

ASTRONOMY

Two New Minor Planets In Trojan Group Reported

➤ TWO new minor planets, whirling around the sun, 60 degrees ahead of Jupiter but following the same orbit, have been reported to Harvard Observatory, Cambridge, Mass., by Dr. K. Reinmuth of Heidelberg, Germany.

Confirmation of their existence by American observers is expected as soon as conditions for photographing this region in Jupiter's path allow astronomers to take pictures of these very faint objects. Magnitude of the yet un-named asteroids is about 15, thus requiring a fairly large-sized telescope for observation.

Dr. Reinmuth was the discoverer of another asteroid, named Hermes, that holds the present record for the closest approach to the earth. On Oct. 30, 1937, this little celestial body, with a diameter estimated at only one mile, came within 485,000 miles of the earth. This is closer than any other object in the sky, except the moon, has ever approached the earth.

The two new asteroids are part of the Trojan group, named after the heroes of Homer, and occupy a fixed position with respect to both Jupiter and the sun. There are now 12 known asteroids of this group, the first having been reported in 1904, after its existence was predicted by the French mathematician LaGrange.

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METEOROLOGY

European Meteorologists May Use Hemisphere Data

➤ IF Europe becomes international in its weather forecasting, people on the other side of the Atlantic will have more chance of knowing in advance what the weather is going to be.

This was learned by an American meteorologist, Jerome Namias, long-range forecasting expert of the U. S. Weather Bureau, during an eight-month study of European weather practices.

America's weather maps are based on data collected from the whole Northern Hemisphere. Europe's maps are drawn chiefly from local European data. By employing the hemisphere concept, Europe will obtain a larger and therefore more accurate picture of future weather.

European meteorologists, Mr. Namias found, were highly receptive to the hemispheric concept. The biggest obstacle to putting it into immediate operation, they told him, is the cost. Data from weather stations which girdle the Northern Hemisphere are already available. But properly equipped collecting and transmitting stations are costly. There is also a shortage of trained personnel needed to appraise and interpret the data.

Some steps have already been taken to overcome this difficulty, notably by the International Meteorological Organization which has placed this problem high on its agenda.

Since 1935 when the hemispheric idea was first jointly explored by the Weather Bureau, the Department of Agriculture, and Massachusetts Institute of Technology, the original North American system of weather stations has been widely enlarged. It received an additional impetus during the war, until now it includes a far-flung network of weather ships, upper-air sounding stations, and other observation points scattered throughout the North American and Eurasian continents.

All these observations of local weather conditions and of air circulation are sent by radio so they can be received by all countries, including Russia and the nations of Europe. They are used in making the weather predictions that help keep the air lines running. Prediction charts of general weather conditions four and five days ahead are made and longer-range forecasts are also possible.

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PSYCHIATRY

Share and Discuss Worries and Anxieties

➤ BEST thing to do for the worries and anxieties of daily life is to share and discuss the worrisome problem or situation, two University of California psychiatrists conclude from a special study of worry.

The following ways of handling worry are not grown-up and not effective, the psychiatrists, Drs. Jurgen Ruesch and A. Rodney Prestwood, state:

Overindulgence in eating, drinking or smoking; trying to suppress or conceal the worry; trying to establish a feeling of "belonging" by social contacts, from conversations about the weather to club activities; trying to control the actions of friends or relatives or dictating to them.

They report their study in the current issue of the ARCHIVES OF NEUROLOGY AND PSYCHIATRY (Nov.), an American Medical Association publication.

A new cause for worry for some people appears in a report to the same journal by Dr. Herbert Barry, Jr., of Harvard Medical School.

Loss of mothers, through death or separation, at a younger age than eight years may contribute to a later development of mental illness, Dr. Barry found.

Psychiatrists searching for causes of mental illness, he points out, now tend to think there are multiple factors at work instead of just one, and that the periods in life at which psychological hurts occur are also important.

