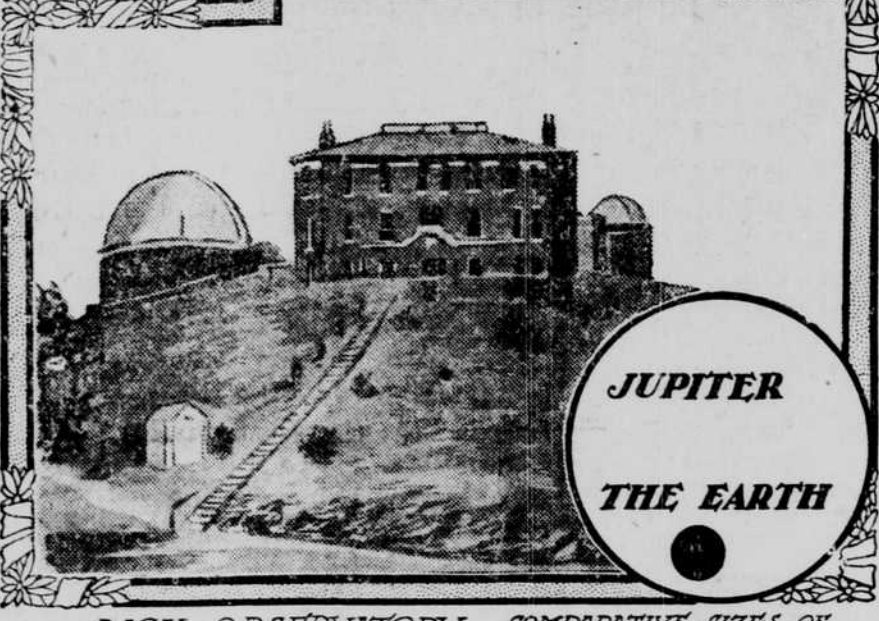


# EYES ON JUPITER

RECENT DISCOVERY OF EIGHTH SATELLITE FOCUSES ATTENTION ON PLANET.



LICK OBSERVATORY COMPARATIVE SIZES OF THE TWO PLANETS.

Eyes of astronomers, as well as of star gazers among the ranks of the laymen, have been directed with special interest towards Jupiter of late owing to the reported discovery of the eighth satellite of the great planet whose history—in an astronomical rather than a mythological sense—is a marvel of scientific romance. There is probably no object in the heavens around which such rich associations cluster. It was the Jovian orb that presided over the first intimations of the speed of light in the days when Roemer watched the eclipses of its moons. To Jupiter was directed the first telescope ever trained on the skies by an earthly astronomer. It fell to the lot of Jupiter to intervene in the great struggle between rival theories of the world order and connect itself forever with a most thrilling period in the history of science. Measured and weighed since then with all attainable exactness, it is known for observers to-day as the planet of colossal dimensions and terrific speed, of numerous progeny and troubled countenance, yet it never shines without casting its luster away back toward the middle ages upon the serene, indomitable and undying figure of Galileo.

The surprising fact about Jupiter, so far as its moons are concerned, is that the planet was lost to astronomical investigation for nearly 200 years. In that time the telescope underwent enormous improvement. Herschel mapped the heavens with his great tube, and Lord Rosse's reflector at Parsonstown showed such light-gathering capacity that the star Sirius shone in it "like a coach lamp." Later still, with the introduction of achromatic object lenses and advance in the art of glass making, the comparatively tremendous range and defining power of the modern refracting telescope were placed at the disposal of the observer. The Lick instrument, with its clear width of three feet turned toward the night sky, seemed well nigh the limit of the investigating power which astronomers could hope to command. Yet after all this advance and almost at the beginning of the twentieth century Jupiter showed no more of her moons to the modern scientists than she had revealed nearly three centuries before to the unpracticed eye and rude instrument of Galileo. The planet was known in 1610 to have four satellites; in 1892 no sane astronomer expected to see any more. It was a comfortable provision, and the count seemed closed. Yet all this time there were seven, possibly eight, moons though the fact was hidden from the world, just as magnetism had been hidden until Gilbert brought it into notice, and as radium was hidden until the Curies raised it from the dust.

