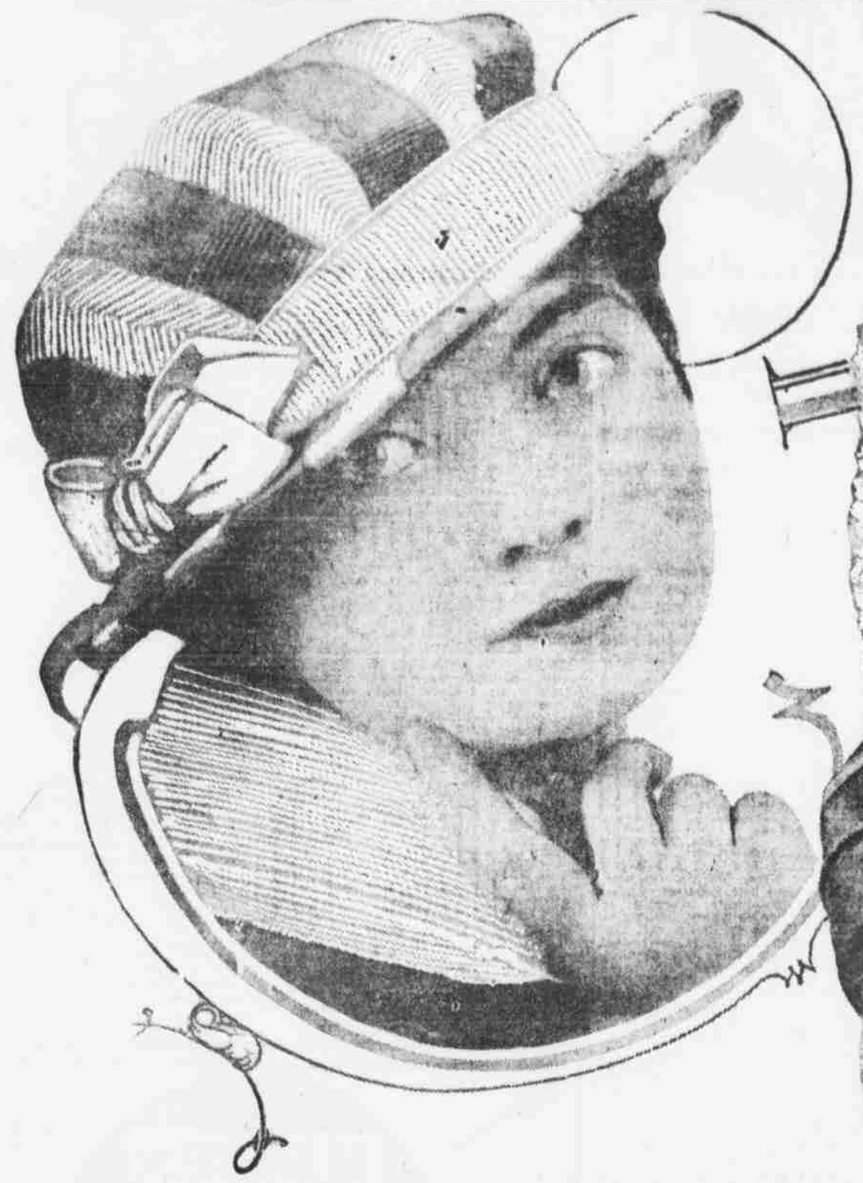
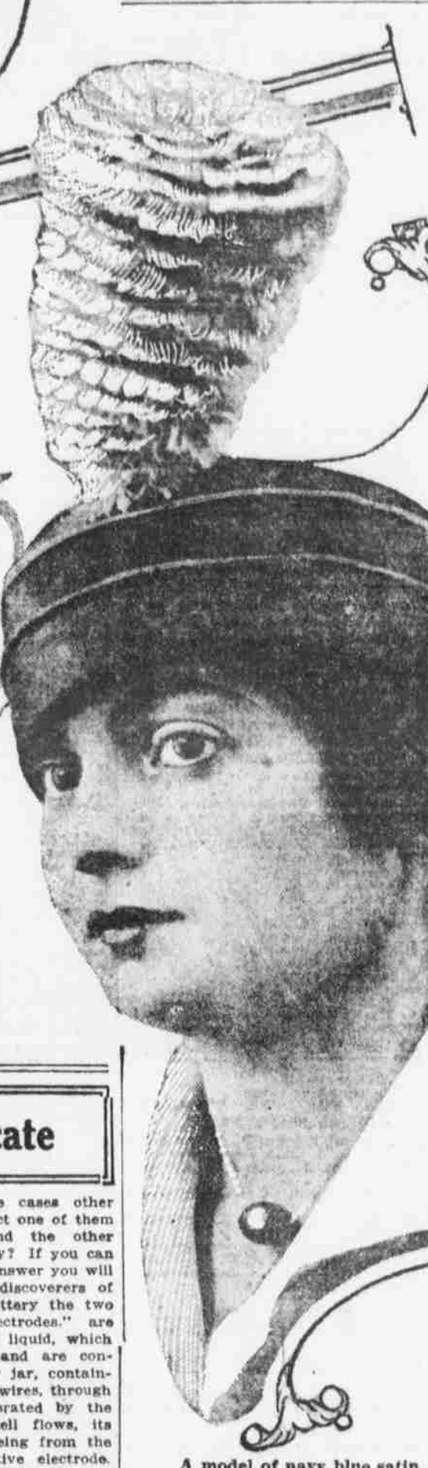
The Bee's Home Magazine Page

