

the present status of oral contraceptives. Present knowledge, he declares, is inadequate. The relationship of estrogens (basis of the treatment) to cancer in women, particularly breast cancer, requires 10 more years of prospective study, he feels.

The additional possibility that the regimen can lead to strokes has gained some support from cases reported by a North Carolina physician last fall. In the November ARCHIVES OF INTERNAL MEDICINE, Dr. Monroe Cole of the Bowman Gray School of Medicine in Winston-Salem says that five young women treated for strokes showed none of the medical disorders that usually cause strokes but that all five were taking birth control pills when they were admitted to the hospital.

He does not claim his evidence is conclusive, but it should be a warning to doctors.

Another fear that has developed around the dosage concerns sugar retention.

Sugar retention indicates diabetes or some similar disease. Last year at a meeting of the New Jersey Academy of General Practice, Dr. Herbert Gersberg of the New York University Medical Center reported that some oral contraceptives produce a condition resembling diabetes.

In 1964 a high percentage of women taking oral contraceptives were found to react as diabetics do to glucose tolerance tests. Because of this fear, the National Institute of Arthritis and Metabolic Diseases has recently awarded a grant to Dr. Victor Wynn of the University of London to continue his studies on impaired carbohydrate metabolism among women using oral contraceptives.

**Three separate** British studies, reported last May in the BRITISH MEDICAL JOURNAL by a unit of the Medical Research Council, conclude that there is no doubt that some types of thromboembolic disorder are associated with the use of oral contraceptives. More British studies to be published soon are expected to corroborate this finding.

The last major U.S. report on oral contraceptives, by the FDA's Advisory Committee in August of 1966, gave an equivocal answer only. It found "no adequate scientific data, at this time, proving these compounds unsafe for human use."

Dr. Hellman, who is chairman of obstetrics and gynecology at the State University of New York in Brooklyn, says the next report of his committee on oral contraceptives will be in 1969. He concedes that there is a cause-and-effect relationship between birth control pills and sometimes fatal lung clots, although the still-to-be-published British studies show a "very, very small risk."

## MENTAL DYNAMICS

### Smokers vs. non-smokers

Heavy smoking is a drug dependence that society has until recently viewed with favor.

It is at the same time a drug abuse and a social activity; add to that a possible physical addiction, or at least habituation, to nicotine, and the problem of why people smoke becomes almost hopelessly complicated.

Some light has been shed on the subject by a 34-year follow-up study of 200 children, now in their mid-40's. The study group, one of three begun at the University of California, Berkeley, in the 1920's and 30's, was originally aimed, not at smoking, but toward a long-range investigation of mental, physical and emotional development in adolescents.

Then Dr. John A. Clausen, at Berkeley's Institute of Human Development, saw the value of the old material as a means of discovering adolescent roots for adult smoking habits.

In his latest follow-up, released last month, Dr. Clausen found striking differences between heavily smoking men and women.

"The dynamics are just not the same," says Dr. Clausen. As a group, women who became heavy smokers were the adventurous type with a quest for power and social recognition. They married younger, sampled more experiences and were far less conventional than women who never smoked. At the same time, female smokers were somewhat aggressive as adolescents and were given to frequent emotional upsets—the blues, psychosomatic ills and the like.

Non-smoking women, however, showed up as conventional, unaffected and timid adolescents. They are still that way.

Mental dynamics underlying heavy male smoking are quite different and less attractive, Dr. Clausen declares. With individual exceptions, heavy smoking (consistently more than a pack a day) in men is linked with adolescent aggression and adult tendencies toward escapism and self-defeatism. Today, the group is what sociologists call "downwardly mobile," that is, they are losing status and position compared to their fathers.

The characteristics of non-smoking men, however, are those making for success—control, motivation and good personal adjustment.

The differences were very sharp between adolescent girls who smoked and those who didn't, says Dr. Clausen. This was the time (the 1930's) when female smoking became acceptable. Now those differences have tended to smooth, mainly because the smoking women in the sample became less aggressive in their mid-40's.

By contrast, the differences between men who smoke heavily and not at all are greater now than during adolescence.

But, he says, his study reveals that people change, and still the habit may hang on. "Whatever needs tobacco fills," says Dr. Clausen, "people do change and continue to smoke. I think this really is a kind of addiction, presumably a nicotine addiction."

## A STENCH OF SULFUR

### Volcano may follow Sicilian quakes

The violent, but not major (see page 127) earthquakes that rocked western Sicily last month came in a part of the island not normally known for either seismic or volcanic activity.

