

MEDICINE

# Rare Operation Gives Lye Burn Victim Artificial Esophagus

## 16-Year-Old Girl Swallows Water and Other Liquids Directly Into Stomach for First Time Since Age of Two

**A** 16-YEAR-OLD girl, Louise Dodson of Baltimore, whose esophagus was closed by lye burns when she was a baby, is swallowing water and other liquids directly into her stomach for the first time in 13 years as a result of an operation which has only once before been successfully performed in the United States.

The operation, or series of them, which gave Miss Dodson an artificial esophagus to carry food and water from her mouth to her stomach was reported by Dr. John Staige Davis and Dr. Edward S. Stafford, of the Johns Hopkins Medical School, at the meeting of the Johns Hopkins Medical Society.

To make the artificial esophagus, Dr. Davis devised a new method of creating a tube of skin by rolling together skin from her chest and covering it with more skin grafted from her back and flanks. This skin tube runs in front of her chest from her left collar bone almost to her stomach. It lies outside of her ribs but beneath the skin, so that, with the graft method specially devised to reduce scarring and deformity, Miss Dodson's appearance is not marred by her artificial esophagus.

The skin tube is connected at the upper end to the remaining natural esophagus. At the lower end it is connected with the stomach by a segment of jejunum, which Dr. Stafford cut out of its place in the small intestine. After sewing together the remaining pieces of intestine, the segment of jejunum was brought carefully up inside the abdomen to the end of the stomach near the heart and there one end was attached to the stomach. The upper end of this segment of intestine was brought through the abdominal wound, drawn beneath the skin of the abdomen and sewed to the lower end of the skin tube Dr. Davis made.

The connecting link between the skin tube and the stomach was made from jejunum, instead of skin, Dr. Stafford explained, because the tissues of this part of the intestinal tract can stand the acidity of the stomach juice far better than does skin.

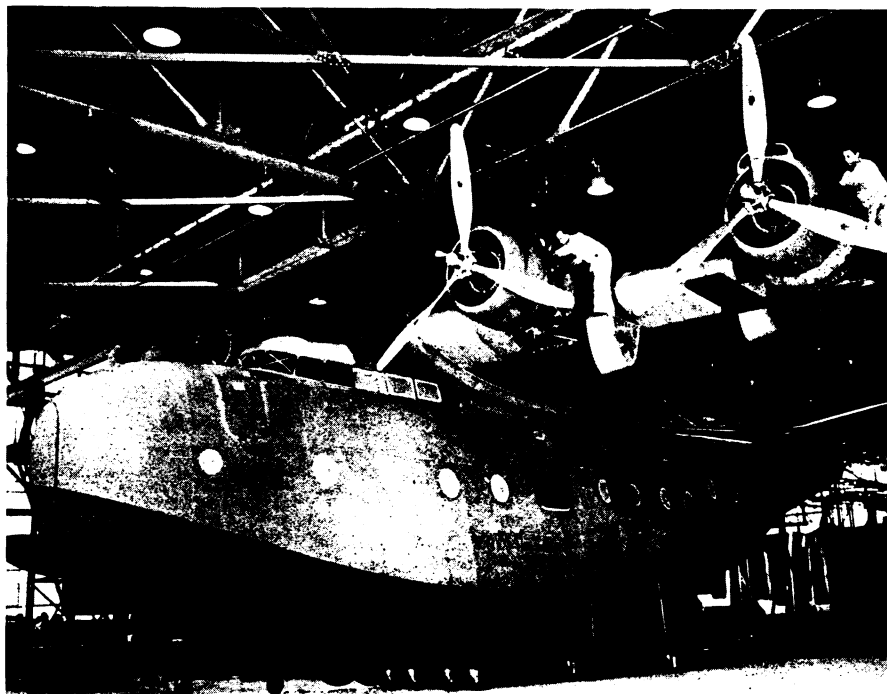
Construction of the artificial esophagus was delayed until Miss Dodson had reached her full growth, because no one knew whether an artificial esophagus would grow in length as its young owner grew taller. From the time in 1928 when she swallowed a quantity of lye, at the age of two years and 11 months, until last month (Oct., 1941), Miss Dodson had lived entirely on food poured through an artificial mouth cut into her stomach. Most of this time was spent at the hospital or at Happy Hills, a convalescent home near Baltimore. She has spent a total of 2,036 days, or five years and nine months, in the Johns Hopkins Hospital, and has had a general anesthetic, usually ether, on 67 occasions.