The Very Latest Word in Hats!

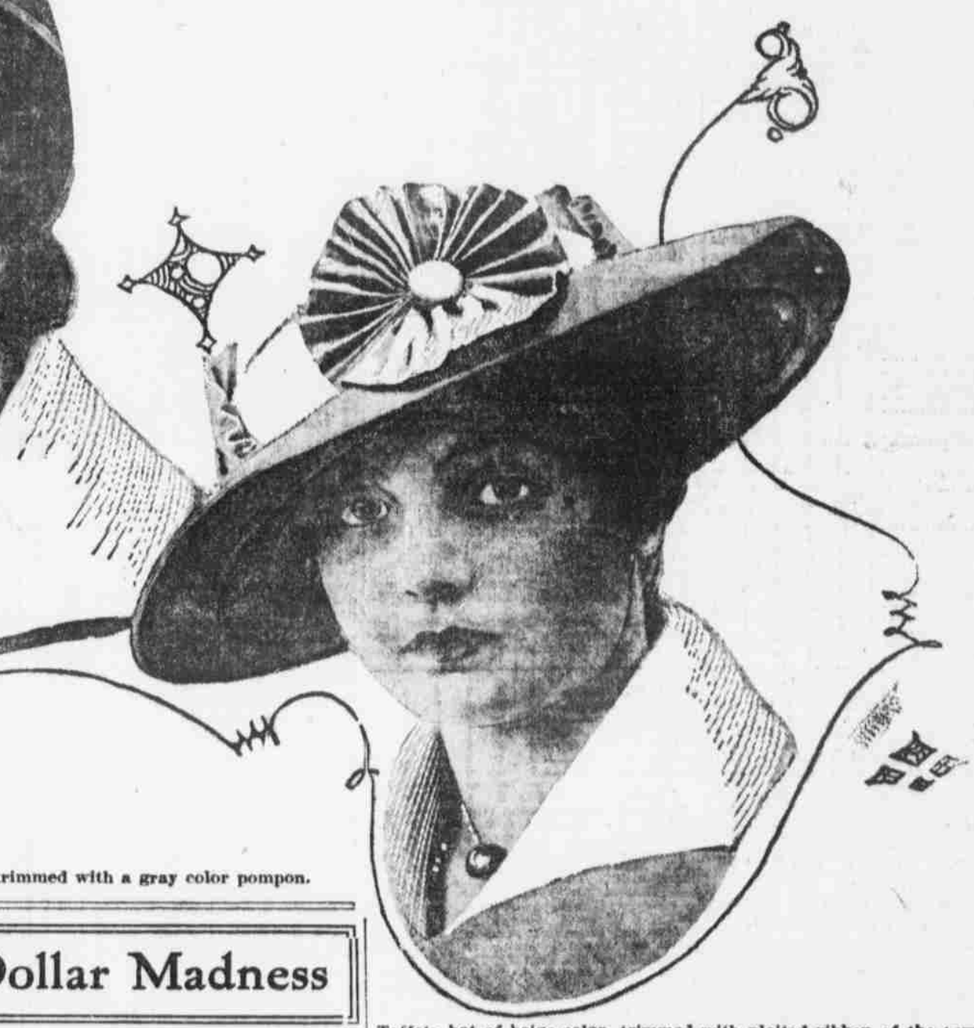
They Are Extremely Simple, All of Them, but with an Air of Parisian Smartness



