ON THE TRAIL OF THE MISSING OZONE

EPA

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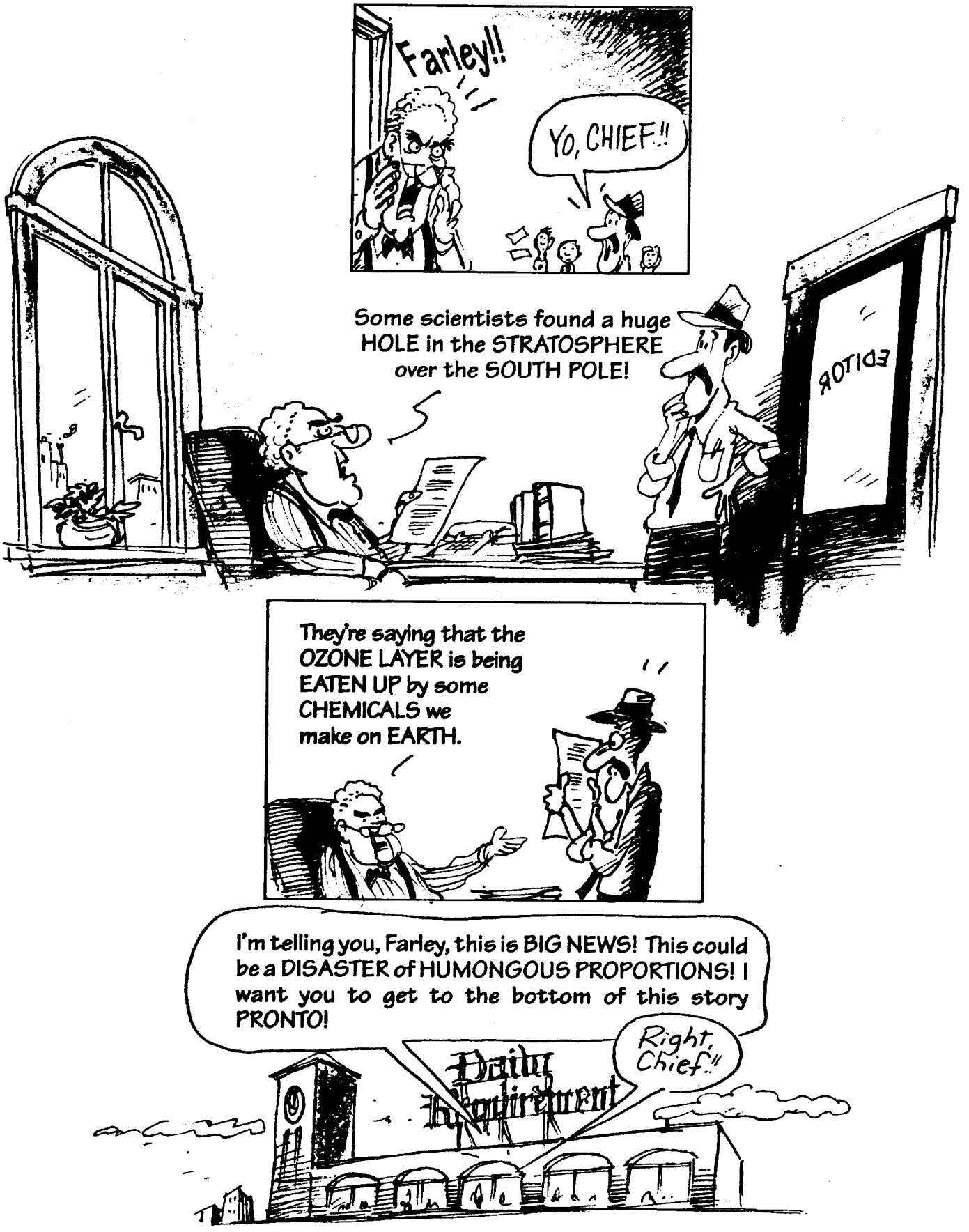
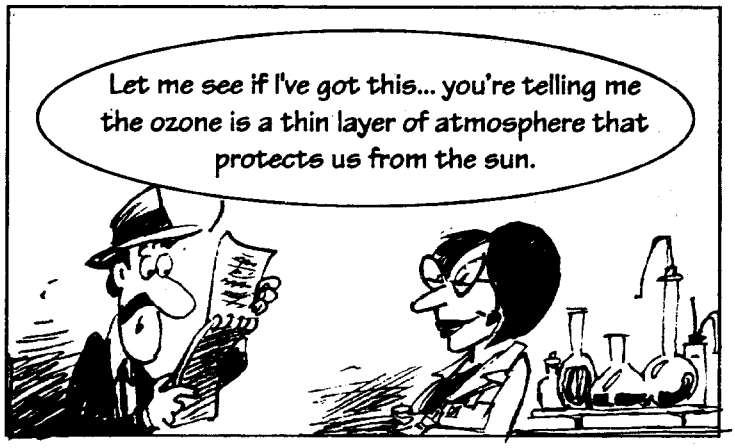
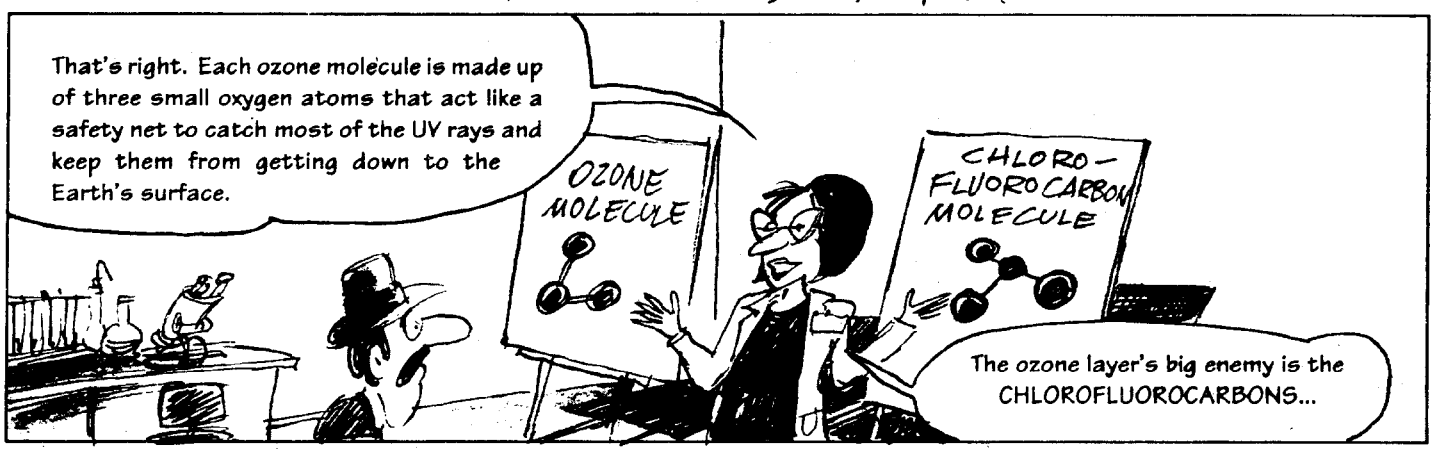
April 1993

