

from the symptoms seen during the insulin shock and the metrazol convulsion, Dr. Lewis A. Golden of Tulane University School of Medicine told members of the Southern Medical Association.

Why the mind functions in a normal manner after this severe disturbance is unknown. Dr. Golden believes that the first step toward learning why the treatment is effective and how it works is to study and describe the bewildering array of symptoms of mental and nervous disruption that occur during the treatments.

### Bedridden Helped

Successful treatment of a limited number of cases of muscle weakness disease was reported by Drs. Carlo J. Tripoli and Howard H. Beard, of Louisiana State University Medical Center and State Charity Hospital.

The treatment consisted of adding to the patient's diet one of the amino acids, which are the building blocks of proteins such as meat. No cures were achieved but some of the patients, so weakened by the muscle disease they had been bedridden, recovered enough to lead active lives and to be classed as "almost normal."

The treatment must be continued for an indefinite period, if not for life, the physicians believe. No patient maintained his improvement when treatment was stopped. Early diagnosis and prompt beginning of treatment were also stressed as important. Patients suffering from 12 different types of muscular weakness or disability, including infantile paralysis and paralysis following ginger jake poisoning, were given the treatment. The infantile paralysis and ginger jake patients were not helped, but those suffering from myasthenia gravis and muscular dystrophy were.

Adding amino acetic acid to the diet increased the appetite and weight of most underweight persons, the study revealed.

### Stomach As Guide

Acidity of the stomach contents may mean indigestion or it may mean that disease is present somewhere else in the body than the stomach. How a study of stomach function can help in diagnosing other ailments besides stomach complaints was explained by Dr. Frank L. Apperly of the Medical College of Virginia at Richmond.

Changes in the acidity of the stomach contents may occur in perfectly healthy people although these changes do often come with indigestion. These changes

in acidity are usually just the mirror of certain chemical changes in the blood, Dr. Apperly found from experiments conducted both in Richmond and in his laboratory at Melbourne, Australia.

Anything that lowers the amount of bicarbonate in the blood lowers the acidity of the stomach contents. The reverse is also true. Blood bicarbonate and stomach acidity may be lowered by overbreathing, anemia, high altitudes, fevers, chronic nephritis, diabetic acidosis and pregnancy. The blood bicarbonate and stomach acidity may be lowered by certain chronic heart and lung diseases and by taking alkalies and by insulin.

### Vitamin Lack

Lack of appetite, discomfort after eating and many other common symptoms of digestive disorder may also be the early signs of disorders due to a diet that lacks vitamins, Dr. J. H. Musser of the Tulane University School of Medicine pointed out.

In scurvy, pellagra and beriberi, diseases caused by not eating enough vitamins, digestive disorder symptoms are outstanding, although in severe cases they may be overshadowed by other symptoms. Early in these and other diseases of vitamin lack, the digestive symptoms may be the chief signs of illness.

The digestive disorder symptoms are of most importance in cases of chronic vitamin deficiency, in which the patient may for long periods live on a diet that is low but not altogether lacking in vitamins. Such a patient might never show the characteristic signs of severe scurvy or beriberi, but would have the digestive disorders.

Dr. Musser listed pregnant women, nursing mothers, growing children, patients with hyperthyroidism, fevers and wasting diseases, persons who diet and those who have food allergies or idiosyncrasies as among those who eat the bare minimum of vitamins required, but never get the optimum amount and who consequently suffer chronic vitamin deficiency and complain of various digestive disorders.

Dramatic improvement in the condition of such patients is sometimes obtained, Dr. Musser reported, by putting them on a diet containing much roughage and therefore plentiful vitamins, even though such a diet might seem wrong for a person with digestive disorders.

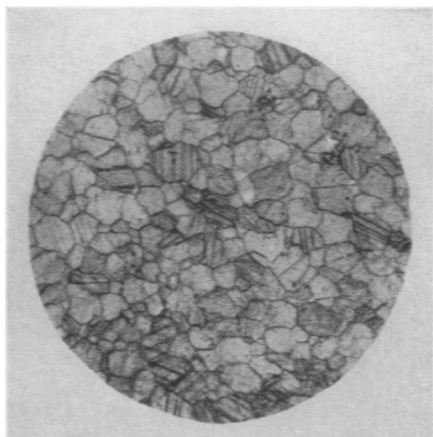
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The sky around the planet Mars is believed to be much darker than our pale sky, in fact, an indigo shade.



