

Scientific Discussions by Garrett P. Serviss

Roland Rohlf's achievement in forcing his aeroplane to a height of 24,610 feet (over six and a half miles) leads to many interesting considerations. No man ever before got as far as that away from the centre of our planet. Yet unmanned balloons have been seen more than twice as high.

At least one "sounding balloon" has gone to a height of 55,000 feet, or about six miles, and many have attained ten and twelve miles elevation. The height reached by these balloons was ascertained in precisely the way in which Rohlf's determined the elevation of his aeroplane, viz., by the indications of a barometer. The barometers carried by the balloon automatically recorded the lowest atmospheric pressure experienced, the point of lowest pressure corresponding, of course, with that of highest elevation above sea level.

These instruments do their assigned work when there is no eye near to watch them, although it is the cunning of the human brain that they obey.

Rohlf's says that at the peak of his tremendous ascent, which overtopped the loftiest mountain on the earth by more than a mile, his powerful propellers were unable to lift him a yard higher, notwithstanding all his efforts. This is not surprising when we consider that at an elevation of six and a half miles the density of the air is reduced to less than one-quarter of what it is at sea level. Trying to fly an aeroplane in air so rare as that would be like trying to swim in a liquid one-quarter as dense as water.

It is not surprising, either, that he had continually to resort to his artificial supply of oxygen, for while the proportion of oxygen in the air is about the same at all levels, owing to the law of equal diffusion of gases, the quantity taken in at a breath, when the expansion is so great, becomes too little to maintain the life processes. The fall of temperature that he observed, and against which his warm clothing sufficiently protected him, was about in accord with the general rule of one degree decrease for every 350 feet of ascent.

The extent of the view over the earth's surface that lay beneath him was the greatest ever offered to human eyes. At an elevation of six and one-half miles the depression of the horizon becomes about three degrees fifteen minutes, without regard to the variable effect of refraction, and the distance of the verge of the horizon, all around, from the observer is then about 230 miles. Thus Rohlf's aeroplane, at the top of its climb, was the apex of a cone six and one-half miles high, whose base embraced the entire horizon surface 1,444 miles in circuit, containing an area of about 168,000 square miles—over four times that of the State of Ohio. Of course, at such distances all the smaller details were lost, and even directly below, only six and one-half miles down, small objects, like men, could not have been distinguished to the naked eye. This forms an interesting commentary on the curious notion that a magnifying power of a few thousand diameters ought to make the inhabitants of the moon visible.

As a matter of fact a magnifying power of ten thousand diameters, which has never been obtained or even approached with any telescope, would still leave the moon at an apparent distance of about twenty-four miles from the eye, at which distance, with the clearest view, it would be practically impossible to recognize even the largest buildings.

The impressiveness of a view embracing in a single circuit about 1,440 miles of the entire surface of the earth, for that is what lay within reach of Rohlf's eyes, may be imagined but cannot be described. With a dip of the horizon amounting to only three and one-quarter degrees, the eye would still be deceived by the apparent elevation of the outer edge of the vast circle, so that the portion of the earth within the range of vision would have the look of an immense basin, instead of what it really was—a considerable part of the convex surface of a sphere 8,000 miles in diameter.

It would be necessary to be at a height equaling a considerable fraction of the earth's radius before the roundness of the globe became evident at a glance. One would have to rise to an elevation of about one hundred and fifty miles in order to look down a slope of fifteen degrees to the horizon, and as the distance of the horizon would then be about a thousand miles, so slight a slope would hardly suggest a globular shape. And at a height of one hundred and fifty miles the air must be rarer than any vacuum chamber that we can make.

No Normal Children Are Seen in Vienna

London.—Miss Ruth Fry, secretary of the Friends' war victim relief mission, draws an appealing picture of the effects of the shortage of milk on the health of children in Vienna.

"I have recently paid a visit to Vienna," she said, "and therefore had special opportunities for obtaining information.

"Even the tragic state of Lille after the withdrawal of the Germans, when 80 per cent of the children were found to be undernourished and 10 per cent tuberculous, was not so terrible as that of Vienna, now a city of 2,500,000 inhabitants, where one never sees a normal child in the streets; where practically all the children of the wage-earners are undernourished, practically all under three suffering from rickets and a large proportion of older children suffering from both rickets and tuberculosis, which has reached the proportions of a dangerous epidemic.

"This ghastly state of affairs is the direct result of malnutrition and, above all, of the absence of milk. In Vienna milk is reserved for infants under one year and the most serious cases even the milk allowed has to be cut down one-half."