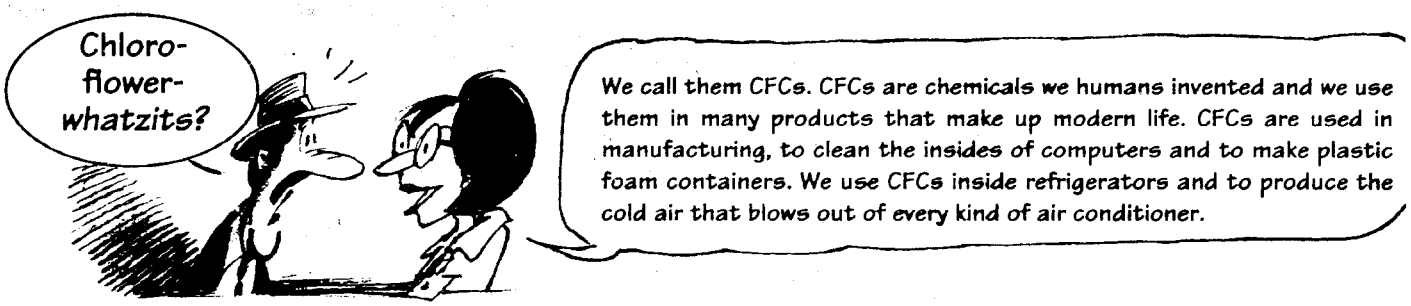
In the Newsroom of *The Daily Requirement*...

