

# Estrogens' Double Life

**Physicians are prescribing for morning-after birth control a variety of compounds designed for other purposes**

The Food and Drug Administration lays down the law for drug companies, telling them what they can and cannot claim their products will do. But it has no authority over a physician's prescribing habits. Hence, a drug can lead a double life. Dilantin, for example, approved for treating epilepsy and certain psychoses, is sometimes used to reduce senility in the elderly. Recently the female hormones called estrogens joined the list of drugs marketed for one thing and occasionally prescribed for another—preventing pregnancy when taken after intercourse.

While researchers work to perfect such a morning-after birth control pill—and probably won't see the results on the commercial market for at least five years—many physicians prescribe drugs that perform that function.

**Drugs used** for detecting pregnancy, treating breast cancer, easing women through menopause and preventing natural abortions are doubling as morning-after pills. All of these drugs contain potent estrogens which, in massive doses, interfere with pregnancy by blocking implantation of a fertilized egg in the uterus. They are effective only during the first five or six days after intercourse, before implantation takes place.

In limited trials with women, Yale University researchers last year demonstrated that an estrogen compound called diethylstilbestrol—approved for a variety of other purposes—is an effective morning-after drug. Patient use during the year since that initial report confirms the fact that 25 milligrams of diethylstilbestrol are 100 percent effective

in preventing pregnancy when taken within six days after intercourse, according to Dr. John McLean Morris, who headed the team. Other estrogen compounds are also effective in proper doses. Even the combination estrogen-progesterone oral contraceptives may be effective if a month's supply is taken at once, he says, but it's not to be recommended lightly.

**None of these** drugs are available without a doctor's prescription; frequent use is considered hazardous, and the drugs should not be taken without close medical supervision.

Although the FDA prohibits drug companies from advertising or even recommending estrogens as morning-after pills, private physicians may prescribe them as they see fit. "FDA regulates the drug industry, not the practice of medicine," an FDA official says.

In spite of the fact that research scientists and a growing number of physicians recognize the role of estrogens as after-the-fact birth control agents, it is by no means common knowledge, Dr. Morris observes.

Though none of the experts suggest that current or future morning-after pills will ever replace other methods of contraception, they find them extremely valuable in emergency cases. "When a coed who hasn't planned to have sexual relations fears she may be pregnant, massive estrogen therapy may be a preferable alternative to an illegitimate child or an abortion," Dr. Morris believes.

When used in such situations, large one-time doses of estrogens are both safe and effective, though they are likely to produce nausea and vomiting. Frequent or continuous usage, however, is dangerous, making morning-after therapy unacceptable as a substitute for contraception.

Even though doctors have found dose levels of some available estrogen compounds which will work to prevent pregnancy, there are no standard dosages, as there would be for a drug designed and cleared for the purpose.

**Dr. Morris** and his colleagues have reported on one experimental compound designed specifically to be a morning-after pill. Called ORF 3858, the synthetic estrogen-like drug has been successfully tested in monkeys. There can be no human trials until its manufacturer, Ortho Pharmaceuticals, Raritan, N.J., submits a new drug application to the FDA. So far, Ortho has not done so, though FDA officials have privately indicated chances for approval are good. However, they cannot commit themselves until all evidence is in and reviewed.

Other drug companies, whose products physicians cite specifically as useful the next morning, have not officially sought FDA approval for expanded usage. Among these are Lilly and its Diethylstilbestrol; Schering and Estinyl, a menopausal drug; and Squibb and its Gestest which is used to diagnose pregnancy. ♦

## TORREY CANYON

### Silicones could have saved sea life

The British Government will soon receive a report telling it how to avoid the needless slaughter of sea-birds and marine life if there is ever another tanker sinking like that of the "Torrey Canyon" (SN: 9/2).

It will reveal that those who, in expediency, dumped nearly two million gallons of toxic detergent into the sea after the "Canyon" broke up off Land's End last spring, had no regard for the birds, fish or shore creatures. The mass slaughter-by-detergent has led to a thorough investigation and to the discovery of toxic fractions in detergents. This identification has led to research toward less poisonous detergents.

**The study** also reveals that no detergent will ever provide the answer to marine oil pollution. It shows that detergents are equally unsuited for cleaning out the tanks of sea-going vessels.

In combatting any problem as large as oil pollution the main difficulty is finding cheap and easily available materials. Such materials must in themselves be biologically inert, capable of

gathering oil and ultimately degrading it back to its basic proteins.

Research work at Cardiff University has developed a scheme which appears to have all the advantages called for, without any serious weaknesses. The answer is "use silicones."

The word "silicones" covers a range of chemistry second in complexity only to the chemistry of carbon. Silicones can be, and are, tailored to requirements, and their full usefulness is only beginning to be realized.

**But long ago** a range of silicones came into use as waterproofing agents. If a finely divided material such as fly ash (of which many thousands of tons are produced by power stations every day all over Britain) is treated with gaseous silicones during its flow from storage to transportation vehicle, 100 percent surface coverage can be obtained at low cost.

Used by itself on an oil slick in a ratio of about two to one by weight, the fly ash will absorb the oil while rejecting water and ultimately sink.

In time, because the oil fly ash clump is cellular and contains globules of air, microbial action will degrade the oil. But that would be a slow process.

The idea examined at Cardiff involves the incorporation of appropriate microorganisms in the silicone-treated fly ash. This could be done very simply, and on a vast scale, at the same time as the treatment with silicones.

