

## MEDICINE

## Group Practice Units Have Tripled Since 1946

➤ GROUP MEDICAL PRACTICE units in the United States have tripled since 1946, with 1,154 groups in 1959 reporting as "multi-specialty" units.

This means that three or more physicians provide services in more than one medical field or specialty, with their combined income distributed according to a pre-arranged plan.

In a preliminary report to the American Association of Medical Clinics meeting in New Orleans, Dr. S. David Pomrinse, chief of health professions in the U. S. Public Health Service, said that about 37% of the groups responding to questionnaires were multi-specialty types.

More than 10,000 physicians are serving full-time, and 1,365 part-time in the 1,154 multi-specialty groups reporting, and an additional 355 physicians serve full-time and 3,062 part-time in 219 multi-specialty groups having fewer than three full-time doctors.

The study shows that 63.5% of the multi-specialty groups are in the central states, 13% in the middle and south Atlantic states, 7.3% in the mountain states, and 14.6% in the Pacific states. New England has only 1.5% of the groups.

The percentage of all practicing physicians in group practice is lowest in the New England and north Atlantic areas, and greatest in the Midwest.

When the study was made in 1959, 6.21% of all practicing physicians in the U. S. were in full-time group practice and 0.85% more were part-time group practitioners. The multi-specialty groups reported they planned to add more than 1,000 additional full-time physician members in 1960.

Dr. Marcus B. Goldstein of the Public Health Service collaborated in the preparation of both the 1946 and the 1959 reports.

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## PUBLIC HEALTH

## To Smoke or Not Smoke Is Put on Health Basis

➤ PREACHING to high school smokers is out of date. Now they are being told to make up their own minds, but warned that they may get lung cancer.

The American Cancer Society's cigarette education campaign during the past eight months has included distribution of more than 10,000 copies of a color-sound film-strip "To Smoke or Not to Smoke?"

The film has had a record response of any educational tool on cancer, Walter G. James, director of public education, reported at the Cancer Society meeting in New York.

The film stresses that each student must decide whether or not to smoke, but emphasizes along with an accompanying leaflet "Shall I Smoke?" that cigarette smoking is connected with cancer.

Also accompanying the film is a chart "More Cigarettes More Lung Cancer" that shows the risk goes up in proportion to the amount smoked. Two packs or more a

day increases the danger 20 times, the chart illustrates.

The majority of high school students are not regular smokers, and they are advised that if they have already started to smoke, their best prevention of lung cancer is to stop.

Mr. James said cooperation has been received from Departments of Education, local school boards, school authorities, the PTA and other community groups. In addition, the American Public Health Association continues to urge health officers and medical societies to collaborate. The National Tuberculosis Society also cooperates in many states, including Hawaii.

A preliminary study in Portland, Ore., showed that a very limited amount of education with teen-agers could be expected to bring a 20% reduction in new smokers.

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## AEROMEDICINE

## Oxygen Lack on Moon May Mean Birth Defects

➤ FEMALE EARTH COLONIZERS of the moon may have to return to earth to bear normal young because of insufficient oxygen.

The minimum for survival probably will not be enough oxygen to produce normal young on the moon, Drs. Bernard Baird and Sherburne F. Cook of the University of California, Berkeley, reported to the American Heart Association meeting in St. Louis.

Expectant mothers probably will need a steady supply of oxygen comparable to that on earth, they said.

The scientists based their conclusions on research with mice that showed a significant number of inborn heart defects among mice born to mothers exposed to an oxygen-poor atmosphere.

Although the mice were given enough oxygen for comfortable survival, the amounts still proved inadequate for normal reproduction. Pregnant mice exposed only six hours daily to oxygen-poor atmospheres at high altitudes, 20,000 feet, produced 99 young. Twelve had cardiovascular malformations. No defects were observed among 391 mice bred at sea level.

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## MEDICINE

## Early Surgical Treatment Helps Infants' Breathing

➤ EARLY SURGICAL treatment can save the lives of many newborn babies whose breathing is obstructed because of chest conditions. At the American Academy of Pediatrics meeting in Chicago, Dr. David R. Murphy of the Montreal Children's Hospital said diagnosis can usually be made without difficulty.

Chest conditions include cystic hygroma, in which a sac is distended with fluid; congenital laryngeal stenosis, in which the larynx is narrowed; and choanal atresia, in which there is absence of a normal opening.

