Behavior

Stop the music

Some people have an ear for music. In rare cases, however, people have music in their ears. That, at least, was the strange experience of a 70-year-old woman described in the Sept. 5 New England Journal of Medicine

The woman sought the help of James R. Allen of the Minneapolis Clinic of Psychiatry and Neurology in October 1981 because, for three perplexing weeks, an invisible radio had been playing in her ears. Its repertoire, which consisted mostly of songs from the 1930s and 1940s, lasted all day unless other noise interfered with it. The woman's friends and neighbors verified that their apartments were not the source of the music. She checked with local radio stations to make sure the hearing aids she wears in both ears were not picking up their signals. Even in a soundproof room, the torturous tunes continued to plague her. At her priest's request, she had previously provided guidelines for her funeral ceremony, which included a request that "When Irish Eyes Are Smiling" be played. But after hearing it in her head over 50 times, she nixed that plan.

Allen, a neurologist, found the woman to be in good mental shape with normal brain wave patterns. Her only physical problems were otosclerosis, an ear infection that can interfere with hearing, and arthritis. A clue to the nature of her problem appeared when she told Allen she was taking 12 aspirin tablets per day. Her blood level of the active chemical in aspirin was much greater than what is considered normal during aspirin treatment. Within days of starting a 6-tablet-per-day regimen, she reported that the music had stopped. So far, there has not been a reprise.

Large doses of aspirin taken over an extended period can cause a ringing in the ears or even hearing loss, says Allen. But this is apparently the only case, he notes, of an aspirin-induced songfest; the contributions of an ongoing ear infection and anxiety created by being asked to complete "funeral instructions" are unclear. One thing is for sure: If the musical reaction could be controlled, aspirin sales would rocket, while Sony Walkmans would become technological relics.

Lights, camera, reactions

Investigators of the effects of television and movies on behavior have recently begun to focus on whether people perceive specific media presentations as "real" or "made up." Yet if a viewer closely identifies with a TV or movie character, it may not make much of a difference if he or she thinks the show is a slice of life or a back-lot melodrama, according to a report presented at the recent American Psychological Association meeting in Los Angeles.

David F. Ross and John C. Condry of Cornell University in Ithaca, N.Y., showed a short, highly emotional film to 60 male and 60 female college students. It contained several women talking, in turn, to a therapist about personal experiences of sexual abuse. Half of the subjects were told they were observing actual therapy sessions; the rest were told the film contained portrayals by actors. All of the students filled out mood questionnaires before and after the movie was shown.

In general, says Ross, those who thought the film was real were most upset by the presentation. But females were far more upset than males, he notes. Also, females were equally upset whether they thought the movie was real or not. Males, on the other hand, were far more upset after viewing what they thought were real victims of sexual abuse.

"We think females were more involved with the characters in the film," says Ross, "so whether they thought it was real or fictitious didn't matter." If a viewer of either sex identifies with, say, a television character, then he or she is more likely to be affected by that character's program, he adds, regardless of how fanciful the show seems.

Biology

New option in gene expression

As scientists have described the details of the cellular mechanics of gene expression, they have been impressed again and again with the versatility and thriftiness of the process. The most striking discovery was that genes contain noncoding segments (introns) interspersed among coding segments (exons), both introns and exons are copied into messenger RNA, and then the introns are removed from the RNA. Variations in this RNA modification, called splicing, allow the cell to use a single gene to code for more than one protein. A DNA segment can be used as an intron in some cells and as an exon in others, dramatically altering the resultant protein. But all the spliced RNA molecules examined seemed to be the result of the simple deletion of introns from a single gene. The exon of one gene was never joined to an exon of another.

Now two laboratories report the first evidence that, at least in test tube experiments, the splicing procedure may be "promiscuous," combining exons from various genes. The scientists suggest that such *"trans* splicing" occasionally may occur naturally, perhaps to distribute a single exon to many different messenger RNA molecules. For example, in the parasites called trypanosomes, the same short RNA segment appears at the end of many messenger RNA molecules but does not appear in the corresponding genes.

Experiments indicating the existence of *trans* splicing were reported in the August Cell by David Solnick of Yale University and by Maria M. Konarska of the Polish Academy of Sciences in Warsaw and Richard A. Padgett and Phillip A. Sharp of Massachusetts Institute of Technology. In each set of experiments, RNA exons (each attached to an intron) from two different genes were mixed together. The *trans* splicing was greatest when the introns shared part of the RNA sequence. But Sharp and his colleagues also report a low level of *trans* splicing when there was no shared intron sequence. The scientists speculate that cells must have a powerful mechanism to suppress such splicing under most conditions.

Insecticides growing in trees

For centuries, leaves and seeds of a native tree have been used for pest control in the tropics. Now chemicals from this neem tree are being applied to U.S. agriculture. Hiram Larew and Victor Adler of the USDA Agricultural Research Service in Beltsville, Md., report that neem chemicals kill or repel plant-damaging insects as well as six types of cockroaches. The first potential commercial product, called Margosan-O, is being considered by the Environmental Protection Agency for use on vegetable and ornamental crops. Larew finds that neem compounds applied to the soil enter plant roots and eventually make the leaves poisonous to larvae. The compounds interfere with the hormonal signals for molting, trapping the larvae in too-tight skins. The tree is native to Africa and Asia but also thrives in the Caribbean, and it is expected to do well in southern Florida and Hawaii.

Patent about-face

A major biotechnology firm recently caused a stir by terminating its patent agreement with the universities holding the two major patents on gene-cloning techniques and products (SN: 5/18/85, p. 312). But now Cetus Corp. of Emeryville, Calif., has reversed its position. "We are delighted that they will resume the license," says Niels Reimers of Stanford University's Office of Technology Licensing. Robert Fildes, president of Cetus, says, "We wanted to resume our license as an indication of the high regard we have for the close collaboration in many fields between our two organizations." He adds that the company's business plans have changed since the earlier action, so "... the decision also fits in with our needs going forward."