Geologists are looking hard at the rock formations around and under the island off the toe of the Italian boot in an effort to determine if the quakes were a precursor of more deadly activity to come.

One strong possibility, though it is not yet generally accepted, is that the disturbance was volcanic in origin—that the volcanism feeding volcanoes like Etna on the island's eastern end underlies the entire island and is building toward a major eruption in the west.

All earthquakes have a link to volcanic activity, though the link—as is the case in the western United States—

often bridges major periods of geologic time. While, for instance, mountains in the region of California's San Andreas Fault are of volcanic origin, volcanism there is ancient and current disturbances along the Fault are not construed as resurgences of volcanic action.

This may not be the case, however, with western Sicily.

Dr. William T. Pecora, director of the U.S. Geological Survey, emphasizes that eruptions there cannot be predicted. Nevertheless, he speculates, the Sicilian earthquakes could be "caused by subsurface movements of gas-charged lava that could eventually break through to the surface and cause volcanic explosions, followed by lava flows."

Other volcanologists are skeptical. Dr. Fred M. Bullard of the University of Texas, for instance, believes that

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western Sicily is too far from the arc that links major Italian volcanoes with Mt. Etna and northern Africa for the recent earthquakes to be volcanic in origin. However, Dr. Bullard notes, no one can now say that “this could never happen.”

Volcanoes are normally located in the area where a fracture line intersects a major island arc, such as Mt. Kilauaea in Hawaii. Dr. Bullard said he knows of no such intersection along which the Sicilian earthquakes could have occurred and is, therefore, inclined to believe they are tectonic rather than volcanic.

Tectonic earthquakes are caused by



“Volcanoes”; Dr. Fred M. Bullard  
*Mid-Mediterranean volcanic regions.*

sharp movements—vertical, horizontal or both—along breaks in the earth's crust. Such tremors have occurred in recent years in California, Chile, Turkey, Alaska, Greece and Yugoslavia.

The Central Mediterranean region has been one of the most active volcanic areas in historic times. Much of this activity has been centered near Mt. Etna in the eastern part of Sicily and around Mt. Vesuvius near Naples.

The earthquakes occurring south of the seaport of Palermo, Dr. Pecora believes, could give rise to a new volcano. In this area, there are no records in historic time of volcanic activity, but geologic maps show the presence of prehistoric lava flows.

The sulfur fumes reportedly escaping from the ground in the vicinity of the earthquakes could come from a subterranean lava chamber. If this is the case, and the volcanic pressure increases, the quakes will persist; lava could eventually force its way close enough to the surface to break through explosively.

## NO SECOND BURN

### Apollo: Cautious haste

The Apollo program has been proceeding with great care since a spacecraft fire killed three astronauts on the launch pad a year ago. Nevertheless, the first flight of an Apollo lunar module last week underlined the fact that space officials are still eager to push on to the moon as rapidly as is safely possible.

No lunar module had ever flown before. With National Aeronautics and Space Administration officials still maintaining that a manned moon landing was possible by the end of 1969, the device that would actually place the astronauts on the lunar surface and then get them off again had never seen space. The first big test was planned to check the LM's descent and ascent engines, simulating the final powered descent toward the moon and the climb back to lunar orbit, where the LM would join the Apollo command module in which the explorers would return to earth.

At 5:48 p.m., Jan. 22, the uprated Saturn 1 booster finally lifted off from Cape Kennedy. The launch went well. No trouble appeared until the first firing of the LM's descent engine, simulating a blast which would have nudged a manned LM out of its lunar orbit and into a trajectory leading to the surface.

The engine was to have fired for about 39 seconds. Instead, a computer shut it down after four seconds. Immediately flight controllers on the ground switched to an alternate flight plan, prepared months before, which was less demanding but still adequate to qualify the LM for manned flight. Missing from the alternate plan, however, was the 12.5 minute second firing of the descent engine, representing the actual descent to the moon. This would have been the longest continuous firing of any U.S. rocket engine in space.

The alternate plan went largely as scheduled, and NASA officials labeled the flight a success. The big question was whether a second unmanned LM test flight would be necessary before astronauts would be allowed to ride in it.

“It is my opinion,” says chief flight controller Christopher C. Kraft, “that we will be able to press on with the flight of men in the next lunar module. I sincerely hope that the analysis of the data proves this to be so.”

But what about the long firing that never happened? “We feel that we can pick up the long duration descent burn both in ground tests and in manned flight tests at a time when we are still attached to the command module,” says