



The familiar constellation near the pole star and well known to most Americans as the "great dipper," has several other names. The English call it "the plough" or "Charles' wain," while on old star maps it is a bear, Ursa Major.

their bears somewhat better than the others because they said that the three stars of the handle of the dipper represented three hunters pursuing the bear. The first hunter, they thought, carried a club with which to slay the bear, the second a pot in which to cook his meat (the faint Alcor representing the pot), and the third a bundle of twigs to make the fire. This constellation has also given us a much used word. The Greek word for bear is "arktos"; the northern parts of the earth's surface are those where the constellation of the Great Bear is overhead, hence the "arctic" regions are those under the bear.

Legend of the Bear

There are many ancient legends about the bear. According to one, this group represents Callisto, the daughter of Lycaon, King of Arcadia. Jupiter was in love with Callisto and Juno was jealous. To protect Callisto from the wrath of his wife, Jupiter had her turned into a bear. However, he neglected to inform Callisto's son, Arcas, of the change. That precocious youngster saw the bear and was about to kill her, not knowing that she was his mother, when Jupiter changed him into a bear also and placed both in the sky, out of harm's way.

Callisto is Ursa Major; Arcas is Ursa Minor, the little bear. He, too, has a long tail, even longer in proportion to his body than that of the greater bear. The pole star is at the tip of the little bear's tail. This latter group is also called the "little dipper," and here again the tail of the bear and the handle of the dipper are made of the same stars.

Just in front of the great bear is a region containing no very bright stars,

and there is a similar region to the rear, just south of the handle of the dipper. The ancients, who named the constellations, paid no attention to these regions, and so for ages the few stars that could be seen in these parts of the sky belonged to no constellation. In 1610, however, astronomers began to use the telescope to observe the stars, and then they discovered bodies that had previously been invisible. This made the introduction of new constellations necessary.

Some of the most important were invented by the Polish astronomer Hevelius, in 1687. Then he published his famous set of maps, the "Firmamentum Sobiescianum," dedicated to the Sobieskis, the ruling family of Poland. In this work he showed a number of new constellations, most of which have been retained.

At the rear of the bear, pursuing him, he placed the two hunting dogs, Canes Venatici. In front he placed Lyncis, the lynx, because, it was said, the keen eyesight of a lynx is needed to see stars in this region. In other parts of the sky he placed Leo Minor; Vulpecula, the fox; Sextans, the sextant; Scutum Sobieskii, or Sobieski's shield, and Lacerta, the lizard. Another large group of modern constellations was introduced when astronomers began to observe the heavens from the southern parts of the earth and saw stars which never rise above the European horizon.

Only one planet is visible in the April evening sky. This is Jupiter, which can be seen low in the southeast. Its brightness, greater than that of nearby stars, and its steady glow, so different from the scintillating brilliance of the stars, immediately distinguish it and prove it to be a planet. Just below is the star

Spica, marking Virgo, the virgin.

Jupiter is the largest of the planets including our earth that revolve around the sun and form the solar system. The earth is only 7,918 miles in diameter, Jupiter 86,718 miles, so that 1,300 earths would be required to make a planet as large. Jupiter is so large that if it were hollow, all the other planets could be placed inside with room to spare. However, it is minute compared with the sun, for that body, with a diameter of 864,392 miles, is about a thousand times as large as the planet.

All the other naked-eye planets are morning stars, to the west of the sun and visible, if at all, just before sunrise. Mars is close to the sun, where it cannot be seen at all this month. Then comes Mercury, which may be glimpsed early in the month when it is farthest west. Still farther west shines Venus, a brilliant object in the morning twilight, like it was a few months ago in the evening. Saturn, much fainter, is above and to the south of Venus.

During April the moon is at last quarter on the sixth, new on the thirteenth, first quarter on the twenty-first and full on the twenty-ninth. This means that the last half of the month we will enjoy moonlit evenings.

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ZOOLOGY

Darwin's Route Followed; Strange Animals Studied

SNAKELESS as Ireland itself, is southern Chile, homeland of the "Irish" potato. So Dr. W. H. Osgood, curator of zoology at the Field Museum of Natural History, said, in an address given under the auspices of Science Service.

Dr. Osgood was telling of a scientific pilgrimage that followed the trail of Charles Darwin, famous as the apostle of evolution, who a hundred years ago made a memorable world voyage which started him on his revolutionary career. It was along the coast of South America and on the nearby islands that Darwin saw many of the strange animal species which could be accounted for most readily by the theory which he later evolved.

The coypu or nutria, source of a soft, beaver-like fur familiar to the trade, was one of the interesting animals encountered by Dr. Osgood on his expedition. Like the beaver this animal is aquatic, but lacks the broad, flat tail that aids its North American cousin in swimming. Its most peculiar feature is

the development of the female animal's milk glands on her back instead of on the underside of her body, so that the young may nurse while she carries them through the water. One coypu which Dr. Osgood kept in his camp for a time would eat nothing but potatoes.