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IN SCIENCE

NUTRITION

High Fat Diets Do Not Always Cause Obesity

➤ TO KEEP from getting fat, you don't have to stop eating fats entirely. People can learn from the rats studied by Dr. Harry J. Deuel, Jr., graduate school dean of the University of Southern California.

While the regulation of diet in a particular case can best be done under medical control, investigations by Dr. Deuel show that high fat diets do not necessarily cause obesity.

High fat diets in animals remain in the stomach over a prolonged period, maintaining satiety for a longer time and thus preventing excessive caloric consumption.

Fats, considered as desirable constituents of the diet, may vary from nothing to a fairly generous amount without appreciably altering the nutritional value of the diet. Fats serve as a source of the essential fatty acids and under certain conditions, of fat-soluble vitamins. They also contribute markedly to the tastefulness of the diet.

In his study of rats, reported to the American Dietetic Association, Dr. Deuel found that diets containing 20% to 40% fat by weight have the highest nutritional value, as judged by growth studies. Capacity for work and survival are more satisfactory for rats on diets containing generous amounts of fat than for animals on fat-free regimes.

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ZOOLOGY

Female Sharks Are More Numerous than Males

➤ AMONG the sharks, the females are more numerous than the males.

Investigating the sex life of the basking shark, Dr. L. H. Matthews of the University of Bristol reported to the Royal Society in London, England, that he has found that the sex ratio in the commercial catch is 30 or 40 females to one male. Just what are the relative numbers at birth is not known.

The shark, although a fish, brings forth its young alive, like mammals and unlike most fish. The mother shark is very prolific so far as eggs are concerned, since she produces at least 6,000,000 at one time, most of which do not develop.

While the mating of the particular kind of shark studied by Dr. Matthews takes place in surface water inshore in the early summer, the expectant mothers seek privacy by migrating elsewhere and do not reappear until after their young are born.

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E FIELDS

VETERINARY MEDICINE

Screw-Worm Infection in Livestock Is Rising

➤ A SERIOUS rise in screw-worm infection among livestock in the Southeast is the object of close government scrutiny, it was revealed in Washington, D. C.

Although figures are still not available on the amount of damage done, Dr. L. S. Henderson of the Bureau of Entomology and Plant Quarantine said that this is "the worst year in the history of the insect in the Southeastern area." For the first time infection has been reported in New Jersey, well north of its usual range.

Last year's mild winter is to blame for the current outbreak, Dr. Henderson said. The infection, which occasionally occurs in man also, develops when the adult screw-worm fly lays its eggs in wounds in the animal's skin. If untreated, more eggs are laid, the sore grows and the animal dies. The mild weather permitted the adults to over-winter far north of their usual winter refuge, so that when warm weather returned they got off to an early start.

No prediction for next year is yet possible. It will depend on the severity of the coming winter. If it is mild, a repetition of this year's outbreak is highly likely.

Livestock acquire wounds in a variety of ways, among them tick bites, goring, bramble scratches, and in the branding and dehorning operations. Owners can effectively prevent loss by treating all such skin breaks promptly.

A chemical preparation called "Smear 62", developed by the Department of Agriculture, gives good results, Dr. Henderson said. The important thing, he stressed, is that it be applied in time. It has a double action, repelling the egg-laying adults and killing the larvae.

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GENERAL SCIENCE

Cigarettes Smoked Hit All-Time High

➤ A RECORD high in the number of cigarettes smoked by the American public was hit this year, figures released by the Department of Agriculture show.

More persons are expected to be smoking next year because of population increases, their report also shows.

If every adult in the United States consumes his share this year, each man and woman will have smoked 3,400 cigarettes by New Year's Day, or about 170 packs. This figure includes non-smokers. Based on smokers alone, the average consumption

would of course be much higher.