Jupiter was reserving his secret for some daring observer who should bridge the gap of nearly 200 years with a new discovery. The first chapter of the revelation came in 1892, and the revealer was Prof. Edward Emerson Barnard of the Lick observatory. A southern man, who had already done excellent work in celestial photography, besides discovering a number of comets, he was one of the first, in the clear air of Mt. Hamilton, Cal., to turn the new 36-inch telescope to the planets. He was doubtless eager to know what of new detail and physical construction the big glass would bring forth. Happening one September midnight to be examining the disc of Jupiter he glimpsed a tiny speck of light near the edge of the planet. It soon became lost in the glare of the larger body, but the quest was resumed on succeeding nights, and then the news was flashed to every American and foreign observatory that Jupiter had five moons. This unexpected and momentous discovery thrilled the astronomical world, but there were other surprises yet to come. Early in January, 1904, Prof. Charles Dillon Perrine of the same observatory—also a comet finder and expert in the study of eclipses—announced a sixth satellite, the existence of which he had suspected in December of the previous year; and the observation was confirmed by experts at the United States naval observatory. In January, 1905, Prof. Perrine followed up his success by discovering a seventh satellite, and now what may turn out to be the eighth of Jupiter's moons has just "swum within the ken" of the astronomers at Greenwich observatory in England.

The giant among the planets is just now excellently situated for observation, shining for some time in the western sky after sundown. Any small hand telescope will show Jupiter much as it looked to Galileo—a plain, softly luminous disc, accompanied by one or more of the four moons, all of them sometimes visible at once, which were first seen at Padua in the opening decade of the seventeenth century. As the size of the telescope is increased, interesting detail makes its appearance. The most easily glimpsed features are the belts—lines of cloud-like substance crossing the planet's face north and south. The disc of Jupiter is also diversified by an oval-shaped object which has never ceased to be an object of mystery, as well as wonder, to astronomers. Its extraordinary size and hue have given it the title of "the great red spot." Situated near the edge of the south belt, it is sometimes 30,000 miles long by 7,000 miles broad, extending over an area of about 200,000,000 miles. A blanket closely fitted everywhere to the surface of the earth would not be large enough to cover this strange object on the face of Jupiter. Meanwhile the planet has other mysteries. Its surface is fluent, and shifts to and fro in such a way that it has never been possible to determine the exact period of the planet's diurnal rotation. The depth of Jupiter's turbid and fluctuating exterior has been estimated by one observer at from 790 to 800 miles. Some have suspected that, like Saturn's rings, the belts are whirling lines of meteors. There is much reason to believe that part of the light that comes to us from Jupiter is the planet's own.

What, finally, of the satellites themselves? The early astronomers knew the first four, the Galilean moons, as Io, Europa, Ganymede and Callisto, and it is the magnitude and motions of these which are best known. With an average diameter of about 2,500 miles, their distances from Jupiter range from 112,500 miles to 7,265,500 miles, and their periods of revolution around the planet from nearly 11 hours to about 16 days, the fifth moving at about 16 1/2 miles a second. The satellites are now numbered in the order of their discovery, but their distances from Jupiter do not coincide with this order. The most recent estimates at Harvard college observatory give the arrangement as follows:

Satellite 5	112,500 miles
Satellite 1	261,000 miles
Satellite 2	415,000 miles
Satellite 3	664,000 miles
Satellite 4	1,357,000 miles
Satellite 6	1,656,000 miles
Satellite 7	7,265,500 miles

The object recently observed at Greenwich, and supposed to be an eighth moon of Jupiter, is still under observation.

For all but expert observers, provided with the largest telescopes now in use, the newly discovered moons are utterly beyond the reach of human vision, and the astronomers who have seen them may be counted on the fingers of one hand.

## AFTERNOON DRESSES



A simple dress of gray crepeoline is shown in the first illustration. The skirt has four small flat plaits each side both front and back, stitched down part way. The blouse is of spotted muslin with small round yoke and elbow bands of lace. The over-bodice is of fine lace, with bretelles composed of tucked crepeoline. The scarf is of Aubergine soft silk. The sash is of gray ribbon. Materials required: 6 yards 46 inches wide, 2 yards flat lace 18 inches wide, 3 yards spotted muslin.

The second is in Saxe blue fine cashmere. The skirt is plain and slightly trained, with three rows of stitching worked at the top of the hem. The bodice opens in front to show a vest of embroidered silk and lace over tucked silk muslin. A handsome jeweled button is used to fasten the silk vest. The revers are faced with embroidered silk. The telescope sleeves are finished below the elbow with puffs of silk muslin. Materials required: 7 yards 46 inches wide, 1 yard silk, 3/4 yard lace, 1 1/2 yard silk muslin.

No. 3 is orchid mauve face cloth, the skirt is trimmed with silk passementerie and plain silk braid. The cross-over bodice is trimmed to match the skirt; the short sleeves turn up with deep revers, trimmed with passementerie, frills of lace falling over the close-fitting sleeves of piece lace, with mitten cuffs; vest of tucked chiffon with very deep lace collar. Materials required: 7 yards 46 inches wide, 1 1/2 yard piece lace, 2 1/2 yards lace 6 inches deep, about 10 yards passementerie, and 10 yards plain braid, 6 yards sateen.