This hat is of ribbed gray and white satin.



A model of navy blue satin, trimmed with a gray color pompon.



Taffeta hat of beige color, trimmed with plaited ribbon of the same color.

Science for Workers

By Edgar Lucien Larkin, Director of Lowe Observatory

By EDGAR LUCIEN LARKIN.

Question—Have the distances of any other stars from the earth been measured besides the one that requires light four years to reach us?—Carlos G. Adae, 1 Union Square, New York.

Answer—Yes, quite a number approximately. Here is a table giving the distances of a number of the brighter stars in light years:

Names of Stars—	Distances in Light Years.
Alpha Centauri	4.35
Sirius	8.70
Procton	10.16
Altair	13.70
Fomalhaut	22.60
Vega	34.70
Arcturus	43.50
Aldebaran	44.70
Capella	50.00
Pollux	60.00
Regulus	99.00
Beteigeuse	109.00
Antares	112.00
Canopus	490.00
Rigel	466.00
Denebola	500.00
Spica	500.00

The term light year is the distance traversed by light in free space during one sidereal year. The number of seconds in a sideral or star year is 31,558,149, and the set specific speed of light is 186,380 miles per second. Go multiply these numbers together and the product will be miles per year.

These distances above 100 light years are liable to error of at least 10 per centum. Select fifty skilled mechanics from as many workshops; let them measure the diameter of a spider's thread and their mistakes will be at least 10 per centum. And this degree of accuracy is that required by astronomers in measuring the distances of stars of from 100 to 500 light years. That is, their base line—the distance of the earth from the sun—93,000,000 miles, as seen by an observer stationed at those stars, appears to be equal to the diameter of a spider's thread, fiber of silk, thinnest platinum wire or very fine hair. Estimates of the brightness have been made thus: Of Canopus, 10,000; Procyon, 4,000; Spica, 2,000; Beteigeuse, 1,400; Rigel, 230; Fomalhaut, twenty-five times that of our sun. Thus our sun is one of the smaller and less brilliant stars.

There are hundreds of millions of suns in the Milky Way; some may be and doubtless are larger than Canopus. And their light may require 1,000, 5,000, 10,000 or even up to 50,000 years to speed over their mighty distances. This cannot be proved, however, because no magnifying power that can be made by man could hope to see the radius of the earth's orbit, or a line 93,000,000 miles long, from the Milky Way.

Question—Are distant stars which shine by their own light visible only, or are worlds like our earth visible by reflected light?—Same.

Answer—Go out to Neptune, our own last local world, in our modest solar system; turn around, look back this way; then you must have a large telescope to see the earth. Only the sun of all bodies in our solar system is visible from space deeps. And it looks like the point of the finest sewing needle from stellar distances. Thus only suns at terrific heat are visible in any telescope, even the largest that can be made. Then all worlds are invisible and unknown. The earth and man are both totally unknown to people on worlds revolving around any of the hundreds of millions of other suns, if there are such worlds and inhabitants.