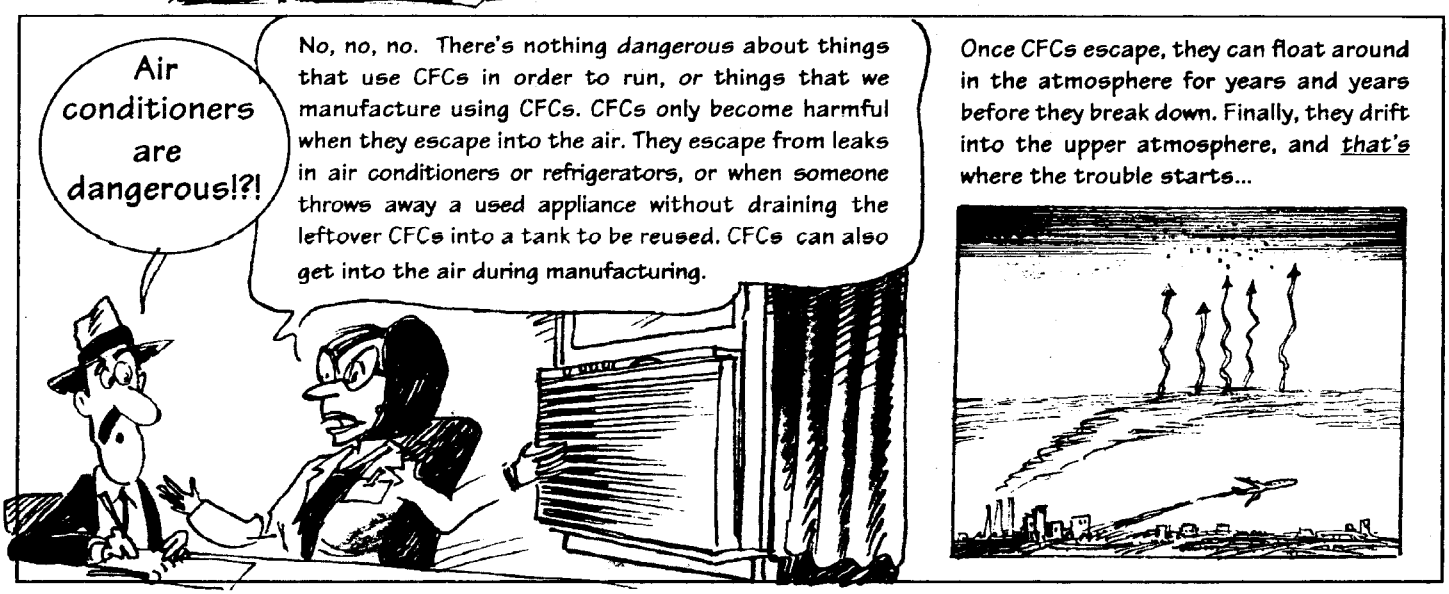


Farley meets with a scientist...







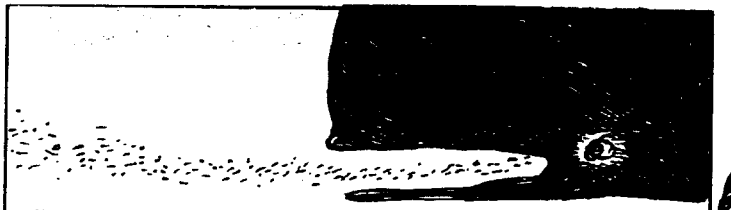


There are two kinds of ozone:

- The kind we want to save—STRATOSPHERIC OZONE—is the protective shield around the Earth.
- Ozone gathers in one other place—close to the planet's surface. There, it is bad for us because we breathe it. GROUND-LEVEL OZONE, the main ingredient in smog, is created when pollution from cars and industry mixes with sunlight. Ozone near the ground causes big health problems, like shortness of breath, lung diseases, eye irritation, and asthma.

