SCIENCE NEWS

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A NEW COMET

A NEW comet, named Diamaca after the Roumanian astronomer who discovered it, is reported low in the northern part of the evening sky near the constellation of Ursa Major, the great Bear. This comet should be seen with a small telescope as it is reported as of the eighth magnitude. Since stars of the first to sixth magnitude are visible to the naked eye, a little telescopic aid is needed to make it plainly visible.

The comet is located on the boundary between the constellations of Ursa Major and Lynx. Or, if you are not familiar with Lynx, look between Ursa Major and the bright star Capella in the constellation of Auriga, and it will be relatively near Ursa Major.

The comet was first noticed in Roumania early in the morning of September 10. Due to the difference in time, this was actually 10 P.M., EWT, on the night of September 9. It was found to be moving toward the northeast.

At the time of its discovery, the comet's right ascension was 8 hours, 35.4 minutes, according to the cabled report received by Dr. Harlow Shapley, director of Harvard Observatory, who has relayed the discovery news to American observatories. Its declination was plus 53 degrees, 1 minute.

The daily motion of the comet was noted to be plus 12 minutes, 43 seconds, in right ascension, and plus 2 degrees, 25 minutes in declination. With a simple star map and telescope, it will be possible to follow the path of the comet as it moves across the sky. American observatories have not had a chance to watch the comet and they may find the reported motion has changed.

Care should be taken not to confuse the comet with the numerous bright galaxies or spiral nebulae in this part of the sky, such as the well-known pair of galaxies as Messier 81 and 82, near which the comet may pass.

In the evening, the dipper is close to the northern horizon, whereas during the hours before dawn, it is high in the sky, and the comet much more favorably placed for observation.

The message of the discovery came from Zurich, Switzerland, via the observatory at Copenhagen, clearing house for astronomical information in Europe. Usually such messages are relayed to the United States *via* Sweden. It is not known whether the Nazi control of Denmark prevented its transmission to Sweden, or whether German-Swedish communications are limited.

ITALIAN TOPOGRAPHY

THE Italian peninsula is just a low broad mountain range with foothills and narrow coastal plains along the shores of the Tyrrhenian, Adriatic and Ionian seas in the north Mediterranean.

The principal through railroads and highways from south to north follow these coastal plains. Branch railways and motor roads run into the interior highlands. Zigzag routes permit travel northward through the highlands, but the roads that must be used by the bulk of the Allied armed forces are the two coastal routes.

On the entire west coast of the toe of Italy the mountains lie close to the sea. North of the province of Calabria, which occupies the entire toe, the coastal plains broaden until the Mt. Vesuvius and Naples area is reached. It is on this coastal plain that American troops are battling Germans who have the highlands in their rear.

The heel of Italy is largely a coastal plain. This plain extends northward to the Po valley, but is much narrower north of Foggia. North of Ancona, some 400 miles from the heel, it widens rapidly into the Po valley. San Marino, an Adriatic port, may be termed the southeastern end of the valley.

The great fertile V-shaped Po valley, extending from Turin to the Adriatic, separates the Italian peninsula from Alpine Italy. Its southern boundary is the Apennines which extend across Italy from Genoa in a regular line southeasterly to near Ancona on the Adriatic. They separate the Po valley from the Leghorn-Florence plains on the west coast.

Along the northeast slope of the Apennines passes the main line of the railroad which follows the east coast northward from the heel. It leaves the coast at San Marino north of Ancona, running almost directly to the northwest through Bologna, Modena, and Parma to Milan and Turin. A main line leaves this road at Bologna and runs directly northward across the Po to Verona and on through the Brenner Pass into Austria and Germany.

Two branch lines cut through the Apennines south of Bologna to Florence. One extends to Piso and Leghorn, and connects with the railway that runs south along the coast to Rome and beyond. The other runs inland from Florence to Rome. Other branch lines cut through the Apennines to connect Parma with the naval base city of La Spazia, and to connect Turin with Genoa.

The Apennines form a natural barrier to the invasion of the Po valley from the Genoa-Leghorn-Florence area on the eastern side of the Italian peninsula. Up the Adriatic coast by land, or up the Adriatic by sea, few natural barriers will be encountered.

THE shore of the Gulf of Salerno is described as flat and monotonous. The city of Salerno is at the northern extremity of the gulf. From Salerno a rocky projection stretches some twenty miles westward into the Tyrrhenian Sea; the flat coast extends some thirty miles to the south. Eastward and inland from Salerno lie fertile farms.

The Italian mountains are further back from the coast in this particular area than elsewhere on the coast from the toe of Italy to Mt. Vesuvius. The coastal plain extends in a flat triangular shape to the east, rising gradually in some places and abruptly in others. The apex of the triangle is roughly about fifteen miles inland near the

city of Eboli which is located at the opening of a pass through the coastal range of the Apennines. By way of this pass roads lead to the interior, and to the south reaching the gulf of Taranto some miles west of the city and great naval port of that name.

