PUBLIC HEALTH

Experts Find Pneumonia Deathrate Unusual

FIGURES for pneumonia deaths per 100,000 of the population during the last few years have surprised health experts. Something apparently has happened to the affinity between pneumonia and influenza deathrates.

High deathrates for these two diseases usually go together, but during the year just ended and also during the year 1932, the picture was reversed, statisticians of the Metropolitan Life Insurance Company report.

In 1934, reports from all over the country showed the lowest number of influenza cases in many years and the influenza mortality rate among the insurance company's industrial policy holders was one-half that of the previous year. Contrary to expectation, however, there was a pronounced increase in the pneumonia deathrate in the United States. On the other hand, 1932 began with an influenza epidemic and closed with the lowest pneumonia deathrate on record up to that time.

Science News Letter, January 19, 1935

ASTRONOMY

British Astronomer Lists Sizes of Constellations

WHAT constellation occupies the greatest area in the sky? The answer to this question is given by A. E. Levin, British amateur astronomer, in the 1935 Handbook of the British Astronomical Association, just issued. Mr. Levin has calculated the proportion of the sky occupied by each of the 89 constellations recognized by modern astronomers, and gives a list of their areas.

Hydra, the water snake, a somewhat inconspicuous group of stars that can be seen in the southern sky during evenings of spring, is the largest, occupying more than three per cent. of the sky. Virgo, the virgin, which is also visible in the spring evenings, in the south just above Hydra, is a close second, also covering more than three per cent. of all the sky. Ursa major, the great bear, of which the great dipper is part, is third, accounting for just over three per cent. Cetus, the whale, now visible in the southern evening sky, is fourth, with a little under three per cent. of the total; while Hercules, seen overhead on summer evenings, comes fifth, but is only slightly smaller. Orion, perhaps the most conspicuous constellation and now prominent in the eastern evening sky, comes twenty-fifth, with less than one and a half per cent.

The smallest constellation is Crux, the southern cross, which is visible from southern countries. Equuleus, the little horse, a constellation of faint stars visible in the southern evening skies in early autumn, is second smallest and Sagitta, the arrow, now visible in the early evening in the west, just to the right of the bright star Altair, marking Aquila, the eagle, is third smallest. Each of these three groups accounts for less than a fifth of one per cent. of the sky's area.

Science News Letter, January 19, 1935

PALEONTOLOGY

Mastodon Headquarters Found Near St. Louis

MORE than three million years ago a mastodon metropolis existed 20 miles south of St. Louis, according to D. K. Greger, curator of the Department of Geology of Washington University, St. Louis. He is now restoring the sections of a fossilized mastodon recovered by two University scientists, Dr. George D. Snell and Paul A. Nicoll.

The bones were found in a district surrounding Koch Creek on the Lemay Ferry Road, near Kimmswick. This region was evidently a gathering place for prehistoric elephants, as about 20 skeletons have found there since 1856. The best one is now in the London Museum.

Mr. Greger hopes in the near future to restore some of the skeleton sections which are now on display in Wilson Hall. The job of restoration is a difficult one, as the pelvis of the mastodon will be the size of an office desk when completed.

The mastodon had two sets of tusks, the two large upper ones being devoid of enamel and curving upward. The jaw, of which there is an excellent specimen in the research office, contains large molar teeth which were replaced by another set of teeth if the animal lost them.

Trees, shrubbery, grass, and other forms of vegetable matter were their chief diet. During the glacial age they were triply protected from the cold by one long coat of hair and two woolly coats.

Science News Letter, January 19, 1935

IN SCIEN

PHYSIOLOGY—CHEMISTRY

Animals "Go to Sleep" In Heavy Water Bath

SOMETHING very much like hibernation, or the almost death-like sleep in which certain animals rest for parts of their lives, can be produced by heavy water, containing the recently discovered double-weight hydrogen atoms. Experiments indicating this were reported before the meeting of the American Association for the Advancement of Science, by Dr. T. Cunliffe Barnes and E. J. Larson of Yale University.

Dr. Barnes and Mr. Larson used flatworms, a relatively primitive life-form, in their investigations. Flatworms kept for months in a dilute solution of heavy water in ordinary water were still the same size as they had been at the start. Other flatworms, kept in pure ordinary water as "controls," had lost four-fifths of their size after the same period. Slower chemical reactions of digestion, and slower life-processes generally, indicated the "sleepiness" of the animals in the heavy water solution.

Science News Letter, January 19, 1935

PLANT PHYSIOLOGY

Sprays Kill Dandelions, Spare Grass in Lawns

DANDELIONS are killed and lawn grass left alive by several kinds of spray material tested by Dr. W. E. Loomis and N. L. Noecker of Iowa State College, Ames, and described before the American Society of Plant Physiologists. Kerosene and other petroleum distillates are used, in some cases with the addition of furfural, a chemical producible at extremely low costs from oat hulls and other grain wastes. The furfural emulsions have resulted in 95 per cent. kill of dandelions with one application.

Best results are obtained when the spraying is not done in hot weather, but either in early June or at the beginning of the fall growing period, about Sept. 1.