### GENUINE

*A nine-year-old cloud of suspicion was cleared from this art treasure by careful scientific tests. The crystalline structure of the marble was examined and evidence of time and weathering attested to its age.*



CARRARA

*This pattern of crystals as seen through the microscope provided evidence that a suspected art treasure is no fraud.*

## ARCHAEOLOGY

## Italian Tomb Cleared of Being Fraud After 9 Years

**A**N ITALIAN marble tomb, long suspected by critics of being an art fake palmed off on America, has been proved an authentic treasure, after nine years of scientific testing.

At the Boston Museum of Fine Arts, where the tomb aroused such violent controversy that it was removed from public exhibition, the case is settled.

Reporting its verdict, the Museum calls the tomb a fifteenth century monument of Tuscan workmanship, later restored in minor ways. A beautiful figure of a woman lying with folded hands is a feature of the monument.

Scientific tests included making paper-thin slices of samples from all fourteen pieces of marble in the tomb. These samples were studied under the microscope and compared with similar samples of known kinds of marble. This test, like that of human finger prints, is considered unmistakable. The tomb is of two kinds of marble, the famous Carrara marble and some from Olympia. Chisel marks were also examined by microscope, and ultraviolet tests were made.

The crystalline structure of the marble's surface was also studied, because scientists have learned that old marbles "breathe," that is, take in and give out air. In long years, this process leaves evidence in dark bands on the marble surface, visible through the microscope. This evidence of time and weathering was found on all parts of the tomb except where a new inscription was added, and a few restorations made.

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## PHYSIOLOGY

## Ultra-Speed Movies Capture Vibrations of Vocal Cords

**Taken at Rate of 4,000 Frames Per Second With Special Lighting Show Speech at Its Origin**

**H**IGH SPEED motion pictures of the little known vibrations of the human vocal cords, taken at the rate of 4,000 frames a second, were exhibited for the first time publicly at the meetings of the Acoustical Society of America in Ann Arbor, Mich.

The fundamental experiments in the origin of human speech have significance in solving that old, but basic, question of whether it is the cords or the shape of the mouth which predominate in determining speech characteristics.

Engineers D. Herriot and D. W. Farnsworth of the Bell Telephone Laboratories constructed the ingenious experimental arrangement which made possible these pioneer physiological pictures.

The method was to insert, far back in the mouth, a small dental mirror and by it and other mirrors to reflect an intense beam of light on the vocal cords. Light reflected by the cords came back out of the mouth, then through a small hole in one of the mirrors and finally into the special high-speed camera.

So fast is this camera, and so short

the exposures for each frame, that it is useless for ordinary photography even out in bright sunlight. A large 2,000 watt bulb overloaded to gain greater brilliance was the light source employed.

Shining and glistening are the saliva-covered cords as they oscillate in speech. Their undulations start from the bottom as they close; then progress upward and finally and suddenly they open again to repeat the process.

Finally the subject, Mr. Farnsworth in this pioneer case, pauses for breath, the cords relax and the opening of the glottis enlarges as he inhales.

Interest of the telephone engineers in the work centers around potential improvements in equipment, for basic knowledge of human speech leads to the design of better apparatus. For the same reason the pictures should have significance for radio and sound motion pictures.

So new are the high speed speech movies that physicians have not yet seen them but they are believed to be of great interest to physiologists and anatomists.

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## ENGINEERING

## Vibrating Concrete Paving Increases Its Strength

**S**HAKING a concrete road into place, a novel method of road building developed only a short time ago, results in a stronger road with the same amount of material or enables considerable savings of cement, according to the experiences of highway engineers, reported before the Highway Research Board's annual meeting in Washington, D. C.

Giving a road the "shimmies" with a vibrator before the mixture has set enabled Illinois road builders to cut down on the amount of water mixed in with cement and obtain a firmer road as a result, V. L. Glover of the Illinois Department of Public Works informed his colleagues,

A second experiment in which the vibrator was used with a standard cement-water mixture resulted in a road that was 10 per cent. stronger than the ordinary type, he asserted.

The higher the frequency of the vibrator, R. D. Finney, Kansas State Highway Department engineer, declared, the more efficient it is.

A novel freezing-and-thawing test to show how different road-building materials will stand up under extremes of weather conditions was described by Prof. C. H. Scholer of Kansas State College. Since a given weight of ice occupies more space than the same amount of water, water seeping into a rock and