Cost to the hospital of her care to date has been \$9,912.

During the first year or two following the swallowing of the lye, Miss Dodson had pneumonia repeatedly, twice with empyema. This was because saliva, which could not be swallowed into the stomach, would get sucked into her lungs. During this period, although she was being fed through the tube into her stomach-mouth, she gained no weight for nearly 18 months.

Convinced that Louise's esophagus would never again be useful and that she could not survive many more attacks of pneumonia, Dr. Davis began the long series of operations which have resulted in the successful artificial esophagus reported upon. First step was the cutting of a hole between the upper end of her esophagus and the skin of her neck through which saliva and fluid swallowed was expelled. After this Miss Dodson, then not quite five years old, began to gain weight rapidly and had no further attacks of pneumonia.

Only other successful case of complete reconstruction of an esophagus reported in American medical literature was performed in 1934 by Dr. Alton Ochsner,



### FLYING SHIP

*This is the first of a fleet of four-engined flying ships built to carry passengers non-stop across the Atlantic for American Export Airlines. The ship, which has a wing-span of 124 feet, is expected to have a top speed of 235 miles per hour, cruising speed with full load of 175 miles per hour, maximum range of over 6,000 miles. It will carry 40 passengers.*

of New Orleans, but this patient unfortunately died four months later from another cause. Several successful cases have been reported in Europe since 1894.

Need for the operation is not so frequent now, because present treatment following severe lye burns of the esophagus is far superior to what it was in 1928 or earlier. Doctors now

start passing bougies or buckshot down the esophagus almost as soon as it has been burned, to keep it from being closed by scar tissue. When Miss Dodson had her burn, her family doctor treated her with a mixture of lemon juice and vaseline. The ulcerations of her mouth and throat healed under this treatment but it failed to keep her esophagus open.

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## PHYSICS

## Low Boundary of Stratosphere May Shift Up and Down

### Daily Variations in Solar Radiation Thought To Cause Changes in Height Over Tropics Which Travel in Waves

**T**HE floor of the stratosphere (scientists have a name for it: tropopause) may shift up and down from day to day, in response to daily variations in the sun's heat. This in turn may have far-reaching effects on world weather, (See Review, SNL, this issue).

Indications that fluctuations in the tropopause are influenced by solar radiation changes have been brought out in

researches of Dr. Henryk Arctowski, noted Polish meteorologist now working at the Smithsonian Institution.

The occurrence of daily fluctuations in the sun's heat was established as a fact long ago, by Dr. Charles G. Abbot, secretary of the Smithsonian Institution. Scope of these variations is frequently as much as one half of one per cent, and occasionally much more than that.

These variations occur in a complex series of cycles.

If the earth were without an atmosphere, like the moon, changes in solar heat would be felt immediately at the earth's surface. But the sun's heat has to pass through a hundred-mile blanket of air to reach the ground, so that its effects are delayed and complex. Winds, clouds and other factors all have far-reaching effects in the distribution of radiations coming to us from the sun.

At some place, however, it is necessary to look for direct effects of solar radiation. According to Dr. Arctowski, the most probable place is the tropopause—the level where temperature decrease with altitude comes to an end.

His researches indicate, the Polish scientist states, that solar radiation variations cause changes in the height of this surface over the tropics, where it normally is about 12 miles high, and that these changes proceed northward and southward in a wave-like motion.

An up-and-down movement of the tropopause, in turn, causes a variation in the height of the highest clouds, and in the movements of air masses. These in turn produce different rainfall effects in various parts of the earth.

*Science News Letter, November 22, 1941*

## NUTRITION

## U. S. Troops On Maneuvers To Be "Limeys" in Test

**U.**S. Army "limeys" will have an experimental bout of limeade drinking, when the First Army's soldiers come to grips with the Second Armored Division in Carolina maneuvers in December.

Quartermaster Corps headquarters explains that American soldiers have become accustomed to pitchers of lemonade with some meals, particularly in warm climates. The Florida market offers few lemons, but has a lime crop. So, it will be limeade on the menu for some troops, and if the boys like it, there may be more of it, when and where available.

British sailors long ago won the nickname "limey" when citrus fruits were discovered to be a scurvy cure on shipboard. Incidentally, food historians explain that lemons were often called limes then, and the original limeys were lemon-eaters. Modern nutritionists say that fresh lime juice is apt to be slightly less rich in vitamin C than lemon juice, although in some cases it may be as high.

*Science News Letter, November 22, 1941*



LIMES FOR U. S. SOLDIERS