Imagine that the are 1,000,000,000 suns, each surrounded by eight worlds like those revolving now around our sun. Then, if an accident suddenly annihilated the 8,000,000,000 worlds, people and all, the accident could not even be noticed; the suns would all move on with such velocities in between four an eighty miles per second, precisely as if there had been no accident. Thus, if there are intelligences in the depths of the sidereal universe, they have not heard of man, nor his infinitesimal world—the earth.

Question—Can the diamond be destroyed by intense heat?—A Bronx Subscriber, 419 East One Hundred and Thirty-seventh street, New York, July 8, 1914.

Answer—Yes. Any substance known can be vaporized in the fierce heat of the electric furnace. The word "destroyed" should not have been used; diamond is chemically pure carbon; that is, lampblack. And the same quantity still exists after the diamond has vanished. Man is now able to destroy the form of all matter known to chemists; that is, matter disappears as matter, only to resolve back into its primordial electrons. These are pure electricity and nothing else exists. These man cannot create nor destroy. All that any human can create is a thought that had not been created before. But this is a theory, for all thoughts may be eternal. But here one must stop, for our minds cannot think of the meaning of the word eternal.

Question—What is light?—C. R. L., Phoenix, Ariz.

Answer—I do not know. My theory is that it is a rush of electrons.

Lightning Generation and Its Scientific Duplicate

By GARRETT P. SERVISS.

"May I request answers to the following questions, or theories, as near as possible?

"If lightning is supposed to be caused by friction of air with magnetism of earth, also the dynamo supposed to be friction of air in its cutting of lines of force between magnetic poles, what action takes place in our chemical stationary wet and dry batteries that causes a current of electricity to act without friction of air?

Alta, Ill. "E. O. P."

Lightning is due to the violent discharge of electricity, accumulated at a high potential on the surface of clouds. This atmospheric electricity is believed to be generated partly by the evaporation of water whose rising vapor forms the clouds, and partly by the friction of the vapor-laden air against the ground, trees, hills, buildings and other objects with which the wind brings it in contact.

Its accumulation into giant charges capable of producing lightning flashes is a very interesting process. Each of the multitude of vapor particles which gather to make a cloud possesses its share of electricity, which collects as a slight charge on the surface of the particle. As the cloud thickens the particles of charged vapor begin to coalesce into larger drops. Just then a great geometric principle, with which everybody ought to be familiar, comes into play.

If two globular bodies combine to form a single globe, the surface of this one will be smaller in area than the combined surfaces of the original two, notwithstanding the fact that it contains the same amount of matter. This is so because the volumes, or total contents, of bodies vary as the cubes of their diameters, while their surfaces vary only as the squares.

This principle applies to the particles of vapor combining to form little drops in the cloud. If two or three such particles unite into a single drop each of them will contribute its charge of electricity to the drop, but the surface to be covered by the united charges will be smaller than when the particles were separate. In consequence, the density of the electric charge on the combined drop will be greater than it was on each of the constituent particles. In other words, the electric potential will be higher because the same amount of electricity is now accumulated on a smaller area.

But when the potential of an electric charge is raised it strains, so to speak, to break away from the surface on which it is confined, and the higher the potential the greater the strain.

The first drops grow rapidly larger by attracting others, and every new influx of particles brings an increasing quantity of electricity together on a continually diminishing amount of surface. This process alone might produce an electric potential sufficiently intense to cause a discharge of lightning from a cloud of high potential to another having a lower potential. But in preparing the great phenomena of thunderstorms nature calls an additional process into play.

