



Milky Way itself, where all other types of heavenly bodies are most numerous, is devoid of them. This was very puzzling to earlier generations but now we appreciate the reason. Our galaxy is a flattened disk of stars. As we look toward the edge of the disk we see many more stars than we do toward the flat sides, and this concentration of stars produces what we call the Milky Way.

Naturally, all the bodies that are members of our galaxy are most numerous in the Milky Way but they, and the clouds of dark matter that accompany them, obscure what lies beyond and is outside our galaxy. Consequently, external galactic systems, of which the one in Canes Venatici is a good example, are best seen toward the poles of the Milky Way, for in these directions there is less matter in the foreground to interfere. Millions of these other galaxies are known, and when the 200-inch telescope at Mt. Palomar is in use, a year or two after the

end of the war makes possible resumption of work on it, still vaster numbers will be revealed, and nearer ones will be seen better, adding to our knowledge of these "island universes."

Celestial Time Table for May

May	Ewt	
4	Early Morning	Meteors of eta Aquarid shower visible
5	2:02 a. m.	Moon in last quarter
8	Noon	Moon passes Mars
9	6:53 a. m.	Moon passes Venus
10	2:00 p. m.	Moon nearest, distance 223,200 miles
11	8:00 a. m.	Mercury farthest west of sun
	4:21 p. m.	New moon
14	10:31 p. m.	Moon passes Saturn (in the southwestern part of the country Saturn will be occulted or "eclipsed")
18	6:12 p. m.	Moon in first quarter
20	6:53 a. m.	Moon passes Jupiter
21	11:00 a. m.	Venus at greatest brilliancy
22	9:00 p. m.	Moon farthest, distance 252,000 miles
26	9:49 p. m.	Full moon

Subtract one hour for CWT, two hours for MWT, and three for PWT.

Science News Letter, April 28, 1945

MILITARY SCIENCE

Underground Factories

Many of them have been discovered by Reds in liberated areas. Using idle mines for war purposes was suggested by a German magazine a decade ago.

► A SECRET Nazi underground is offered as a postwar threat, but an extensive German underground factory force has been hard at work since early in the days of Allied air invasions and has produced great quantities of war material in well-equipped industrial plants in former coal, iron and salt mines, and in underground caverns excavated for this single purpose.

How many of these underground factories there may be, and how great their

output, is unknown, but Soviet soldiers have discovered a considerable number in liberated and German areas. Information about some of them is given in a recent official information bulletin issued by the embassy of the Union of Soviet Socialist Republics.

The largest underground enterprises were discovered in German territory in a forested area, the report states. It was a huge plant for the assembling of aircraft, a branch of one of Germany's

largest airplane manufacturers. When taken, everything was in perfect condition, undamaged by the hurriedly retreating workmen and Gestapo watchmen.

In the Budapest area in Hungary, a vast aircraft engine plant was discovered in ancient and little-known catacombs which extend a distance of some three miles. The engines were for a Messerschmitt factory, also located in the Budapest area. In the Poznan (Posen) area in Poland, underground shops were built by the Germans in the forts of an old fortress. Many of these forts had gigantic underground edifices two and three stories deep. Factory equipment evacuated from Bremen was installed in them.

These are but a few of the underground factories and storage places found by the Reds. Many others were discovered in France by the Allies, and more are now being located by Americans and British in Germany itself. The use of the salt mine at Merkers for the storage of German gold and works of art is another example of the German use of bombproof underground storage.

The military use of idle mines for



A king's ransom —paid in pepper!

IT IS STRANGE but true, that after Alaric took Rome, he exacted a tribute, not only of gold and silver, but of 2,000 pounds of pepper! This is one of hundreds of fascinating stories told by Anne Dorrance in her book about the transportation of seeds and plants from their original homes to the four corners of the earth. Grains, spices, rubber, quinine, fruits and vegetables have all made history in unsuspected ways. Here's the whole story, fascinatingly, and authoritatively told.



GREEN CARGOES

By ANNE DORRANCE

At your bookseller's • \$2.00

DOUBLEDAY, DORAN



Do You Know?

Though *acacia gum* can be used for food it has but little nutritive value.

New U. S. *battleships* have 50 complete separate cooling systems.