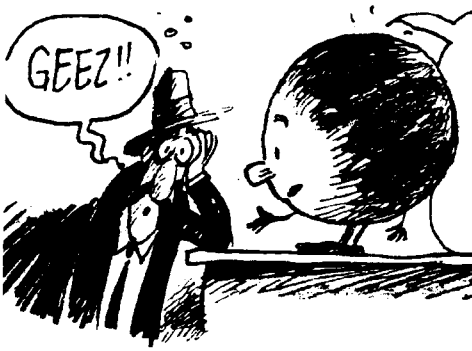
As the ozone gets thinner, more and more harmful UV rays reach the Earth's surface...and that starts an awful chain reaction among everything that lives and breathes in the oceans or on land.

In the ocean, the smallest creatures like plankton and tiny shrimps, called krill, are among the first victims of too much UV radiation.



Plankton and krill are the basis of the ocean's food chain: these critters are nibbled like popcorn by bigger creatures, who are eaten by even bigger creatures. When too much of the sun gets through the ozone layer, the plankton die.

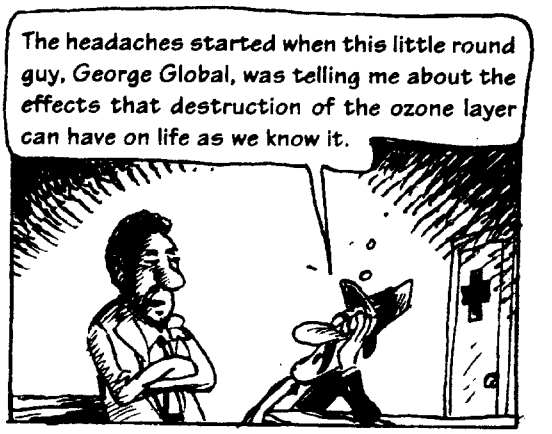
If all of these tiny one-celled critters are fried up by the UV rays, then each set of bigger creatures loses its food supply and they all begin to starve.

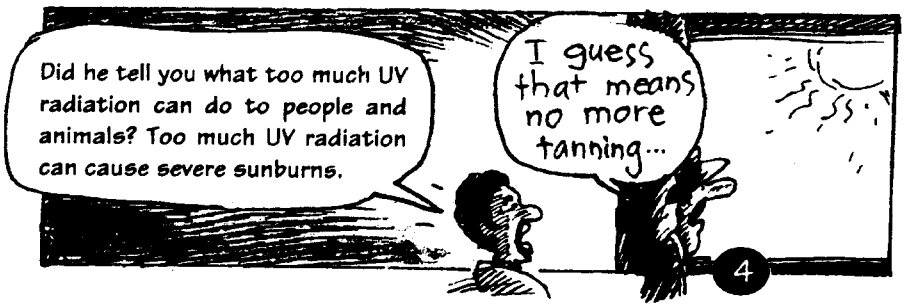


Like plankton in the ocean, plants form the base of the Earth's food chain. When some kinds of plants are exposed to too much UV radiation, they grow slower and produce less food. As the ozone layer thins, the food supply shrinks all over the Earth.

Animals can't get enough food from the plants to survive, and eventually people don't get enough food either.

Farley goes to a doctor...

