

can rat, it has been estimated, does about \$10 worth of damage a year.

To combat this \$900 million a year pest, the Johnson Administration proposed and the House of Representatives took up—and disposed of—what was to have become the Rat Extermination Act of 1967, a \$40 million, two-year grant program to aid cities in getting rid of their rats.

The bill never saw the light of day. A resolution to debate it on the House floor was defeated 207 to 176. President Johnson observed that Congress was doing more to protect cattle than to protect American children.

An almost identical measure, contained in a Senate housing bill, is awaiting action by a subcommittee.

The wily little animals the bills are aimed at have been man's deadly enemies ever since they found out that cities contain easily accessible food supplies. In India, where there are 10 times as many rats as people, they are blamed for the loss of 3 million to 5 million tons of food a year—enough to feed every hungry Indian with plenty left over.

Rats have been likened to man in their incredible adaptability to new situ-

warn other rats to ignore it.

They are also wary animals that normally stay as far as possible from man himself while consuming his food. When driven to it, however, they will not hesitate to attack an animal of any size. There are reports of rats gnawing the feet of living elephants and attacking sick persons who are too weak to beat them off.

While average life expectancy of city rats is a mere six months, their rate of reproduction insures against any diminution of a colony. It has been calculated that one pair of rats, given ideal conditions, could produce 20 million descendants in three years if all the females had three litters a year—by no means difficult for a rat. A cared-for and cultivated rat can live three to five years.

Just about every known way of killing rats has been tried, from throwing rocks to electrocution, but the best way of eradicating them is the oldest—protect food supplies and feed the rats poison.

The best of the rat control techniques apparently still goes back to the time of the Pharaohs, from whose domain rats may first have invaded the Western World.

This best and ancient anti-rat weapon is a poison known as red squill that has been used since 1500 B.C. Squill is the powdered inner bulb of the Mediterranean squill plant.

Rats love it when mixed with hamburger and it can rapidly decimate a colony, according to the Wildlife Bureau. It is also safe, they say, because any other animal that eats it will vomit and just get sick for a while. Rats can't vomit and so retain a full dose of squill, dying in short order.

Anti-coagulant poisons that kill the rat in a week's time from internal bleeding are also used and are safe, but strains of resistant rats are apparently developing in England, according to the World Health Organization. ♦

MICROSCOPY

A New View of the Brain Cell

Packed into the human skull are 10 billion nerve cells with up to 50,000 intercellular links apiece, lying in layers of tissues so thin and translucent that light passes through without producing contrast. Under the conventional microscope, gray matter looks just like gray matter.

So to see cells, scientists stain brain tissue in a rainbow of colors—blue, green, red, yellow, silver—each dye

chosen to reveal a particular structure.

Then, under a powerful microscope, the brain cell emerges in all its enormous complexity.

The trouble is that neuroanatomists are rarely able to verify their laboratory findings in the living, working brain. Most stains poison living cells and the few that don't offer little information.

Even with a stain, microscopic probes of living tissue get lost in the thick complexity of layers upon layers of brain material and electron microscopes, which require a high vacuum, are unsuitable for studying living tissue. That leaves the old light microscope with its paltry magnification powers—about 1,500 times compared to a quarter of a million—as the only clear hope for studying the natural brain cell.

Now a Yale University electrophysiologist reports a new light microscope that could offer scientists their first good look at the unstained working nerve cells.

The instrument, however, currently lacks an adequate light source. But Dr. M. David Egger, who with Czechoslovakian scientist Mojmir Petráň, head of the Institute of Biophysics in Plzeň, is developing the microscope, says he is confident they will find a light powerful enough to illuminate the tissue.

At the moment Dr. Egger is using the sun as a light source while he looks at an exposed section of the salamander brain. But the sun is too undependable, says Dr. Egger, and so far he has been unable to see anything spectacular, though he can observe the tiny cells.

Dr. Egger says, however, that the main problem has already been solved. It was to design a microscope that would zero in and focus on a single plane, avoiding all confusing reflections from underlying tissue layers.

The Egger-Petráň instrument does this with a rotating copper-foil disk that cuts out all but .001 percent of the light entering the microscope—thus the need for an extraordinarily strong light.

Once the light problem is solved, says Dr. Egger, he plans to attach a needle-like glass cone. The cone, about two to five millimeters long, could be inserted directly into the brain, through an aperture in the skull, and by bringing the microscope's objective right down to the top of the cone, Dr. Egger hopes to see into the enclosed brain.