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# IN SCIEN

## MEDICINE

## Cancer Patients Respond To Treatment by Drug

➤ NINETEEN of 58 patients with inoperable cancer of the gastrointestinal tract showed decrease in the size of their tumors after treatment with 5-fluorouracil.

Dr. Arthur J. Weiss, coordinator of the cancer chemotherapy group of Jefferson Medical College, reported these statistics to the American College of Gastroenterology meeting in Philadelphia.

Improvement lasted from six weeks to three months in 15 of the patients and in four it lasted for a longer time. Dr. Weiss emphasized, however, that 5-fluorouracil is an extremely dangerous drug requiring close supervision by the physician.

Side effects include lowering of the blood count at first, diarrhea and inflammation of the mouth.

In spite of these effects, 21% of the patients treated said they felt better, even though no decrease in the size of their tumors could be seen.

Both colon and stomach cancer were treated with some response. Only one case of cancer of the liver showed improvement. Assisting Dr. Weiss in the treatment was Dr. Laird Jackson, a resident in medicine at the Jefferson Hospital, Philadelphia.

Five-fluorouracil was first synthesized by Dr. Charles Heidelberger at the University of Wisconsin in 1957 and tested there at the McArdle Memorial Laboratory on animals.

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## New High Blood Pressure Drug Needs Supervision

➤ CAREFUL SUPERVISION of patients taking a comparatively new oral hexamethonium drug for severe high blood pressure is advised by three scientists.

Drs. E. F. D. Montuschi, H. E. S. Pearson and L. L. Wilson of the Whittington Hospital in London report in the British Medical Journal, Oct 22, 1960, that fainting may occur when the drug, bretylium tosylate or "darenthin," is first introduced for hypertension treatment. Fainting may also occur unexpectedly later on.

Using darenthin in 75 cases of severe hypertension over a nine-month period, the investigators obtained successful control of blood pressure in 71%, including seven out of 13 cases of malignant hypertension.

Although the new drug is free of some of the disadvantages of previously used nerve-blocking drugs and is considered an important advance in hypertension treatment, its powerful and unpredictable action makes it potentially dangerous.

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# CE FIELDS

## AGRICULTURE

### Asphalt Mulching Seen Promising for Arid Lands

► DRY WEATHER, the plague of the farmer and the home gardener, faces a formidable adversary in an asphalt mulching technique that can be applied directly to arid lands, or sprayed on narrow seed beds.

The cost per acre is estimated at approximately \$30, completely coated, or only \$5 to \$10 for range reseeding, if the "band method" is used.

Developed by Esso Research & Engineering Co., the material is being field-tested on a variety of crops and grasses, in different climates and soils.

The resultant films are resistant to the erosive forces of nature for up to four months and are easily penetrated by a wide variety of grasses and vegetables. No toxic effects of the films on the various plants tested in the laboratory were noticed.

The asphalt mix is applied directly over seed beds, to trap the available moisture needed for germination and subsequent growth. Later rains "recharge" the zones, under the coated bands, to continue the process.

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## BIOCHEMISTRY

### Moth's Sex Attractant Synthesized by USDA

► AFTER 30 YEARS of searching, U. S. Department of Agriculture entomologists have isolated, identified and synthesized the chemical sex attractant that makes the female gypsy moth so alluring to the male. So potent is the substance that the fraction of a drop produced by the female is 200,000,000 times more than the amount needed to catch a mate.

The man-made chemical promises possible future elimination of the gypsy moth, a very damaging tree pest.

Drs. Martin Jacobson, Morton Beroza and William A. Jones of USDA's entomology research division, Beltsville, Md., isolated the powerful attractant by boiling down extracts from the last two abdominal segments of 500,000 virgin female gypsy moths. The end result was a colorless, blue-fluorescing liquid they identified as d-10-acetoxy-1-hydroxy-cis-7-hexadecene. One ten-millionth of a microgram of this substance, about a drop in a boxcar, is enough to attract the male.

The researchers, reporting in *Science*, 132:1011, 1960, then synthesized a slightly different form of the liquid compound and found it to be equally active. A second natural substance, a waxy solid, is about one-fourth as active.

The reason for the waxy substance is not known, but Dr. Jacobson says one pos-

sible theory is that the liquid chemical serves to attract the male from a long distance and the waxy substance "zeros him in" after he is in the immediate vicinity of the female.