### COLLARETTE TO MATCH HAT. CHANGING FASHIONS A WORRY.

Strain on Purse in Constant Effort to Keep in Style.

One of the newest fancies of fashion is the collarette, or ruff, fastened in the back with long ends of ribbon, which hang down the back. This is the latest suggestion in the way of hats or neckpieces for wear out of doors. The collarette is a large ruff made of plaited ribbon, chiffon, net, etc., and quite high and full—much like a Pierrot collar. At the back there is a large rosette of ribbon to fasten it and from beneath the rosette the ribbons hang quite a distance down the back. Frequently there is a rosette at the back of the hat to match that on the collar. The collarette and hat should, in fact, be in accord, and if they are so they will give quite a dressy effect to a plain cloth or silk costume.

These days of ever-changing fashions are troublous ones for femininity. An abyss of restless modernity separates them—even more than does a century—from the peaceful times when garments were for many years cut upon the same patterns and varied mainly in their adaptation to the length and fullness of the wearer's purse. "The petticoat of Sarcenet, with broad black lace flounce printed on the bottom and before; the flowered satin and plain satin-faced, with rich lace at the bottom," as the case might be, descended from mother to daughter unaltered even in the looping of the train or the trimming of the bodice or the ruff.

Today, even with a closet full of good clothes left over from last year, the girl in moderate circumstances regards it as necessary spring and fall either to get new things or to overhaul what she has—and frequently the latter process costs more in the end than the former. It is not always wise economy to spend much on ordinary clothes, as the result is seldom good; it requires the exercise of some judgment to recognize what it will pay to alter—and many a girl prides herself on her economy who really is extravagant.

The wisest plan, when one is not wealthy, is to buy good things and then to wear them as they are without worrying as to whether they are exactly on the same pattern as one's neighbor's. Every woman is entitled to a style of her own and need not be as anxious as American women usually are to be precisely like every one else.

### Longer Skirts for Little Girls. BECOMING TO MANY.

This fashion of putting little girls into frocks that scarcely cover them came into vogue last year, and literally deformed the children who became the victims of it. This year the loose frocks are all about a full knee in length, and some still longer. In addition to the blouses and tunics there are many apron, or pinafore frock forms, a supply of which will keep the healthy romper looking fresh at all hours of the day, at a comparatively small outlay of labor or money. —Harper's Bazar.



It is now quite the fashion to dub all the good looking frocks that are not intended for balls and dinners as bridge frocks. The name is often misused.

Women who never play bridge wear the frocks by that name. We used to say "restaurant gown," and that name was amusingly used by women who rarely dined or supped out of their own houses.

The bridge frock, so called, is any kind of a gown that you may wear to a wedding, or an afternoon tea, or a informal dinner, or a party, if you do not wear your gowns low at the neck.

The name has jumped into popularity. Just as the men who never studied beyond the three R's wear college bands around their hats and girls who have never been on board a yacht wear the marine symbols on their sleeves, so women who do not know king from ace speak familiarly of their "bridge" frocks.

### Practical Laundry Bags. Trimming with Ball Fringe.

Attractive and practical laundry bags are made up from the common brown crash combined with cretonne, the latter preferably in tapestry designs. The upper parts—two-thirds—will be of the crash and the bottom of cretonne.

The tops have the hoop finish, and the soiled articles can be released from the bottom, so that such a bag is extremely handy.

Waste paper baskets to match may be bought which are made to fold. For vacation use, I am sure these accessories would prove very useful.

**Watery Eyes.**

To strengthen the eyes to prevent watering there is a lotion made of five grains each of sulphate of zinc and powdered alum to a gill of distilled water, or that which has been boiled and cooled. This should be bottled and shaken until the powders are dissolved. Then it must be strained through paper to take out any particles. The eyes may be bathed with this at night and once or twice during the day.

**A Word About Coats.**

Coats show a greater variety of style, and vary in length from the short hip jacket to the seven-eighths length. The tendency in all models is to slope away below the bust line, and have the back perceptibly longer than the front. Such coats are of all kinds of material, from plain wash linen to broadcloth and silk.

## HENS IN TENTS

BETTER FOR THE POULTRY AND EASIER FOR THE POULTRY KEEPER



New England has been responsible to a large degree for the plan of using cold poultry houses, which is being generally adopted all over the country.