Cigarette smoking, says the Department of Agriculture, for the last four years has been double what it was for the five years just before the war. Consumption this year totals 358 billion cigarettes. For the period 1935 to 1939 the average was 157 billion.

The figures are rising in spite of "the higher tax rates or new cigarette taxes levied in seven states, the District of Columbia, Alaska, and Hawaii in recent months." There will probably be even more smokers in 1950 because of the population increase.

Cigarette exports for the year are estimated at 21 billion cigarettes, which despite a drop from last year is roughly four times what it was before the war.

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SOCIAL PSYCHOLOGY

Radio Give-Away Answers Desperate Need of Many

➤ THE radio give-away program is the one hope for fulfilling some desperate need for many people. It is the "good fairy" of this mechanistic age, making the ordinary housewife into a Cinderella.

This is the conclusion of Dr. Franklin Fearing, professor of social psychology at the University of California. Dr. Fearing made a study of 16,000 wishes expressed by contestants on one of the oldest give-away programs for which the gifts are chosen on the basis of wishes written out in advance by the contestants.

More than a third of the contestants wanted to escape from the humdrum of daily life by way of a special experience such as a trip to Bermuda or a date with a movie star. Another 30% wanted some practical thing such as a washing machine or vacuum cleaner. Only 13% wanted luxury items like a television set or mink coat, and a mere 4% asked for bizarre or unrealizable wishes.

On the basis of the sample interviews, the typical contestant in this program is 29 years old, has gone to high school or college, is married, has one or more children, and is a housewife.

The majority of winners reacted favorably to the experience. They felt that in addition to the gifts received, the experience raised them in the opinion of their families, neighbors and friends.

A significant minority, however, felt that the ordeal they underwent before the wish was finally fulfilled made its realization an anti-climax. Some said it "really wasn't worth it."

Interviews of "also-rans" indicated that frustration of those who almost made the grade, but faltered in the final selection was often a bad emotional experience, and in many cases actually created a serious psychological condition.

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ENGINEERING

"Rail Cancer" Is Licked By Controlled Cooling

➤ NO "rail cancer" has been found in any railroad rail made since 1938 with use of a controlled cooling system, it was reported by Prof. R. E. Cramer of the University of Illinois to a joint committee of the American Railway Engineering Association and the American Iron and Steel Institute.

Rail cancer is a fatigue failure that comes with usage. Studies made in the early 30s by scientists of the University of Illinois found that the cancer began from minute flaws called shatter cracks within the head of the rail, and that controlled cooling could prevent them.

This cooling cure was put into operation by the rail makers in 1935. Of the 10,000,000 rails made since then only seven have failed by cancer, and all seven were rails made before 1938 and all by one mill that used defective cooling equipment. Of the rails made before 1935, as many as 40,000 a year are now failing.

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MEDICINE

Gas Meter Converted to Lung Function Testing

➤ A GAS meter, such as homeowners have in basement or kitchen, can be converted to an instrument for testing lung functioning, Dr. Charles W. Lester, of Roosevelt Hospital, New York, reports in *NEW YORK MEDICINE*, (Nov. 20), journal of the Medical Society of the County of New York.

About the only test of lung function made in hospitals that do not have elaborate special equipment, Dr. Lester points out, is the test of the patient's "vital capacity." This means the measure of the greatest possible amount of air that can be exhaled after the deepest possible inhaling of air.

This is of about as much value in estimating lung function, Dr. Lester says, as measuring the size of a leg is in estimating its functional capacity.

Besides the measurement of the mechanical movement of air in and out of the lungs, the physician needs to know how much oxygen and carbon dioxide pass across the thin membrane separating the blood vessels from the tiny air spaces in the lungs, called alveoli.

It is for this latter measurement that the gas meter with flutter valves can be used, Dr. Lester reported. He credited Dr. Ralph Friedlander and Dr. William M. Chardack of the Veterans Administration Hospital at Castle Point, N. Y., for demonstrating the availability of this new lung function testing device.

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