

ASTRONOMY

Yerkes Rediscovered Faint Comet Last Seen in 1929

A FAINT comet last seen in 1929 has been observed through a Yerkes Observatory telescope. It is named "Schwassman-Wachmann's Second Comet," designated in astronomical records as 1929 I. It was discovered nearly six years ago by the two Germans after whom it was named.

News of its rediscovery by Prof. G. Van Biesbroeck is being circulated to observatories throughout the world. The heavenly visitor is a diffuse object of little promise and it is expected to interest astronomers only.

In August there was a report of its discovery from Europe but this may have been erroneous. Its period of swinging around out in space away from the sun was reckoned as 6.4 years from the 1929 observations and the comet is therefore returning a little earlier than expected. (Magnitude 16. On Dec. 11.1118 Greenwich time R.A. 01h 43 m 24.3. Dec. North 5 degrees 21 min. 32 sec.)

Science News Letter, December 22, 1934

STATISTICS

Figure Chances For Reaching Golden Wedding

THE chances a couple has of celebrating their golden wedding anniversary seem to depend on the ages of the man and woman when they married and on their perseverance at marriage. The latter factor can hardly be calculated, but life insurance statisticians at least give a bride and groom on their wedding day the chances for their both being alive fifty years hence, whether they wish to celebrate or not.

The younger they are when they marry, the better their chances, of course.

"Taking about an average case, in which the bride is 22 years old and the bridegroom 25, the chance that they will both survive to celebrate their golden wedding fifty years later is 168 in 1,000 or just about one in six," report statisticians of the Metropolitan Life Insurance Company.

"Their chances of surviving to their silver wedding are, of course, very much greater; in fact, just about three in four; and their chance of reaching their tenth anniversary is not very far from cer-

tainty, namely 927 per 1,000, or considerably in excess of nine in ten.

"If they are both very young, their chances of living to the time of their golden wedding are quite good. So, for example, if the bride is 18 and the bridegroom 23 (a combination of ages by no means uncommon), they stand a chance of almost one in four of surviving to their golden wedding, namely, as the table reads, 235 per 1,000.

"On the contrary, it stands to reason that the relatively infrequent cases of late marriage have only a very slim chance of celebrating their golden anniversary. So, for example, if the bride is 37 and the bridegroom 42 at the time of their marriage, they stand just about one chance in a thousand of surviving until the fiftieth anniversary day of their wedding."

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TECHNOLOGY

New Copper Wire Fabric Conducts Electricity

CHECK for future watching three new fabrics: one woven of copper wire and conventional textile fibers; another which is creaseproof and a third water-repellent.

In the first, copper wire is inter-spun with cotton, silk, wool or rayon into threads which can be woven or knitted without special machinery. The fine copper wire is lacquered before spinning. List as advantages: prevention of stretching and shrinking and conduction of electrical current.

Fabric which will conduct electricity should find wide use. A rug might be plugged into the nearest socket and heated to warm a room. The fabric in airplane wings would be warmed to prevent ice formation. Heated clothing might become a commercial instead of an experimental fact.

Creaseproof fabric is an English invention available in America through license. *The Technology Review* in reporting the production of the fabric states that in the finishing stage the textile is treated with a type of resin. Not yet adaptable to heavy material like a suit, the pressing problem of baggy pants still remains. But the invention is available in shirt materials and women's garments.

Water repellent treatment may, however, be applied to almost any fabric. It consists of colloidal wax.

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GEOGRAPHY

Shifting Water of Ocean Tides Tilts Earth's Crust

ALTHOUGH unfelt by man and undetected by science until now, the surface of the earth bends in and out after the fashion of a rubber ball squeezed by hand, according to results of research just completed by Dr. L. Don Leet, director of the Harvard University Seismograph station.

Studying this slow bending of the earth's crust, Dr. Leet is now able to correlate it with the ebb and flow of the ocean tides. He concludes that the tides cause the motion.

The to and fro motion of vast quantities of water, shifted by the moon in tidal action, is held responsible for the tilting of the earth's crust.

The amount of tilting detected at Harvard amounts to one thirty-six-thousandth of a degree, or equal to the minute angle made by a pole 65 miles long one inch out of plumb at one end.

So delicate were the observing instruments that the tilt could be noted at Harvard, Mass., fully 35 miles from the ocean.

Further information concerning the elasticity of the earth's crust will follow a closer study of the tidal effect, Dr. Leet believes.

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RADIO

Radio Sets Now Outnumber Telephones in U. S. A.

ABANNER crop of radios was produced by the radio industry in 1934. Four and one-half million new sets were added to those already in use to bring the total for the nation up to 19,000,000. This is 8,000,000 more radios than there are home telephones.

The 19,000,000 sets do not include those in homes having two and three sets nor some 2,000,000 sets now installed in automobiles, according to the trade journal *Electronics*.