Until a few years ago poultrymen everywhere believed that the warmer a henhouse could be kept the better the results would be. So the buildings were made as snug as possible, with close-fitting windows, tight doors, sometimes even with a stove to add more heat than that furnished by the bodies of the fowls.

Now this practice has been so far departed from by many New England poultrymen that muslin curtains have taken the place of glass windows, the doors are left open much of the time and no one is greatly concerned if a bushel or two of snow blows in.

Prof. G. M. Gowell of the Maine agricultural experiment station at Orono was the pioneer in the matter of exploiting the use of muslin curtains in place of glass, and the results of his experiments along this line have led hundreds of people to adopt his plan.

Prof. Gowell uses houses which have both glass windows and muslin curtains, the idea being to admit a generous amount both of light and air. He also uses curtains in front of the roosts, so that the birds sleep in what is practically a roosting closet. This curtain is so arranged that it can be raised and fastened up out of the way, and it is lowered only on cold nights.

It is a well-known fact that a square house affords a great deal more floor space than one which is long and narrow, and the Gowell houses are built with that thought in mind, so that the roosts are a considerable distance from the windows.

The birds confined in these houses have done remarkably well.

The cold house is just as well adapted to the needs of the amateur, the man with a small flock, as to those of the commercial poultryman.

F. W. Colby of Auburn, Me., has a new house for his flock of fine white and silver wyandottes which is on entirely up-to-date lines. It is 40 feet long, with double walls on the west and north sides. There is a pitched roof, covered with tarred paper. The sides are also covered with tarred paper. The front of the house is covered with common factory cotton at ten cents a yard, with a small glass window in each pen. Each pen has a roosting room with a curtain arrangement, to be closed at night when the weather is cold. Mr. Colby built this house himself, and says that the material and labor did not exceed \$70.

It has remained, however, for Prof. Charles K. Graham of the Connecticut agricultural college at Storrs to attempt the boldest experiment which has ever been made along the lines of fresh air quarters for laying hens.

Early last winter Prof. Graham secured a common tent of the A type and fastened it securely to the ground, so that the strong winds which blow over the hill at Storrs would not be

able to yank it up, and in the tent he installed a small flock of white leghorn fowls, headed by a proud and handsome cock bird.

As all people familiar with poultry know, the leghorns have very long combs. The cock especially has a particularly large and showy appendage of this character, as well as heavy wattles. This fact led Prof. Graham to select birds of the leghorn breed for his experiment.

The winter passed and the little flock of leghorns were still living in the tent and not a single comb had been frosted, although there were several exceedingly cold nights.

Any one who may consider this apparent exposure of the flock to the cold as being cruel will be interested to know that on several occasions the thermometer showed that the temperature was lower in some of the closed houses than in the tent. Moreover, the combs of the fowls in one of the regulation houses were touched by frost during a cold snap in February, but the happy little flock in the tent escaped without any misfortune of this character.

The ground in the tent is covered with straw for the birds to scratch in. There is a box for a nest and a low roost for the birds to use at night. During the daytime the flock is allowed to run outside.

This experiment has excited no little interest among people interested in poultry.

The plan of using muslin curtains instead of glass in poultry houses is finding so much favor that it is being experimented with all over New England. Dealers in poultry supplies now sell oiled muslin, to be used for this purpose, by the yard. It is by no means necessary to use oiled muslin, however, for that which has not been coated with oil serves just as well, although it is not quite so durable.

It is a surprising fact, but one which has been repeatedly tested, that the temperature in a building the windows of which are covered with muslin is only two to four degrees colder than one in which glass is used, and that the temperature really seems warmer, because the air contains less moisture.

In houses which are kept tightly closed moisture often forms on the inside walls and renders the house damp, the result being that the fowls develop colds and are attacked with roup.

As a rule, there is much less sickness in a flock of poultry housed in quarters which are ventilated by means of cloth windows. Of course, less light is admitted through cloth than through glass, and it is well to have one glass window, although it is the usual practice to raise the muslin curtain during the day, allowing the air to enter freely. The opening should be high enough so that the wind will not blow directly on the birds.

A number of dairymen are now experimenting with muslin windows in their barns, and satisfactory reports on this experiment are being made.

## Syrup of Figs and Elixir of Senna

acts gently yet promptly on the bowels, cleanses the system effectually, assists one in overcoming habitual constipation permanently. To get its beneficial effects buy the genuine.

Manufactured by the CALIFORNIA FIG SYRUP CO. SOLD BY LEADING DRUGGISTS—50¢ per BOTTLE

### HER DESTINATION IN DOUBT.

Little Girl's Remark Not Complimentary to Grandma.

Ethel is of the mature age of five. Recently her grandmother concluded that it devolved on her to instruct the child in religious matters.