Next to oxygen, *silicon* is the earth's most abundant element.

There are no unrationed *foods* in Japan.

Walnuts have been found around the Swiss lake dwellings of the Neolithic Age; date, 7000 B. C.

The outlook is good for seeds, fertilizers and insecticides for 1945 *Victory gardens*.

North America has over half the world's known supply of *bituminous coal*.

Very fine *garnet powders* are now being used in optical glass polishing because of the war shortage of corundum.

The Texas *nighthawk* is the most northern member of a tropical species that ranges widely through Central and South America.

Titanium and zirconium, best known for their alloys with steel, are also used to alloy with copper, producing a substance comparable with tin bronzes.

Phosphorus burns are treated successfully with a solution of 1% permanganate of potash and 3% bicarbonate of soda, it is reported.

Porcelain *enamel* can be called a glass-metal combination, that is, metal coated with glass for its protection and decoration.

Eggs, coated with a film of highly refined, colorless, paraffin-base oil, may be preserved for months at 31 degrees Fahrenheit.

The speed of *sound* is somewhat less at high altitudes than at the surface of the earth because of the lower temperature and lower air density.

Termites that feed on wood are able to do so because they have within them one-celled animals known as flagellates that live in their intestines and digest the wood for them.

From Page 267

storehouses of war equipment and for underground factories was suggested in 1935 by a German magazine, the report states. Before the war the foreign press frequently mentioned German construction of underground stores, oil dumps and hangars. The new structures were built by one organization and with a uniform plan. These were operated by forced labor from overrun countries and controlled by the Gestapo.

Science News Letter, April 28, 1945

CHEMISTRY

Tent Cloth Wears Longer, Has Greater Strength

➤ TENT CLOTH has been developed which, through the use of new synthetic resins, wears longer, has greater strength, and resists weathering and fungi better than prewar duck.

The compound in which the cloth is bathed makes it waterproof by sealing the relatively open weave. By acting as a binder and carrier for the flame-proofing and fungus-resisting agents, it protects the cloth against fire and deterioration.

A group of resins known as the para-plexes were used to coat the canvas, which remains flexible at sub-zero tem-

peratures. These resins, one of a group of tacky, adhesive resins made from unsaturated fatty acids and glycerol, are more rubbery and non-oxidizing than the oil-modified type.

A rosin-modified phenolic resin was used to carry the pigment. It possesses a high melting point, intrinsic hardness, and releases solvents rapidly, of particular importance to the manufacture of tent cloth.

In all, over ten different ingredients were used in carefully controlled quantities.

In the early stages of the war, mildew destroyed one-fifth of all fabrics shipped to the South Pacific. The wide range of weather and service conditions found in various theaters of war called for a material that would remain flexible at sub-zero weather, be completely water- and weather-proof, and retain color well. Already familiar with synthetic resins from their earlier experience in making book cloth and artificial leather, the L. E. Carpenter Company, with the cooperation of the Resinous Products and Chemical Company, devised a coating compound for tent cloth that would fill the bill.

By unrolling the fabric as it comes from the textile mills and stitching the end to another roll, a continuous coating operation has increased the output 40%.

Science News Letter, April 28, 1945

Clip and mail this Coupon

To SCIENCE NEWS LETTER, 1719 N St., N.W., Washington 6, D. C.

☐ Start my subscription to SCIENCE NEWS LETTER for ☐ 1 year, \$5
☐ Renew ☐ 2 years, \$8
 (No extra postage to anywhere in the world)

To CHEMISTRY, 1719 N St., N.W., Washington 6, D. C.

☐ Start my subscription to CHEMISTRY for ☐ 1 year, \$2.50
☐ Renew ☐ 2 years, \$4.00

To THINGS of SCIENCE, 1719 N St., N.W., Washington 6, D. C.

☐ Enter my membership in THINGS for ☐ 6 months, \$2
☐ Renew ☐ 1 year, \$4

To SCIENCE CLUBS OF AMERICA, 1719 N St., N.W., Washington 6, D. C.

☐ Send me information on organizing a science club.
☐ Enroll me as an associate of Science Clubs of America, 25 cents is enclosed.

Name _____

Street Address _____

City and State _____