect occurs.

Although the light that emerges from dye-laced white paint appears as a general glow rather than a definite beam, it still retains several characteristics of laser light, including intense emission over a narrow range of wavelengths. This laserlike behavior could lead to advances in such areas as laser medicine and display technology, Lawandy says.

For example, dermatologists use an array of lasers operating at different wavelengths to treat and remove various types of skin discolorations. Lawandy envisions the development of a cream or gel containing an appropriate dye that could be applied to the affected area and then excited to generate an intense burst of light of just the right wavelength to erase the mark.

It may also be possible to get similar laserlike behavior out of a porous solid lasing medium, Lawandy says. Applied as tiny dots on the inside surface of a television tube, such materials, when excited, could generate intense light of precisely defined colors to create bright, vivid displays. *— I. Peterson*

Reservoir linked to deadly quake in India

The earthquake that killed 10,000 people in India last September struck within 15 kilometers of a reservoir filled just 2 years earlier. That proximity in time and space seems more than coincidental to two U.S. seismologists who propose that filling the reservoir may have set off the quake.

Scientists had previously documented cases in which reservoirs induced sizable quakes in India, China, Africa, and the United States. Four of these matched or exceeded the strength of last year's tremor, which measured magnitude 6.1. But none of the previous shocks linked to reservoirs killed as many people as the September tremor, which leveled more than 20 villages near the city of Latur.

Leonardo Seeber and John G. Armbruster of the Lamont-Doherty Earth Observatory in Palisades, N.Y., presented their controversial theory in Pasadena, Calif., this week at a meeting of the Seismological Society of America. In support of the hypothesis, they note that Earth's crust in this part of India is extremely old and normally stable. Local records show no sign of earthquake activity until a year after the Killari reservoir was filled, when residents began noticing small tremors. The main quake followed these preshocks a year later.

"That doesn't prove [the connection]. But the timing favors this hypothesis, as does the location," says Seeber, who visited the region of the epicenter in the weeks following the quake.

Filling a reservoir can trigger a tremor in two ways. The weight of the water can stress the crust underneath, causing it to crack. Or water can seep down into old faults near the reservoir, lubricating rock on either side of the fault and enabling these crustal blocks to slip.

Seeber and Armbruster's arguments have not convinced other seismologists who have studied the Latur earthquake. Pradeep Talwani, an Indian-born seismologist at the University of South Carolina in Columbia, has investigated numerous reservoir-induced quakes. After visiting the epicentral region last year, he concluded that the Latur shock does not fit the pattern observed in other examples of reservoir triggering.

Talwani and others point out that the Killari reservoir was only 10 meters deep at the time of the quake, whereas most reservoirs that spark large quakes measure 100 meters or more in depth. "This was essentially a puddle compared with most cases of reservoir-induced seismicity," Talwani says.

He also focuses on the unusual pattern of foreshocks and aftershocks. When reservoirs set off large quakes, they usually trigger a "swarm" of many small tremors that begin before the main jolt and continue long after. Although the Latur quake did have preshocks, they did not occur as part of a swarm that rattled up until the disaster. Furthermore, the aftershocks died off extremely quickly.

"None of the features that we usually associate with reservoir-induced seismicity was present," Talwani says.

Archibald C. Johnston of Memphis State University visited the Latur area in February as part of a United Nations group studying the earthquake. "Our team favored the conclusion that it was not induced by the reservoir, although we acknowledged that it could have been triggered. The difference being that when we say triggered, we mean the earthquake would have happened anyway, but its timing might have been altered by the reservoir. Induced means that the reservoir actually created an earthquake that wouldn't have happened otherwise."

Regardless of what caused the Latur quake, Seeber notes that many earthquakes are set off by reservoirs, quarries, geothermal power stations, and other artificial structures. Because tremors often precede these quakes, Seeber and Armbruster urge colleagues to consider the seismic potential of such structures when small shocks occur in normally stable continental crust. *— R. Monastersky*

Nursing mother rats show brain changes

You might call it sleeping on the job, since a female rat naps as she nurses her young, but she's certainly paying attention. In fact, a recent study shows that nursing dramatically increases the size of the area in the brain that picks up sensations from a mother rat's nipple-bearing underbelly.

Two major changes occur as a mother nurses, report Judith M. Stern and her coauthors in the March JOURNAL OF NEUROSCIENCE. The area of the somatosensory cortex — the part of the brain that registers touch, pain, and temperature — devoted to sensations from a rat's underbelly almost doubles. And the mother's perceptions of feelings from her underbelly sharpen as the surface area of skin that excites a particular nerve cell shrinks. This sharpens the brain's perceptions, just as smaller dots, or pixels, in a television picture make it clearer.

Stern's team compared nursing mothers with virgin rats and with rats whose babies had been removed soon after birth. After anesthetizing the rats, the researchers recorded in detail the activity in nerve cells, or neurons, when they touched different areas of the animals' trunks with microelectrodes.

Normally, there isn't much direct stimulation of a rat's stomach, says Stern, a