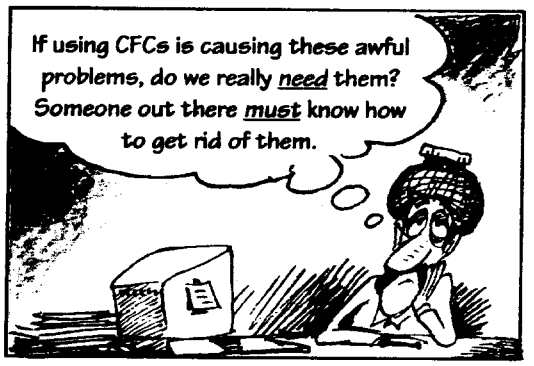


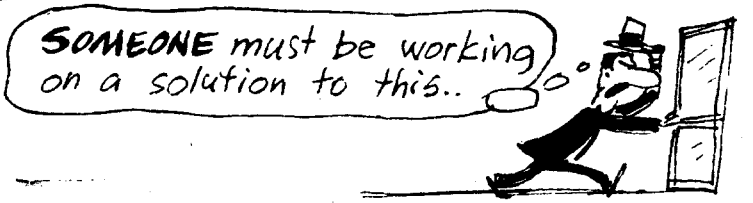


Global warming

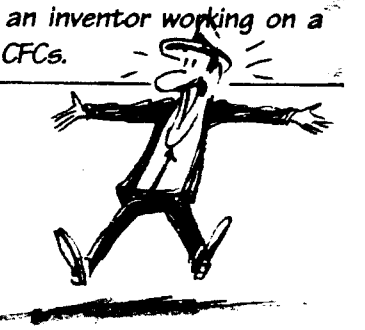
- CFCs also play a small role in GLOBAL WARMING. Global warming occurs when too many of the wrong kinds of gases are created in the lower atmosphere. These gases, like carbon dioxide and methane, get trapped in the troposphere, less than 10 miles above the Earth's surface. They act like a heavy blanket that traps heat close to the Earth's surface and gradually raises the temperature all over the world. Some possible side effects of global warming include sea levels rising because of ice caps and glaciers melting, and farmlands turning into desert-like areas due to changing weather patterns.

Even with a sun screen, the longer you stay out in the sun, the more you're exposed to UV rays. Extra UV rays can cause early aging, wrinkling of the skin, and even worse—skin cancer. It's been proven to cause eye damage, like cloudy vision, after years of exposure. If we could phase out the use of CFCs, it would be like curing skin cancer in millions and millions of people, erasing millions of cataracts from people's eyes, or growing billions of dollars worth of food to feed people all over the world.





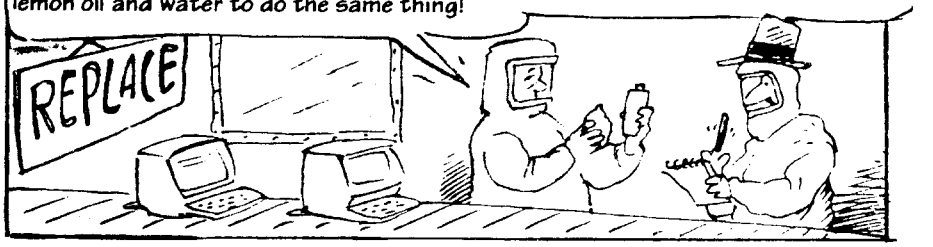
Farley goes on a search...and finds an inventor working on a refrigeration invention that won't use CFCs.



Many companies are working hard to develop new appliances that can take the place of ones that run on CFCs.

While waiting for new inventions, find ways to replace chemicals with ingredients that do the same work, but don't destroy the ozone.