The southern end of the thirty-mile flat shore is near the town of Agropoli. Southward from there all the way to the toe, a distance of about two hundred miles, the coastal plains are narrow. Mt. Vesuvius lies about fifteen miles north of the city of Salerno, and Naples another fifteen miles or so beyond.

SOME PAPERS READ BEFORE THE PITTSBURGH MEETING OF THE AMERICAN CHEMICAL SOCIETY

(Continued)

BRAN is usually looked upon as low-value stuff; moldy bran would ordinarily be considered quite worthless. Yet nowadays industrial chemists are deliberately making bran moldy, and getting out of the mold a substance that splits starch down into sugar for fermentation into alcohol, used for a thousand war purposes all the way from smokeless powder to synthetic rubber. New methods for producing and processing these suddenly valuable molds were described by J. Ziffer, M. Rosenblatt and A. J. Liebmann, of the Schenley Research Institute, Inc., at Lawrenceburg, Ind. They stated that they can get full growths of them in from thirty-six to forty-eight hours, and have them dried and ready for processing in about an equal additional time-period.

BUTTEROIL, which is practically pure butter-fat in semi-liquid form, and is much used in the food industries, has been prepared in a way that makes it keep longer by M. S. El-Rafey, G. A. Richardson and J. L. Henderson, of the University of California Agricultural College at Davis, Calif. This improvement in processing may have important bearing on post-war food handling. Butteroil is prepared in several different ways, but the objective is always the same: to remove all the water, milk proteins, and other non-fat substances found in butter. In the new California process the water and substances that can be boiled off are removed by cooking in an open kettle before the proteins are taken out. This results in a product with a flavor that appeals to many persons.

PREDICTING yields of peaches in various parts of an orchard by analyzing leaves from the trees while the fruit is still small and green is the newest refinement in fertilizer practice. The chemists heard about it from P. D. Caldis, A. R. Brown and R. T. Marks, of the California Packing Corporation. The matter principally under investigation was the exact potash requirement from area to area in the orchard's variable soil. Analysis of the leaves for potassium showed how well or badly off the trees were in this vital chemical element. Using these analyses as guides, the potash applied to the orchard soil was adjusted until now the yield of number one fruit was increased by nearly five tons to the acre.

ITEMS

DENGUE fever has broken out in Honolulu. Reports just received by the U. S. Public Health Service indicate that 76 civilians were stricken up to August 20, the number of cases nearly doubling in about 10 days. Airmen returning from the southwest Pacific are believed to be the source of the infectious disease. Mosquito eradication measures are being pushed, as the disease is spread by the same mosquito species that carries yellow fever. Dengue, also known as breakbone fever or dandy fever, is believed caused by a virus which mosquitoes pick up by biting a patient who has it in his blood. Symptoms come on suddenly after an incubation period of three to six days. Fever goes up rapidly and may reach 105 degrees. Severe pains are felt in the joints, muscles, head and eyes, often accompanied by sore throat and catarrhal symptoms. After three or four days the temperature drops to normal and the patient feels better. But there is usually a relapse after a day or two and a rash like measles appears. Dengue occurs mainly in Persia, Egypt, India and the West Indies, where there are sporadic epidemics.

UNLESS new oil finds or imports are increased civilians face a further cut in use of gasoline and oil, Harry C. Wiess, president of the Humble Oil and Refining Company, states in a report to the American Institute of Mining and Metallurgical Engineers. More than 4,150,000 barrels of American oil are being used at home and abroad every day and requirements for next year may average over 4,400,000 barrels. Although military demands can not be revealed, the production of aviation gasoline alone in this country already exceeds the crude oil production available to Germany from its own fields and those of Hungary and Rumania. "Motorists may well ask," says Mr. Wiess, "why further rationing should be discussed if passenger cars are currently using some 500,000 barrels daily less gasoline than before the war, while the nation has increased its production of crude oil. The answer is to be found in the drastic changes that have occurred in refinery operations in order to supply aviation gasoline, materials for the synthetic rubber program, and other war products." We have about reached the peak of our efficiency in production, Mr. Weiss believes, and that peak is about 250,000 barrels per day short of the estimated daily need for 1944. He believes that the least desirable solution to the problem is further increased production at the risk of depleting our reserves, since less oil can be recovered when overproduction is attempted.

THE infantile paralysis outbreak is continuing without let-up, cases continuing to increase, latest reports to the U. S. Public Health Service show. The total for the nation, exclusive of Arizona, was 865 the week ending August 28. The previous week's total was 747. How the report from Arizona will affect the picture is hard to say, as that state reported no cases last week. Hardest hit state was Illinois with an increase from 117 cases the week ending August 21 to 194 the week August 28. California had a decrease, from 163 to 138. Texas reported an increase from 52 to 75. Cases in Nebraska increased from 5 to 17; in Washington from 20 to 25; in Oregon from 11 to 24; in Missouri from 14 to 24. Decreases were reported in Connecticut, Oklahoma, Kansas, Kentucky and Utah.