If the new instrument does indeed reveal the tiny nerve endings, called dendrites and axons, it would help to answer a question central to neurology: are the links between brain cells fixed and permanent, or are they in a constant state of change?

The answer would bear major im-



Still gnawing after 50 million years.

ations. Over 50 million years, this single trait has probably been their secret of survival and success.

The long-tailed rodents, for example, are especially wary of any new form of food. They will not hesitate to foul any suspected form of bait, World Health Organization experts say, to

lications for studies of memory and learning, for understanding the nervous system's level of flexibility and recuperative powers. ♦

REGULATION NEEDED

Inroads in the Meat Jungle

For more than 60 years the stamp of the U.S. Department of Agriculture purpling the meat sold to the American housewife has been a guarantee of safety. Only in the past few years have some Congressmen raised the flag of caution: while 60-year-old Federal laws may guarantee meat in interstate commerce, state laws (or lack of them) have fallen below the national standards. Meat sold within a state is free of Federal control and, in some cases, of any control.

Representative Neal Smith (D-Iowa) in 1961 began his campaign to get a bill passed that would amend the Meat Inspection Act so that flagrant state abuses of health requirements would be abolished by extending Federal powers. Action on such a bill is expected this year.

The fight now raging in the Congress goes back to 1963, when Dr. M. R. Clarkson, a former USDA veterinarian who is now executive director of the American Veterinary Medical Association in Chicago, issued a shocking review of "certain aspects of state and Federal meat inspection services and procedures." In the Clarkson report, intrastate abuses were pointed up. But no charges were made, and it was not until the fall of 1965 that Congressman Smith again introduced his bill. A similar one was introduced in the Senate, but again, neither got as far as committee hearings.

At last, this year, Congressman Smith's H.R. 6168 has not only had hearings; it has approval of the National Association of State Departments of Agriculture, believed to be tantamount to passage of the bill. Although it may be watered down to meet the objections of the meat industry, passage should be a blow of the axe to some of the jungle growth surrounding meat processing.

The gaps between federally regulated and state-permitted practices are apparent in reports in the files of the U.S. Department of Agriculture.

- Unprotected meat was found in direct contact with the floor. Some of it had been on the floor for two weeks, so that it was necessary to walk over it to get to needed items in the cooler.

- Evidence of spoilage from dirty footwear on some meats and on their wrappers. Everthing was unclean and

there were bad smells.

- A room used to package frankfurters was without refrigeration; weights were inaccurate.

One of the worst conditions was found in Delaware, which has no meat inspection law. (This is one of the eight states with no law. The others are Alabama, Alaska, Colorado, Maryland, Minnesota, New Hampshire and South Dakota. Thirteen additional states have regulations requiring inspection only if packers request it. In many others, even if laws exist, they are poorly enforced.) "At the risk of creating alarm on the part of all persons involved," the USDA inspector states, "I am forced to draw some conclusions which require prompt remedial action . . . to provide some degree of security for consumers."

At Laurel, Del., there were hides, hair, flies and hog lungs containing parasites in contact with the meat on the floor being readied for sale. At one slaughtering house examination showed a cow with acute inflammatory mastitis, though the cow was destined for steaks and roasts on meat counters. Food handlers were extremely dirty and revolting. Rodents and insects had free access to stored meats. Meats were contaminated by animal hair, contents of the digestive tract, sawdust, flies, rodents and the filthy hands and clothing of the food handlers.

These are admittedly horrible examples. All states with regulations less strict than the USDA's are not that bad. But the fact that some consumers of intrastate meats are so poorly protected is enough to make the point. But the packers are not all happy with Rep. Smith's proposed extension of Federal controls.

L. Blaine Liljenquist, president and general manager, Western States Meat Packers Association, on July 17 said before the House Agriculture Committee Subcommittee on Livestock and Grains holding hearings on Rep. Smith's bill:

"It is obvious that the USDA would like to have H.R. 6168 enacted. It will give them additional power to control the meat industry. But we object to labeling and packaging requirements being left to the discretion of Federal agents. We object to the domination that the Federal Government would inevitably exercise over state meat inspection services."

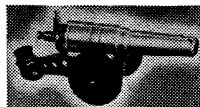
Even a proposal as moderate as Rep. Smith's offer to use matching Federal funds to help pay for intensified state inspection is objectionable to some of the packers.

"This problem can be solved by the states themselves without Federal intervention, Federal controls and Federal subsidies," says Liljenquist. ♦

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