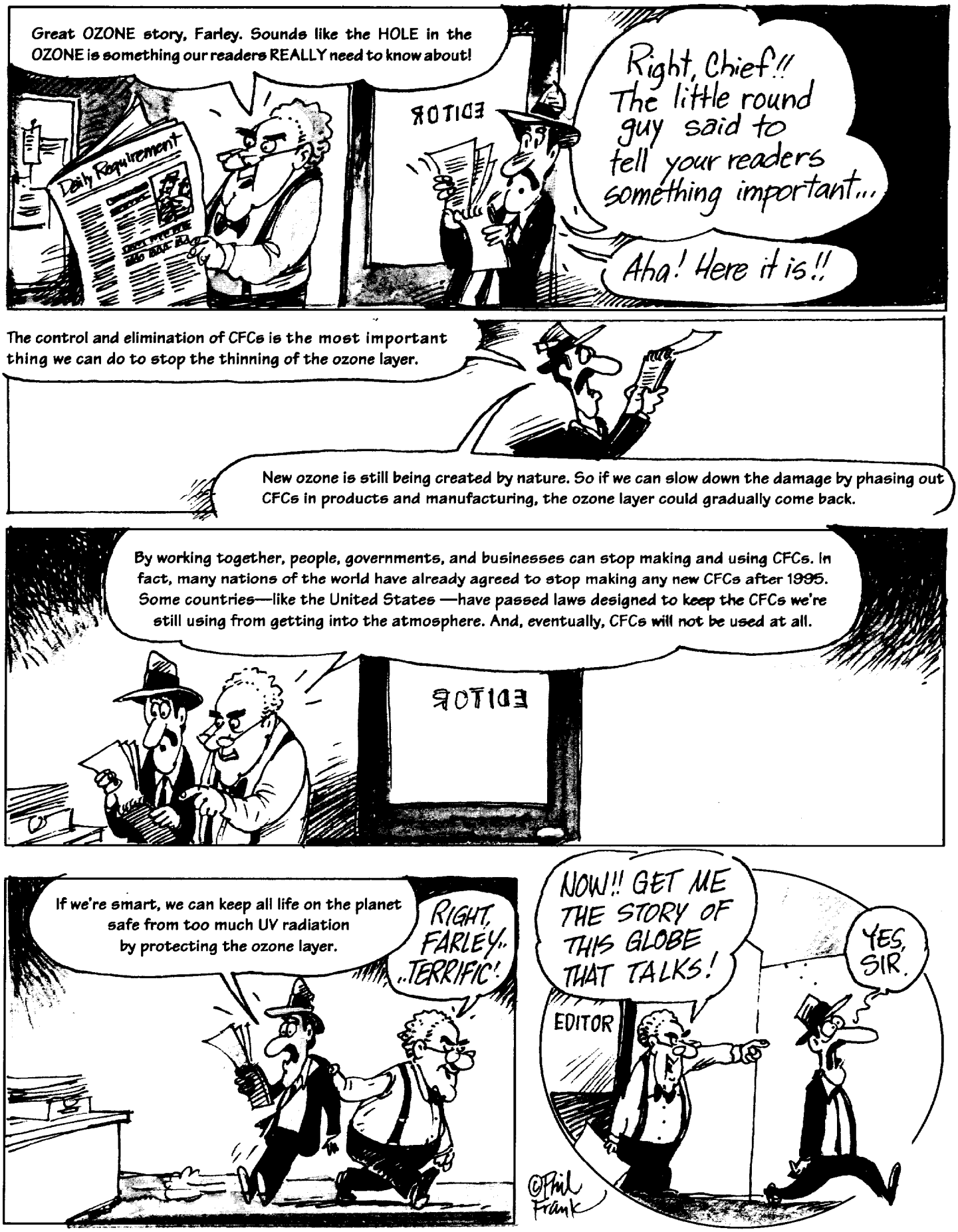
Some solutions are really simple. At our plant, we used to use liquid cleansers made with CFCs to wash off microprocessors—the computer's "brains"—to get them squeaky clean before they went into the computer. We found out we can use lemon oil and water to do the same thing!



Everyday appliances in the car or home like refrigerators or air conditioners should be checked for leaks. If they need to be fixed, the mechanic should use the right equipment to contain and recycle the CFCs.

I make sure my garage has the right equipment to repair the air conditioner in your car. This gizmo captures cooling liquids that contain CFCs, so they don't escape into the air, and then I can use 'em again. You know—recycle 'em!

Farley returns to the newsroom...



QUESTIONS ABOUT OZONE DEPLETION?

For more information about ozone depletion and the rules and regulations designed to protect the earth's ozone layer, call U.S. EPA's Ozone Hotline at (800) 296-1996 between 10 am and 4 pm Eastern time.

Also check out *Our Ozone Shield*, one of the monograph series " Reports to the Nation on Our Changing Planet" by the National Oceanographic and Atmospheric Administration and the Office for Interdisciplinary Earth Studies. To order a copy, contact OIES at P.O. Box 3000, Boulder, CO 80307-3000; phone (303) 497-1682.

INTERESTED IN OTHER ENVIRONMENTAL EDUCATION RESOURCES?

Contact: U.S. EPA Public Information Center
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Washington, DC 20460
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