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COVER: Since President Ronald Reagan took office, his budget cutters have sought ways to pare fat from the federal budget. In recent weeks SCIENCE NEWS has attempted to track those actions—ranging from a snipping away at medical funding to an axing of some large energy projects. This week the President sent his budget package to Congress, and SN updates the latest round of carvings. See p. 164. (Collage by Dale Appleman)

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LETTERS

Valuable wetlands

I would like to thank Milton L. David for predicting that bringing idle land into use for biomass production would create environmental damages (SN: 1/10/81, p. 21).

As early as 1906, the U.S. Department of Agriculture started to inventory misnomered idle lands — wetlands — to drain them for agriculture. These tens of millions of new farmland acreage produced excess crops. The Department of Agriculture partially funded the drainage and, in turn, bought up the surplus crops to stabilize food prices.

Seen in this overallocation of acreage, these tens of millions of wetland acres were foolishly destroyed. Two-thirds of the commercial fish and shellfish harvested from the Atlantic Ocean and Gulf of Mexico and one-half of those harvested from the Pacific Ocean depend on coastal estuaries and wetlands.

Wetlands are prime breeding habitat for waterfowl. Migrating birds, breeding birds, game birds and nongame birds utilize wetlands for wintering habitat, nesting habitat, resting and feeding. With the loss of habitat being the major cause of animal extinction, we should strive to maintain wetlands.

Wetlands are also not idle, worthless lands because they protect river banks and shores from erosion, lessen the severity of floods, purify groundwater and are valuable to people for recreation and aesthetic reasons.

What is seemingly idle land to a chemist is thriving, fertile land to an ecologist. It's too easy to destroy the environment in a day in which it took a millenium to create.

Paula Crumpton
Arcata, Calif.

Cellulose-forming bacteria

The article on "Ticker Tape Bacteria" by Julie Ann Miller (SN: 12/13/80, p. 377) highlighting the role of micro-organisms in biotechnology interested me since I am both a chemist and a microbiologist. Studies made by (Late) Professor T. K. Walker and his school at Manchester (UK) have shown that cellulose could be produced by *Acetobacter acetigenum*, which is closely related to *Acetobacter xylinum*, from a variety of sugar and sugar alcohols. Since cellulose producing bacteria can be easily cultivated on simple media, they are useful agents for the study of the biosynthesis of cellulose.

In extension of the studies on the biosynthesis of cellulose we have shown that cellulose formation by *A. acetigenum* in a glycerol synthetic medium is better in shaken cultures than under static conditions. Different carbohydrate substrates were examined for cellulose production by *A acetigenum;* hydrolyzed molasses with a sugar concentration of 7.9% (w/v) was found to give largest yields.

Whether or not cellulose production by bacteria is commercially feasible would be a proposition well worth examining. Glycerol, corn steep liquor, molasses and industrial wastes are potentially rich carbon sources for the growth of *A. acetigenum* during cellulose production. The yield of cellulose in these cultures is not inconsiderable. However, bacterial cellulose possesses advantages over many plant celluloses because it is free from pectic substances, lignin and hemicelluloses.

K. Ramamurti, Ph. D., F.R.S.C.
Topeka, Kan.

The contrail that wasn't

I always enjoy your first rate coverage of all the sciences, and I was especially interested in the story about jet contrails (SN: 1/10/81, p. 122). However, I think the photo accompanying the story is a lovely photo of wing tip vortices, made visible by condensation in low level humid air, a bit different process than that which generates exhaust contrails.

I was involved in cloud physics research a number of years before broadcast physics. It's the only error I've seen in a number of years; yours is a much better track record than mine.

Bob Ryan
Washington, D.C.

I enjoyed the astounding photo of an F-4 Phantom II in a steeply banked climbing turn — but the streamers are certainly not "jet exhaust." The two F-4 jet engines exhaust close to and slightly below the fuselage, just forward of the tail section, and in the photo are not producing any contrails. In addition, from the background, I would guess that the aircraft was in the vicinity of 10,000 feet, not nearly high enough to produce exhaust contrails.

I suspect that the streamers in the photo are due to the cooling and condensation of water vapor in the high-pressure air from the wing undersurface as it suddenly expands and spills up over the wingtips in a vortex. This effect would occur only at high angles-of-attack (such as the climbing turn shown) because of the large air pressure differential between upper and lower wing surfaces. Admittedly, the effect is identical to exhaust contrails (i.e., miniclouds). But the incidence of "contrails" due to this type of maneuver must be rather low. A 727 placed in a flight attitude extreme enough to produce this effect would soon find itself aluminum-plating a forest somewhere.

I enjoy your magazine — keep up the good work!

Glenn D. Golden
Navesink, N.J

(We want to extend our appreciation to all 15 who correctly identified the wingtip vortices. This group of sharp-eyed readers includes an Air Force pilot, several former Navy fighter pilots, an American Airlines captain, a meteorologist working for NBC-TV *and another who spent 37 years working for the Air Force —Ed.)*