After describing some of the effects of the shortage of milk in Germany, where the conditions are much better than in Austria, Miss Fry asks: "Could not measures be introduced in those countries which have not yet adopted them, whereby healthy adults should be called on to make a sacrifice in the interests of the children, not only of their own countries, but of allied and enemy countries as well? The surplus milk could then be dried or condensed for export.

"So long as serious shortage exists anywhere, milk should be reserved everywhere for those whose future health and strength depend on it. The health of the next generation," she says in conclusion, "is an international question."

Admits Stealing Clock From Mail Airplane

Pittsburgh, Pa., Dec. 5.—Frank Duminsky, of DuBois, Pa., pleaded guilty in United States district court when he was brought before Judge Orr, accused of stealing a clock from airplane No. 94 of the New York-Cleveland air mail route, when it landed near DuBois October 15.

The crew left the machine for several minutes and upon their return the clock, valued at \$48, was missing. A search of the vicinity resulted in the arrest of Duminsky and the recovery of the timepiece. Duminsky released on \$300 bail, will be sentenced Saturday.

ELECTRIC NEEDLE ENDS SEVEN-DAY SLEEP New York, Dec. 5.—Application of electric needles to the spine cured a case of sleeping sickness yesterday in St. Mary's Hospital, Brooklyn.

Miss Lena Pasco, 29 years old, who had been in a sound slumber since last Friday morning, was brought back to consciousness by electrical treatment.

SUGGESTIVE. "My father used to give me this advice: 'Always think before you speak.'"

"But didn't he want you to talk at all?"—Life.

Pa. Masonic Lodges Get 12,000 Members

Philadelphia, Dec. 5.—More than 12,000 new members were added to Masonic lodges in Pennsylvania during the last year, according to a statement of the Masonic Grand Lodge.

The normal increase is about 5,000. The rush to join the Masonic order is attributed to the ending of the war in Europe. Many of the new Masons are returned soldiers.

William Hamilton, of Pittsburgh, was elected junior grand warden, the only office ever which there was a contest. The other officers chosen, who will also be installed on St. John's Day, December 27, are: R. W. grand master, John S. Sel, Greensburg; deputy grand master, Abraham M. Beitler, Philadelphia; senior grand warden, Samuel M. Goodyear, Carlisle; grand treasurer, Thomas R. Patton; grand secretary, John A. Perry.

The committee on Masonic Homes elected comprises: George B. Orndy, R. W. past grand master; Edward W. Patton, George W. McCandless, William M. Donaldson, Andrew H. Hershey, Henry C. Shook, Louis A. Watres, R. W. past grand master.

Confesses Sending Bomb to Mrs. Wanamaker

New York, Dec. 5.—Ernest Albert Gustav Kurth, who sent a bomb to Mrs. Rodman Wanamaker, pleaded guilty to assault. He will be sentenced December 11, the maximum penalty being five years' imprisonment. He had been employed in the Wanamaker home, but was discharged for giving wine parties.

Advertisement for Penn-Cera cereal. Includes a cartoon of a man holding a bottle and the text: 'Say When —when you're going to try Penn-Cera—and make that "when" now! You'll forget that Sahara Desert feeling right off the reel. PENN-CERA A Real Drink-Pep Aplenty. Mildly stimulating, a delicious, cereal beverage, beneficial and enjoyable. No matter how you voted on prohibition you'll say "Open up another bottle." LIGHT, DARK, PORTER. Manufactured and bottled by Consumers Brewing Co., Philadelphia. Frank S. Garber, Distributor 1901-1903 North Sixth Street HARRISBURG, PA.'

"The Different Kind of a Jewelry Store" The Only Difference Is the Price

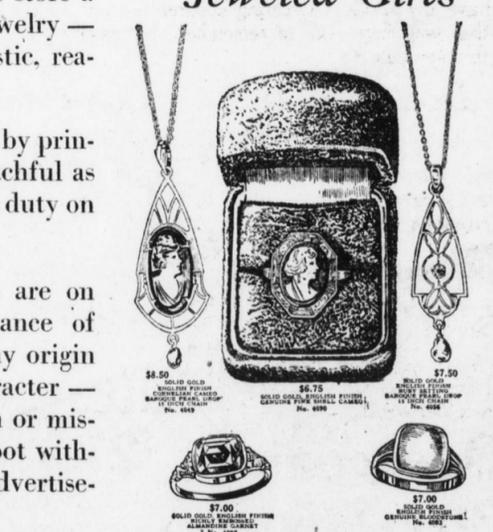
Delightful Gifts Are Satisfactorily Chosen From These Splendid Collections of

Christmas Jewelry



A Lover's Gift. ARTICLES of worth in jewelry need not of necessity go beyond the limitations of the moderate in price. Care in selection, avoidance of those articles which are cheaply elaborate, skillful elimination of those not up to the right standard of workmanship, the choice of those which show really pleasing designing—these are a few of the means through which have come to this store a wealth of gifts in jewelry—worthy, distinctive, artistic, reasonably priced.