The flightless female mates only once a year, and as soon as she does, an enzyme switches off production of the sex attractant.

The winged male, however, can mate several times and it is because of this the chemical could be used for pest control. By using a mixture of attractant and DDT in traps lined with a sticky substance called "tanglefoot," enough males could be caught to reduce substantially the gypsy moth population.

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### Gout Remedy Helps Other Arthritis Patients

► COLCHICINE, an alkaloid long used successfully in treating gout, has been effective in treating two cases of sarcoid arthritis in the U.S. Army Hospital in Munich, Germany.

Capt. Herbert Kaplan, assistant chief, medical service, U.S. Army Hospital, Munich, says that to his knowledge this represents the first report of the effectiveness of colchicine in an arthritis other than gout.

"The importance of finding a drug that may be of value in sarcoid arthritis cannot be underestimated," Capt. Kaplan reports in the *New England Journal of Medicine*, 263:778, 1960. "Joint involvement has been shown to occur in up to 25% of patients with sarcoidosis, and may cause chronic debility and joint destruction."

Steroids have been used and may be beneficial in the various types of sarcoidosis, a chronic ailment affecting the lymph glands, lungs, bones, intestines, spleen, liver and skin separately or in combination. However, Capt. Kaplan said colchicine, with its negligible toxic effects, seems to be an ideal method of treatment. The prolonged use of steroids is dangerous.

The favorable response of sarcoid arthritis to colchicine may be "considered additional support for the hypothesis that these diseases may be interrelated," Capt. Kaplan said.

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## NUTRITION

### Navajo Diet Protects From Coronary Disease

► THE LOW-CALORIE DIET of Navajo Indians may account for their lower incidence of coronary heart disease compared with the rest of the United States population, Dr. Reuben Straus of Burbank, Calif., told the American Heart Association meeting in St. Louis.

Although the fat percentage is high in the Navajo's diet, his well-functioning metabolism takes care of it, Dr. Straus said, reporting studies made with Dr. Robert J. Kositchek and Moses Wurm, also of Burbank.

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## BOTANY

### Virus Infection May Be Assisted by Radiation

► THE INFECTIVE PROCESS of viruses may sometimes be aided by radiation.

This has been discovered by Drs. Jia-Hsi Wu and Irving Rappaport of the University of California, Los Angeles, botany department. These two UCLA scientists have demonstrated this effect in working with two strains of the tobacco mosaic virus.

They found that when they inoculated pinto bean leaves with the U-1 strain of the tobacco mosaic, characteristic virus infections of plant viral disease appeared in the leaves. Inoculation with the milder U-2 strain did not produce any manifestation of infection.

When the leaves are inoculated with a mixture of the two strains, the number of infections is markedly reduced. This suggests that there may be competition between the two strains, that the U-2 strain interferes with the infectious process of the U-1 strain within the same leaf cell.

When the leaves inoculated with the mixture are irradiated with ultraviolet light, infections are increased. The scientists suggest that in leaf cells where the two strains of virus are competing, ultraviolet radiation may knock out the U-2 strain, allowing the U-1 strain to resume its damaging infectious process.

The probability of the radiation killing U-2 particles without damaging the U-1 particles is directly proportional to the number of new infections appearing after irradiation, they note.

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## ASTRONOMY

### Star Light, Star Bright, Can Be Measured Right

► ROCKET ASTRONOMY has provided man on earth with the first measurements in the far ultraviolet of the brightness of stars.

This is extremely important in advancing scientific knowledge of the evolution of stars, Dr. Herbert Friedman, superintendent of the atmosphere and astrophysics division of the U. S. Naval Research Laboratory, told SCIENCE SERVICE. Knowing more about how stars came to be will help bring man closer to the solution of how the universe came to be.

At the fourth Space Research and Technology Institute of the University of Maryland, Dr. Friedman stressed the importance of a better understanding of the earth's star, the sun, provided by rocket astronomy.

"Rocket astronomy provides the best picture of the interplanetary medium," he said. The interplanetary medium is the material between the earth and the other planets.

Rocket astronomy has helped provide information about the amount of hydrogen in the solar system. Hydrogen is the major constituent of the universe. The amount of hydrogen around the sun provides information about the sun's atmosphere.

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