Science News Letter, January 19, 1935

CE FIELDS

PHYSIOLOGY

Beer Fattens Because it Is Food as Well as Drink

IF YOU are undernourished and feel that beer will build you up, medical science is prepared to recommend that you add the beverage to your usual diet.

You can silence your critics by the scientifically attested statement that it is not only the alcohol in the beer that is building up your weight. *The Journal of the American Medical Association* (Dec. 21) says editorially that only half of the calories in German beer are derived from alcohol; the rest come from "dextrin and protein-like extractives" in the beer. Here is food material "whose fattening properties may be very highly considered," according to one medical authority cited in the Journal editorial.

The editorial calls attention to the alcoholic content of domestic beers which were analyzed before and after repeal. Thirty-seven light beers analyzed before repeal had an average alcoholic content of 3.7 per cent. The maximum content was 4.64, and the minimum 3.01. Of ten light beers (many of the brands included in the earlier analysis) the average alcohol by volume was 4.64 per cent., the maximum 5.23 and the minimum 4.02.

Science News Letter, January 19, 1935

GEOLOGY

Artificial Sand Dunes Protect Beach Highways

SAND dunes may rouse in the mind's eye only a picture of swarthy sheiks cavorting on camels through the trackless desert; but they have a much more domestic function. Right here, in these United States, they are very useful in protecting beach roads along which travel caravans of everyday automobiles.

At the meeting of the American Shore and Beach Preservation Association in Washington, W. W. Mack, chief engineer of the Delaware State Highway Commission, told how artificial encouragement was given to dunes, to get them to grow where no dunes grew before, in order to protect a Delaware highway which was exposed in spots to the onset of murderous waves kicked up by great storms.

The highway was located behind a line of natural dunes in the first place, because of the protection these afforded. Where gaps occurred between the natural sand mounds, plank fences were set up to check the blowing sand, and to cause it to heap up like snow about a snow fence in the West.

An unusually severe test was given these "fence-dunes" by an exceptionally big storm. Where the sand had had time to become well heaped about the fences they withstood the attack 100 per cent. Newer portions, not yet well covered with sand, were wrecked.

Science News Letter, January 19, 1935

PHYSICS

$900 Chunk of Gold Used on Atom Tests

WHAT a nation does with its gold when it is off the gold standard is revealed in the British science journal *Nature*. (Dec. 22) Part of the gold locked, by decree, within a country is used for scientific research.

Such is the case in Poland, which forbids shipments of gold from within its boundaries. In Warsaw a group of investigators headed by M. Danysz of the Radiological Laboratory have just completed atomic experiments involving a block of gold valued, in American dollars, at about $900.

The investigation, using the nugget loaned by the Bank of Poland, was to determine what difference a gold filter process would have on the penetrating power of the neutrons. Neutrons are fundamental particles of which all atoms are made.

Danysz and his colleagues find that in silver and iodine much more artificial radioactivity is produced by neutrons when they are first filtered by passing them through the gold block than without the filtering process. For light elements like aluminum and silicon the reverse was true.

The Polish scientists suggest as an explanation, that the neutrons entering the gold strike atoms there, are stopped, and in stopping create other neutrons of slightly less energy. Such slow neutrons are efficient in producing artificial radioactivity in heavy elements like silver and iodine but are inefficient in doing the same thing on the light elements.

Science News Letter, January 19, 1935

CHEMISTRY

New Metal Used to Ship Hydrochloric Acid

A LONG-baffling problem of chemistry—how to ship and store highly-corrosive hydrochloric acid in something other than glass bottles—at last has been solved.

The rare element rhenium, discovered so recently as 1925, is the answer to the problem with which chemistry has been struggling for years.

Speaking before the meeting of the Electrochemical Society, Prof. Colin G. Fink and chemical engineer P. Deren of Columbia University, revealed that they have finally discovered a way to plate rhenium on brass, copper and other metals. Rhenium is very resistant to hydrochloric acid. The discovery, declared Prof. Fink, should be of the greatest importance to industry.

The acid could be shipped cheaply in tank cars lined with rhenium and stored in rhenium-linked tanks. When applied in industry the discovery will do away with the familiar, but costly, method of shipment and storage in glass bottles protected by heavy wooden containers.

The new discovery will place hydrochloric acid on a par with sulphuric and nitric acids with regard to transport. The last two acids can be shipped and stored in large quantities in suitable metal containers. Up till now this has not been possible for hydrochloric acid.

Rhenium is one of the heaviest metals among the chemical elements. Its atomic number is 75 and it is about as heavy as tungsten. The pure metal has a bluish color. It was named by its German discoverer, Noddack, after the river Rhine.

While rhenium is widely prevalent in the earth's crust, no deposits have so far been located which yield more than a trace of the metal. Even in the richest ores it is present only in from 2 to 20 parts per million. At this concentration, Dr. Fink declared, it did not pay to mine the ore for rhenium alone.

It has recently been found, however, he declared, that rhenium is present in the slime waste products from copper refining plants in about one part per million. This, in effect, is a source of rhenium already "mined." The "mining cost" has been paid by the copper refining.

From such copper wastes pure rhenium is obtained at a price which makes its cost nominal.

Science News Letter, January 19, 1935