This business is guarded by principles as vigilant, as watchful as any soldier who ever did duty on the sentry line. Day in and day out, we are on guard against the entrance of merchandise of unworthy origin or untrustworthy character—against any exaggeration or misrepresentation setting foot within the border of our advertisements.



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The J. N. Caplan Co. WATCHES DIAMONDS JEWELRY ETC. 306 MARKET STREET HARRISBURG, PA.

Mahogany & Walnut Serving Trays

A fine gift for the housewife. One of the most useful small furniture articles which you could select.

Table with 2 columns: Size and Price. 10x18 in. \$1.50, 12x18 in. \$2.00.

MAKE IT A FURNITURE CHRISTMAS

This year give furniture. It is the gift lasting and for the same amount as you would pay for a trinket, you can easily buy a useful article of furniture for a friend or for the whole family.

Smoking Stands

An excellent gift for Him. In both brass and wood, the latter combined with a humidor. On the top there is the usual match box holder and ash tray. Mahogany Stands, \$2.25 Special \$1.95

HOOSIER — the Kitchen Cabinet that saves miles of steps



The Christmas gift every housewife wants

FEW gifts appeal to the housewife as much as those that save her time and strength and which add to the attractiveness of her home. Among this class of gifts is one that meets every requirement—the Hoosier Kitchen Cabinet.

Because of its scientific arrangement and many patented features, the Hoosier brings vital conveniences—time and labor savers—not to be found elsewhere. Every detail is the result of years of kitchen experience; every worthy device is included.

What other gift could equal several extra hours of leisure each week? This is the fundamental upon which Hoosier is constructed—the saving of time and toil; the rendering of efficient kitchen service. The prices are within range of all. Easy terms if desired.



Double Roaster

This roaster of New Hampshire Gray Granite is a real bargain. Large enough to accommodate a roast or fowl for the average family. Until our supply is exhausted we have priced them

Special, 98c

Telephone Stands

A useful and appropriate Christmas gift. Space for the phone, a writing surface and a shelf underneath for phone book, a pad of paper, etc. Stand and Chair in fumed Oak \$12.50 Other designs with and without stationery racks; in both oak and mahogany. \$15.00 to \$24.00

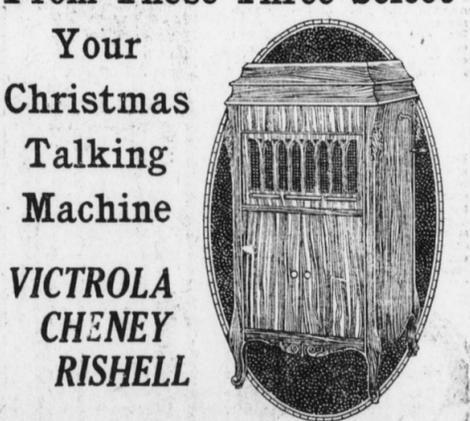


TOYS

Bring the kiddies to Toyland. See their delight when they look at the vast assortment of toys, games and dolls that are shown here. Toyland is in the rear of the first floor.

Advertisement for toys including a teddy bear (Brown Teddy Bear, 98c), a roller car (Mi-pony, \$1.95), and various other toys like engines, tracks, and games.

From These Three Select Your Christmas Talking Machine



No finer gift for the family exists than the all-year, pleasure giving, Talking Machine. From the three makes we carry you can select on a basis of fair comparison. Delivery will be made any time before Christmas. The machine and twelve selections (six records) will be delivered to you on a club account.

Records 16996—Adelstein Fidelity—Joy to the World. 17647—Nazareth—First Nowell. Red Seal Records \$7070—For You Alone (Caruso) \$1.00 \$7524—Whispering Hope (Gluck and Homer) \$1.00 \$7221—The Rosary (Schumann-Heink) \$1.00 NEW DECEMBER RECORDS NOW ON SALE