SCIENCE NEWS

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A NEW SOURCE OF HELIUM

A NEW way of getting helium has been suggested in Germany by Dr. Kurt Peters, of the Physical-Technical Institute of Berlin. It is to be distilled from radioactive minerals used in various industries, and mainly from monazite sand, which is made into Welsbach mantels. Although it has been known for a long time that these minerals give off helium when heated, the gas has never been recovered commercially. Dr. Peters claims that it is the largest source of helium in Germany at the present time. He estimates that a production of from fifteen to twenty thousand cubic feet is available annually, which is a thousandth as much as was lost in the Shenandoah disaster in one day.

While this amount will not be sufficient for use in dirigibles it is expected to suffice for technical purposes. Helium has been most difficult to obtain because the United States, which is the only country in the world producing the rare gas in large quantities, has stringent export laws prohibiting its sale to foreign countries except with the sanction of the War and Navy Departments.

Dr. Meissner, also of the Physical-Technical Institute in Berlin, obtained about 25 cubic feet of the gas from a neon-helium mixture. This was obtained as a by-product in the manufacture of liquid air used in Berlin refrigeration plants, after months of distillation in the laboratory. It is estimated that this amount of helium came from about five million cubic feet of air. The new method, according to Dr. Peters, of recovery from minerals instead of from air will yield greater quantities and purer helium.

APPARATUS FOR THE ELECTRICAL MEASUREMENT OF ALTITUDE

A NEW instrument which measures altitude electrically, and about eight times as accurately as the ordinary barometer, to a height of at least one mile, has been constructed by the French physicists, Drs. Huguenard, Magnan and Planiol, and was recently shown before the French Academy of Sciences. The apparatus is based on the fact that a heated object cools off much more quickly in dense air than in very thin air or near-vacuum, because in a near-vacuum there is very little matter to conduct or convey the heat away. The density of air depends on the altitude, so that an instrument that will measure air density will also give a measure of the altitude.

The device consists of a wire of great resistance, so that when an electric current is passed through a high temperature can be obtained. Heat is immediately lost by radiation, convection currents in the air and to a certain extent by conduction. After each of these leaks has done what it can, the temperature of the wire has reached equilibrium; and when once this balance is attained, changes in the temperature of the wire will be due to changes in the density of the surrounding air.

When the wire is made of a metal whose specific heat is known, the measure of its resistance to an electrical current can be used to determine how hot it should get; and from that the density of the surrounding atmosphere can be deduced. It is a well-known fact that the electrical resistance of the wire itself changes with the temperature. A variation in the density of the air will therefore cause a variation in the intensity of the electric current; and this fluctuation can be used to measure the altitude, since the density varies according to the distance above sea level.

BROOKS'S COMET

BROOKS'S comet, one of the seven periodic comets expected to visit the region of the earth this summer, has been discovered by a Russian astronomer named Tscherny, at the University of Kiev, according to a cablegram from the International Bureau of Astronomical Telegrams at Copenhagen. When observed on September 19 it was in the constellation of Aquarius, which is now directly south at about 9:00 P. M. Its right ascension was 23 hours and 18 minutes and its declination 5 degrees and 13 seconds south of the equator.

Cloudy weather has so far kept astronomers at the Naval Observatory from observing Brooks's comet, but on the first clear night the big 26-inch telescope will be turned on the celestial visitor. As the comet is of the ninth magnitude, it should not be difficult to observe with this instrument, which is one of the largest in the country.

Brooks's comet is a periodic one, returning to the earth once in approximately seven years, and its observed position is within 5 degrees of the position which has been computed for it in advance, a little more than the distance between the two pointers in the Great Dipper. Since it was last observed, in 1918, it came close to the planet Jupiter, and its orbit was shortened by Jupiter's gravitational attraction, bringing it back several months sooner than it would have done otherwise. As it approaches nearer to the earth it will become brighter, but it is doubtful whether it will become visible to the unaided eye.

THE FEAR OF LIGHTNING

FEAR of lightning is far out of proportion to the grounds for it, according to a survey made by Dr. Arthur W. Gilbert, Massachusetts Commissioner of Agriculture. This survey showed that the chance of death by lightning is only one in more than a million.

For example, during a five-year period in Massachusetts only 19 persons were killed by lightning, an average of 3.8 persons a year. This is only one ten thousandth of one per cent. of the state's population. It figures out one chance in 1,013,770 of a person being killed in the Bay State by a bolt from the clouds.

