

BIOLOGY

Julie Ann Miller reports from St. Louis at the meeting of the Society for Neuroscience

Muscular dystrophy: Not all muscle

Future experiments on muscular dystrophy must look beyond the muscle. That conclusion is based on the results of work recently done with chimeric mice. Surgical transplants have failed to show whether the muscular defect originates in the tissue or in its environment, but merging two mouse embryos of distinct genetic types produces an animal of mixed parts that can be a powerful tool for dissecting the essential characteristics of a hereditary disease.

Alan C. Peterson of the McMaster University Medical Center in Hamilton, Ontario, combined embryos of normal mice of one inbred strain with embryos of another strain, that carried genes for a type of muscular dystrophy. While most organs of chimeric mice contain cells of both genetic types, some muscles developed entirely from cells with muscular dystrophy genes.

If dystrophy were due to a defect entirely within the muscle, then genetically dystrophic muscle would show characteristic degenerations. However, Peterson observed that some muscles derived from genetically dystrophic cells are completely healthy. Thus, somewhere in these animals the cells of normal parentage prevented the muscle from developing the genetic disease. "Now we have to consider the environment of the muscle," Peterson says.

Biochemistry of a dunce

Fruit flies are not renowned for their brains, but after years of fruitless experiments researchers observed definite learning ability in flies (SN: 9/27/75, p. 197). No sooner did they admit fly intelligence, but the researchers began looking for stupidity. And Seymour Benzer and colleagues at California Institute of Technology found it — in a mutant that they aptly named *dunce*.

Benzer has been exploring the genetic basis of behavior by analyzing the biochemical nature of genetically defective flies. He now reports the basis of the *dunce* mutation is a missing protein. *Dunce* flies lack one of two enzymes, called phosphodiesterases, that break down cyclic AMP, a small molecule important in the biochemical events that follow nerve-muscle (and possibly nerve-nerve) communications. Research on other organisms has suggested that cell-to-cell contact areas are likely to be altered by learning.

Monkeys see humans differently

Recently scientists have demonstrated in mammals other than humans a differential importance of each side of the brain for the performance of certain skills. Yet humans remain the champions for brain hemispheric specialization. In behavioral research that illustrates this species difference, William H. Overman Jr. and Robert W. Doty report that in recognizing faces, monkeys, unlike people, do not preferentially use one side of their brains.

Face identification is a task readily performed by both people and monkeys. When a head-on photograph of a human face is split down the middle, two quite different faces can be reconstructed, each composed of half the original image attached at the centerline to its mirror image. When humans are asked which of the two composites looks more like the original face, about 70 percent choose the right-half composite. However, macaque monkeys showed no preference for either of the composites. In addition, neither monkeys nor humans showed preference for right- or left-side composites of the quite symmetrical monkey faces. The University of Rochester researchers conclude the different reactions to the same stimulus show that the monkeys lack the dominance, so prominent in humans, of the right hemisphere for visual recognition.

EARTH SCIENCES

Prospecting by lichen

Certain species of lichen and other plants need particular minerals in order to grow. Their growth, therefore, is a qualitative indicator of the presence of that mineral. Now, a report reprinted from ECONOMIC GEOLOGY in the September CALIFORNIA GEOLOGY describes a lichen whose changing color appears to be a quantitative marker of the amount of copper.

According to Steve J. Czehura of Montana College of Mineral Science and Technology in Butte, Mont., *Lecanora cascadenis* was first observed by other researchers near two abandoned copper mines in northern California and was established as an indicator of copper. (The criterion for a mineral-indicating plant is that, when dried and burned, it have a higher concentration of the element in its ash than is found in surrounding ash.)

Czehura noted, however, that *L. cascadenis* occurs in three varieties: dark green, dark-green rimmed and light green. Czehura mapped the lichen's distribution by color in an area near the mines and compared the map to an independent analysis of the amount of copper in the same area. According to his results, the light green lichen marks where the copper concentration is about 500 to 1,000 parts per million, the green rimmed where it is 1,000 to 2,000 ppm and the dark green type where concentrations are greater than 2,000 ppm.

Polling earthquake coverage

A major concern about media coverage of earthquake research and predictions has been its social impact. Media attention might alarm the public, raise insurance rates and lower property values. On the other hand, media coverage could inure the public to danger.

Now, a survey by a University of California at Los Angeles social scientist indicates that "there is plainly no evidence to support the fear that well-conceived earthquake news and features will be rejected by a 'saturated public.'" The survey, conducted by Ralph H. Turner, questioned 500 adults representative of the L.A. county population.

On the topics of what to do when an earthquake occurs and how to prepare for an earthquake, 71.4 percent and 77.2 percent, respectively, thought there is too little coverage. An even greater percentage, 82.6, said too little is reported on what steps government is taking for earthquake preparedness. A large majority, 64.7 percent, said there is too little coverage of subjects such as the Palmdale Bulge and scientific prediction, but a significant number, 29.5 percent, said the coverage is "about right." Only on the topic of earthquake prediction by nonscientists did the majority say too much media attention has been paid.

Gold rush

The gold rush is on again. According to William B. Clark, a geologist for the California Division of Mines and Geology, gold fever struck Californians when the 1975 to 1976 drought lowered water levels in most streams and the price of gold rose from \$40 per troy ounce in 1972 to \$180 an ounce.

Though a few large companies are involved, most gold diggers are individuals or partners. Clark reports in the September CALIFORNIA GEOLOGY. Using home-hewn equipment the prospectors have been most active in the normally inaccessible crevices or holes of stream beds in the Sierra Nevada foothills and Klamath Mountains. More earnest prospectors have rigged up "diving operations": One diver vacuums out stream-bed crevices while an above-water partner sifts.

Clark says that, according to newspaper accounts, as much as several hundred ounces of gold have been recovered, including a 13-ounce nugget.