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ICE FIELDS

GEOGRAPHY

Government Surveying Done With Obsolete Instruments

THROUGHOUT eighteen states, what was at first considered a valuable piece of emergency relief work is under way as 2,000 men are engaged in surveying and mapping for the government. Now the question arises whether the maps being made are really accurate, due to the inferior, antiquated nature of the instruments being used.

Lt. Col. F. B. Wilby, chairman of the Board of Surveys and Maps of the Federal Government, recently asked Secretary Ickes for an allotment of \$180,000 for high grade equipment.

The reply from Fred. E. Schnepfe, director, projects division, is that the matter cannot be considered at the present time. Apparently the government can go on making maps, even if they are so inaccurate as to be almost worthless.

Instruments used by the relief workers are not available from any Federal agency and are now being borrowed from universities, railroads, cities, private corporations and individuals. Only occasionally is a borrowed instrument of the proper type for conducting the work efficiently.

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PLANT PHYSIOLOGY

"One-Way" Light Waves Make Plant Cells Burst

POLARIZED light, consisting of "oneway" waves, causes certain cells on the surface of leaves to burst. This phenomenon has been observed by Dr. Elizabeth Sidney Semmens, South African plant physiologist now conducting researches in England. (*Nature*, Nov. 24). She explains it as due to the changing of the cells' starch grains into sugar, which caused so much water to flow into the cells that their walls could not stand the added strain, and so burst.

Dr. Semmens has been working on the puzzling effect of polarized light on starch for a number of years. Polar-

ized light consists of light that has been passed through a special kind of crystal, or reflected from a special kind of surface, in such a way that all its waves vibrate in the same direction, instead of helter-skelter in all directions as is the case with ordinary light. An appreciable percentage of moonlight, for example, is thus polarized.

Dr. Semmens states that in many experiments she has found polarized light to have the power of changing wet starch into sugar, whether in living plant cells or in non-living test-tube solutions.

In her recent research, she exposed hyacinth leaves to strong sunlight which had been polarized by means of a crystal. She found that the pairs of "guard cells" on either side of the numerous stomata, or so-called breathing-pores, scattered over their surfaces, had burst with force enough to throw their contents out to a full cell's length. This she attributes to the fact that the starch grains in these cells—and they are the only starch-containing cells on the surface of the leaf—had been converted into sugar. Starch does not promote osmosis, or "draw water;" sugar does. Hence the swelling of the cells to the point of violent bursting.

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ARCHAEOLOGY

Ancient American City Had Ditch of Water About It

AN ANCIENT Mayan city with a moat around it is the outstanding archaeological discovery of the year reported to the Carnegie Institution of Washington trustees at their annual meeting. It was investigated by the Institution's archaeologists led by K. Ruppert.

The moated city was given the name Becan, meaning in Maya "ditch full of water." It is located in the Campeche region of Mexico. The moat surrounding the ruined city was hewn in ancient pre-Columbian days out of rock to a width of fifty feet and a depth of six to twelve feet. Seven causeways, some of masonry and some left standing in the rock, connected the city with the outside world. It took the archaeologists nearly an hour to walk around the ruins in the now dry moat. The theory is that the moat was filled with water naturally during the rainy season from a nearby swamp.

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METEOROLOGY

Pilot Balloon Flight Studies Stratosphere

STRATOSPHERE weather has again been successfully investigated by a mass flight of instrument-bearing balloons launched into stormy air by scientists of the Massachusetts Institute of Technology recently at St. Louis, Mo.

Of the 35 sounding balloons released, 24 have been reported found thus far, and are being returned to the Institute. Their instruments intact, the balloons were picked up within a radius of 150 miles from Lambert Field Airport, the release-point. Most of them were found in Illinois.

The only one thus far actually returned to the Institute was found to have reached an altitude of approximately sixty-five thousand feet. Other data will be available later.

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METEOROLOGY

Ice and Snow Now Seen As Causes for Rejoicing

See Front Cover

"O YE ICE and snow, bless the Lord!"

Thus the seventieth verse of the third chapter of the Book of Daniel, in the Vulgate version. It is part of a long psalm, ascribed to the three young men miraculously delivered from the fiery furnace, a kind of Old Testament forerunner of St. Francis' Canticle of the Sun.

Doubtless the three young men, after their rather trying experience, were glad enough to bid any and all forms of water—ice and snow, frost and dew, hail and rain—to give praise to their Deliverer. We also, having been delivered from the fiery furnace of last summer's drought, might well feel equally glad to behold this winter's ice and snow.

Even a naked tree, bearing a Christmas gift of glittering glaze, is richer than a sentimentally tinselled evergreen indoors. The ice may burden and even break the branches, but the ice is water, and water, we have acute cause to realize, is Life.

The beautiful photograph of a tree after an ice-storm, its weeping branches coated with "glaze," reproduced on the cover of this issue of the SCIENCE NEWS LETTER, is the work of John H. Cornwall III.

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