The survey indicated that the man on the farm is ten and a half times as likely to be struck by lightning as his

city brother, due to the scarcity in rural communities of steel-framed buildings, trolley wires, etc., that in the city relieve much electrical tension while a thunder storm is gathering. But Dr. Gilbert assures the farmer that if he is in a house properly equipped with lightning rods during a storm he is in no greater danger than the city fellow. On the other hand, the farmer is 20,000 times safer from harm than a man dodging motor traffic in a large city.

Dr. Gilbert's survey was made primarily to determine the extent of the damage to crops by thunder storms. He found that while these storms cause thousands of dollars' worth of damage to crops at times they aid agriculture much more than they harm it. The rainfall they bring saves large areas of products that would otherwise perish from lack of moisture.

THE WESTERN BOLL WEEVIL

A WESTERN relative of the cotton-boll weevil is being watched apprehensively by field agents of the U. S. Bureau of Entomology. This insect, which is a hardy pioneer type of boll weevil, has for years hunted the wild cotton of Arizona for food. But entomologists fear that sooner or later it will find its way to the cultivated cotton fields of Arizona and Texas, and once it tastes the succulent squares of the cultivated plant it will probably turn into as terrible a glutton as the southern cotton pest.

J. L. Webb, of the Bureau of Entomology, says that the Southwest has so far escaped the attacks of the boll weevil because the southern type of weevil does not thrive in an arid climate. The western cousins of the southern weevil, however, are used to dry weather. The accepted theory is that years ago the ancestors of the western weevils wandered away from the rest of the tribe and migrated to Arizona. There some sturdy specimens survived and established a new line of boll weevil with habits adapted to the western country.

These weevils live in more or less isolated regions, Mr. Webb points out. But in one or two instances in the past year specimens have been taken from cultivated cotton in Arizona, and government agents are now working on an investigation of the insect's habits and its population statistics so as to be prepared to combat it in event of emergency.

A TEST OF SOCIAL INTELLIGENCE

A TEST of social intelligence is being tried on a group of 1,200 students entering George Washington University this autumn. When the results are in the professors will have evidence as to which students are good mixers, which are quick to size up situations and people, and which are likely to get along in positions where they must direct other people.

"It is a well-known fact that many students who rate high in general intelligence tests do not make good in later life," said Dr. Fred A. Moss, associate professor of psychology at the university, and author of the social intelligence test. "Some of these make fine school records, but they lack what is popularly called the ability to 'get along in the world.' Since universities are trying to bring out the possibilities in their students and to start them off in some direction where they are likely to have success, we believe that a measure of each new student's social sense will provide valuable data." The new type of test deals with practical conditions. The ability of the students to remember names and faces is first tested. Then their success at sizing up a series of social situations was measured.

As a test of keenness at reading faces, a number of photographs of a screen star were thrown on a screen and the students were asked to tell what emotion was being registered on the actor's face. Still another branch of the examination dealt with general information on art, science, literature, politics and sports, because the wider the range of an individual's interests the more likely he is to understand and get along with his fellows.

Dr. Moss's social intelligence test has already been tried out with several thousand cases. He states that certain parts of it have been used in selection of policemen in Los Angeles and in New York state, but this is the first time that a university has attempted to catalogue its new students from the social angle. The test data will be kept on file and compared with the records of the students in university activities and possibly in their later careers.

ITEMS

THE time-honored tradition that hard water is not good for the health and that soft water is has received severe questioning at the hands of Dr. John T. Myers, working in the laboratories of the department of Hygiene and Bacteriology of the University of Chicago and in the medical school of the University of Nebraska at Omaha. Dr. Myers experimented with white mice, white rats, rabbits, dogs, calves and other animals, giving part of each set hard water and part distilled water to drink, but keeping them on similar diets otherwise. In the case of the mice and rats, no difference in rate of growth was noticed; all other animals grew and throve better on hard water than on soft. "Artificial" hard water was used in some instances, with controlled amounts of mineral salts. When this water was no harder than the natural hard waters, the results were indistinguishable. When the artificial hard water was made ten times harder, the rate of growth of the experimental animals was slowed down, but not to a point below the growth-rate in animals kept on a distilled-water ration.

THE long-reaching shoots of twining plants in their movements to obtain a better grasp or a better place in the sun are almost human. This is revealed in a motion picture made by Dr. Frances Long and Vladimir Ulehla, of the Carnegie Institution's Desert Laboratory at Tucson. It speeds up the motions of a twining plant, like the common morning-glory, 19,200 times when thrown on the screen, and demonstrates that this plant has characteristics of movement similar in many respects to muscular contraction. So slow are the movements of vines and other such plants that the average person considers them quite inactive, but Dr. Long's researches show that plants are just as mobile in their way as animals.