"You must be a good girl, Ethel," she said. "Then you will go to heaven when you die."

Ethel seemed scarcely pleased with this reward for exceptional conduct.

"Don't you want to go to heaven?" asked grandma, with a look of reproach.

"Oh, I don't know," temporized Ethel. "I guess not."

"Why not?" demanded grandma, severely.

"Because maybe I couldn't get out," answered Ethel.

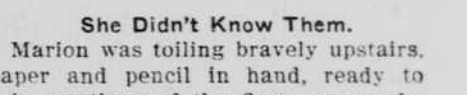
"You wouldn't want to get out," replied grandma.

"Oh, yes, I should," returned Ethel, with conviction.

"No," argued grandma, "you would not. Why should you want to get out of heaven?"

"Why," answered Ethel, "I guess I'd want to go and see you once in a while, wouldn't I?"—Woman's Home Companion.

### FAMILIAR PHRASE.



"He paused for a moment's reflection."

### She Didn't Know Them.

Marion was toiling bravely upstairs, paper and pencil in hand, ready to ask questions of the first person she chanced upon. Being just six, she was of the "inquiring" age, and thereupon endeavored to make every one's life a burden to them.

The first person she met was Bridget, the upstairs girl. "Bridget," she lisped, "please give me the letters in the alphabet." Bridget repeated them slowly and impressively. "And now, Bridget," the child went on, "I want the letters that are not in the alphabet." Bridget was thoughtful for a moment. "Bless me soul, darlin' child," she answered, "I don't know them."

### How It Works.

Once there was a struggling young author who was blest with many friends, all of whom told him that he was the coming great writer of the century.

So one day a bright thought struck him. He said: "I will publish my book, and all my friends who admire it so much will buy my book, and I will be rich."

So he printed his book.

And all of his friends waited for him to send them autographed copies of his book.

And so his books were sold as junk. And ever after he didn't have any friends.—Success.

### "TWO TOPERS."

A Teacher's Experience.

"My friends call me 'The Postum Preacher,'" writes a Minn. school teacher, "because I preach the gospel of Postum everywhere I go, and have been the means of liberating many 'coffee-pot slaves.'"

"I don't care what they call me so long as I can help others to see what they lose by sticking to coffee, and can show them the way to steady nerves, clear brain and general good health by using Postum."

"While a school girl I drank coffee and had fits of trembling and went through a siege of nervous prostration, which took me three years to rally from."

"Mother coaxed me to use Postum, but I thought coffee would give me strength. So things went, and when I married I found my husband and I were both coffee toppers, and I can sympathize with a drunkard who tries to leave off his cups."

"At last in sheer desperation I bought a package of Postum, followed directions about boiling it, served it with good cream, and asked my husband how he liked the coffee."

"We each drank three cups apiece, and what a satisfied feeling it left. Our conversion has lasted several years and will continue as long as we live, for it has made us new—nerves are steady, appetites good, sleep sound and refreshing."

"There's a Reason." Name given by Postum Co., Battle Creek, Mich. Read "The Road to Wellville" in pgs.

Ever read the above letter? A new one appears from time to time. They are genuine, true, and full of human interest.

## SCIENTISTS AT A LOSS.

Wise Men Unable to Solve Profound Mysteries of Sleep.

The Austrian Academy of Medicine has collected for some time past reports dealing with the things people do in their sleep, with a view to solving, if possible, the mysteries of sleep itself. Among the reports are the following:

A locomotive engineer guiding his engine while fast asleep.

Soldiers falling asleep while marching.

Bicyclists continuing to pedal for a considerable distance after falling asleep.

Galen, the famous physician, walking a distance of nearly 700 feet in his sleep and awakening only when he stubbed his toe against a stone.

A lawyer writing a plea of defense in his sleep and filing it away among his papers. He remembered next morning what he had done, but didn't know where he had pigeonholed the manuscript. Fortunately his wife observed his performances in his sleep.

Hungarian count saddling his horse in his sleep and riding a couple of miles before he was overtaken by a groom sent after him. He was fast asleep when found on the road, the horse nibbling at the grass growing by the wayside.

A student of chemistry at the Vienna university, who made difficult translations from Italian and French scientific books, sometimes consulting the dictionary while fast asleep.

After considering the above phenomena the academy is obliged to say that the problem of sleep is as mysterious as ever.

**An Age of Architects.**

In a comparison of the eighteenth century with the nineteenth century from an architectural point of view one can hardly help being struck with the fact, amounting almost to a paradox, that while the former was an age of great architecture the latter was one of great architects.—The Builder.