The world is full of microorganisms which cannot easily be seen except by their effects, and it is one of the problems of the oil-refining and storage in-

dustry that it accidentally and routinely provides the right conditions for oil-consuming microorganisms to breed in ton quantities.

There are two stages in the bacterial breakdown of oil; the first involves organisms which need air, the second carrying the process forward without oxygen. The fly ash clump therefore provides exactly the right conditions for a rapid breakdown process. Experiments show that if the right microorganisms exist in the fly ash at the time it is used on oil, then the population explodes and consumes the oil. ♦

#### AIR SAFETY

## New FAA standards set guidelines

Last year, 59 people died in crashes of U.S. commercial airliners. Though the airlines' safety record is the envy of highway planners, the number of people flying is growing so fast that air safety measures have long needed a shove to keep up with the increased traffic. The Federal Aviation Agency has now provided at least a gentle push, with a set of safety standards to be implemented both by the plane makers and by airlines.

**The first** of the new regulations take effect Oct. 24; others will be delayed as long as two years to allow changes to be made in the more than 2,000 commercial liners in use in the U.S. The cost of modifications could reach as high as \$700 million in the two years, and the long-term cost—particularly if some changes require even as little as three or four percent sacrifice in passenger load—may be in the billions.

The speediest changes are the easy ones: free access to all emergency exits, even on crowded flights; attendants near all exits during takeoffs and landings; and passenger instruction cards in the seat pockets rewritten to describe only the aircraft they are on. In addition, emergency evacuation time will be cut from its present two minutes down to 90 seconds, and the aircraft manufacturers, instead of the airlines, who have had the responsibility in the past, will have to prove it can be done. The airlines will then have to prove it again every time they wish to reconfigure their planes to raise their capacity by five percent or more.

Complying with the rest of the regulations will take a little more doing. One rule says that after Oct. 24, 1968, any seat whose back blocks an exit, even if only when fully reclined, will have to be moved. On aircraft with only one aisle, no more than three seats may be on either side. This means that the upcoming giant barnliners such as the Boeing 747 and the Lockheed L-500

(possible passenger version of the military C-5A) will almost surely have two aisles.

**A particularly** expensive requirement is that interior sidewall and ceiling material will have to be completely self-extinguishing, rather than flash- and flame-resistant as is presently required. All new planes which are certificated after Oct. 24, 1968, will have to be so equipped at the factory, while existing aircraft will be converted at their first major cabin overhaul after that date. Six months later, every airplane will have to have installed some system—FAA doesn't care what—for holding carry-on baggage in place in a crash equivalent to decelerating from 197 miles per hour in one second.

Some of the final batch of rules (which will take effect in October of 1969) seem like no trouble at all—well-marked, slip-resistant escape routes from each over-wing exit and an emergency switch in the passenger compartment to control the interior lights.

Still tougher in the event of a "vertical separation of the fuselage," such as if the tail section snaps off, 75 percent of the undamaged lighting must be operative, as well as all exit signs and at least one exterior light on each side. This could require elaborate and expensive individual power supplies installed at intervals along the fuselage.

**Other regulations** require better insulation of fuel and power lines. After April 25, 1969, landing gear must be designed so that any gear structure that collapses to the rear will not puncture or rupture any fuel system components; this will require rerouting of fuel lines in some planes. A new classification of emergency exit, one of two that will be permitted in airliners of 300 or more passengers, will measure 42 by 72 inches, far larger than present types.

While the airlines and aircraft manufacturers are working to comply with

the FAA's regulations, the FAA itself is planning to increase the size of its task force working in the other end of the air safety problem—air traffic control. Both President Johnson and Senator John Stennis (D-Miss.), head of the Senate Transportation Appropriations Subcommittee, are in favor of substantially increased funds, especially for additional manpower. With that promising combination a multimillion-dollar boost seems likely. ♦

#### OFFICIAL "COP-OUT"

## Scientists' cliché blocks family planning

To the middle class, family planning usually means a short visit to the doctor, a prescription for birth control pills and a few words of advice from the friendly physician.

The situation is somewhat different for an estimated 5.3 million impoverished women in the United States. Only 15 percent of them have access to family planning clinics where they can get modern contraceptives. And even where the clinics are available or planned, the simple processes of securing a prescription for pills is often drowned in the lore of the social scientists. The poor are supposedly products of a "culture of poverty" who must have special, intensive counseling services before they will or can accept birth control. So the counseling comes before—or instead of—the help.

One state health department, for example, in its plans for a family planning program, calls for a staff of 14 psychologists, social workers, psychiatrists and genetic counselors—and only five obstetricians.

**"Is it contemplated,** as a matter of public policy, that each impoverished woman must undergo a psychiatric, social and genetic work-up before she is examined and issued a prescription for pills?" asks Frederick S. Jaffe, a vice president of the Planned Parenthood-World Population organization in New York.

In Jaffe's opinion, the culture of poverty concept has become a "cop-out" for slow-moving, change-resistant agencies that haven't gotten around to providing any services at all to the great majority of the poor.

Cop-out or not, the fact that services are not yet available to 85 percent of the poor had direct implications for two welfare developments late last month.

In one, the House Ways and Means Committee moved to freeze the aid to dependent children program at or near levels that held last January. In the second, a Maryland judge ruled three women—all welfare recipients—guilty of child neglect for having two or more