Although there are no snakes in southern Chile, there are plenty of frogs and toads, Dr. Osgood said. He gave an account of one species which was discovered by Darwin and has been named for him.

"It is a tiny little chap scarcely more than an inch long," he said, "bright green in color, and it has a sharp little

proboscis on its nose. In this species the eggs, after being laid by the female, are picked up by the male and held in his mouth or in a pouch in his throat. He carries them here until the fully formed young are hatched, for in this frog there is no tadpole stage. As the embryo frogs develop, the pouch extends backward between the skin and muscle of the abdomen until it occupies the whole abdominal area, giving their father, who acts as a sort of brooder, a very bloated appearance. Meanwhile, the female parent, the mother, has no further responsibility."

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MEDICINE-PHYSICS

Cancer to be Studied With Use of New Heaviest Water

HEVY water, the new chemical wonder, will be used shortly in experiments upon the growth of cancer cells as a part of the extensive investigation of the heavy hydrogen twin element being directed by Prof. Hugh S. Taylor, of Princeton.

The cancer experiments will be of "extraordinary interest," Prof. Taylor predicted. They will be begun when larger supplies of heavy water are accumulated at Princeton.

By summer from 12 to 15 pounds of the purest heavy water will be available for the Princeton researches. The daily output is now 3 grams (1/10 ounce) of heavy water containing 100 per cent. deuterium (heavy hydrogen). The production cost is approximately \$5 per gram.

Heavy water produced in Princeton's Frick Chemical Laboratory is the heaviest heavy water so far produced. It has a specific gravity at least two-tenths of one per cent. greater than that recorded earlier by Prof. G. N. Lewis of the University of California. The Princeton specific gravity is 1.1078 at 77 degrees Fahrenheit (25 degrees Centigrade) as compared with the California value of 1.1056. The determinations were made by Dr. P. W. Selwood, using in all three ounces of heavy water which failed to increase in density after repeated processes of refinement. For this reason it is believed that pure deuterium oxide has been obtained.

Synthesis of ammonia, wood alcohol and other chemicals will be aided by

heavy hydrogen researches carried out at Princeton. It was found that light hydrogen molecules will react with deuterium molecules to produce mixed molecules, with one atom each of light hydrogen and deuterium, at temperatures as low as that of liquid air, using catalysts such as chromium oxide. These results indicate that the high temperatures necessary in industrial syntheses are required, not for the activation of the hydrogen, but for the activation of the molecules with which the hydrogen has to react. If surfaces can be found as active towards these molecules as present available surfaces are with respect to hydrogen, tremendous improvements would be possible in the yields of ammonia and alcohol under much simpler operating conditions. The deuterium experiments indicate the direction which research in technical catalysis must take.

Prof. Taylor recently reported to the Franklin Institute, Philadelphia, his experiences with heavy hydrogen as a new research tool.

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Except in a downpour, the sound of raindrops is too faint to be recorded for use in the movies, and ordinarily rain sounds are made with a machine.

A safety expert says that accidental deaths due to falls in the home can be reduced 85 per cent. if housekeepers will provide such equipment as adequate lighting, strong stair rails, non-slip rugs, and sturdy ladders.

NUTRITION

Females Stand Deficient Diet Better Than Males

WHEN it comes to eating a diet deficient in proteins for a prolonged period, the female of the species can take it better than the male, it appears from studies of rats reported by Dr. C. M. Jackson of the University of Minnesota to the American Association of Anatomists.

From the age of three weeks, litter mates were kept on the same protein-deficient diet for fifteen weeks. Then they were fully refed the normal stock diet for laboratory rats. On refeeding, the test females at first grew more rapidly when compared with females that had not been on the protein-deficient diet, overtaking these control animals in about 20 weeks and thereafter maintaining about the same average weight as the animals that had had full diets from the start.

The males when put back onto the full diet also grew more rapidly than normal, but never quite caught up to the control animals. At the age of one year, when rats had nearly stopped growing, they were still considerably behind in average weight.

"Although individual variations occur even within the same litter, the test males in general apparently remain permanently subnormal in body weight while the test females fully recover," Dr. Jackson stated.

This sex difference in resistance was also evident from the deaths occurring during the experiment. About three times as many males as females died among the test animals, but there were no deaths among the controls.

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ENGINEERING

Fire Fighting Helped By Calculation of Gases

JUST how much nitrogen, carbon dioxide or other inert gas needs to be released in a warehouse to stop a fire can now be computed as a result of mathematical methods developed by Dr. S. H. Ingberg of the U. S. Bureau of Standards, reported in *Physics*. His calculations also apply to the reverse situation, the flushing out of a toxic gas from an enclosure so that its atmosphere will be sufficiently pure to allow workers to enter.

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