As a charged cloud is driven along by the wind it acts by induction upon the surface of the earth beneath, and the latter becomes negatively electrified while the cloud carries a positive charge. Then the electrified earth reacts inductively upon the cloud, and so again increases its potential. In this way the accumulation of electric energy on a thundercloud may become so enormous that it bursts across miles of intervening air and falls in a thunderbolt upon a tree, a rock, a house, or some other exposed and prominent object on the earth.

In a dynamo the electricity is generated by the movement of an electro-magnet across the lines of force in a magnetic field. Millions of such lines curve, invisible, through the space enveloping the poles of every magnet, and when cut by an electro-magnet moving bodily among them, they generate a series of currents in the coils of the electro-magnet. These currents flow alternately in opposite directions, but by certain devices can be combined into a current passing away from the dynamo in one direction. The real source of the electrical power of a dynamo is the mechanical power employed to keep the electro-magnet moving in the magnetic field. The mechanical energy is changed into electrical energy by the inductive effects of the magnetic field. Thus magnetism can generate electricity and electricity can generate magnetism. Such are the facts; exactly why they are so no man can yet say.

The current of electricity that flows from a wet, or "dry," battery owes its origin to a still different cause. It is generated by chemical action. It is based upon the fact that when two different metals, or in some cases other solids, are placed in contact one of them becomes positively and the other negatively electrified. Why? If you can give the sure and certain answer you will be numbered with great discoverers of nature's secrets. In a battery the two different metals, or "electrodes," are immersed in an acidulated liquid, which facilitates the operation, and are connected outside the cell, or jar, containing the liquid by means of wires, through which the electricity generated by the chemical action in the cell flows, its direction inside the cell being from the positive toward the negative electrode. The nature of the metals used determines which will act as positive and which as negative pole in the battery. The negative pole, or electrode, for which zinc is generally used, wastes away, and this isregarded as the source of energy that keeps the current flowing. As Prof. Sylvanus Thompson puts it:

"The zinc is the fuel, the acid is the aliment, while the copper (the positive pole) is merely a metallic hand let down into the cell to pick up the current."

The electricity generated in all these different ways is essentially the same thing, and that thing is both infinitely useful and infinitely incomprehensible to man. But, fortunately, he can easily understand many of its moods, and it submits to his management, if he is not too impertinent, like a good natured horse.

Household Hints

Prevent a steamed pudding from becoming heavy by putting a cloth over the steamer before placing the lid on. This prevents the moisture from settling and making the pudding heavy.

Vegetable and fruit stains on the fingers can be removed by dipping the fingers in very strong tea for a few minutes and then washing them in clear, warm water.

Dissolve a lump of soda in a little hot water and add it to the blue water. This prevents the blue from settling in the clothes, and makes them beautifully white.

If you boil hooks and eyes in strong soda water before sewing them on garments it will prevent their iron-moulding in the wash.

A tiny pinch of carbonate of soda or salt added to milk as soon as it arrives will help to preserve it from turning sour.

A teaspoonful of lemon juice in a small cup of black coffee is a safe remedy for bilious headache.

To remove rings from a finger swollen by their tightness, dip the finger in ice-cold soapsuds.

Vinegar heated to the boiling point will soften dry and hard paint brushes.

To drive away crickets put ordinary snuff into the chinks of a fireplace.

To prevent milk from turning sour, drop into it a piece of loaf sugar.

Beware of Dollar Madness

By ADA PATTERSON.

The dispatches have told us that a prisoner newly incarcerated in a famous prison burst into tears when he heard a passing procession of college boys sing in fresh young voices "Bright Sunshine of Other Days."

He had been sentenced to a short term for fraud. The justice before whom he was tried made the term a short one because in his opinion there were mitigating circumstances. The prisoner was suffering from dollar madness and in his delirium ignorantly, perhaps, he had transgressed the law. His name was a celebrated one. Until now its splendor had not been dimmed. Its brilliance would not have faded had not the world malady which reaches its acutest form in this country, seized him.

I knew him in the latter days of his pre-disgrace period. He was grave of voice and gentle of manner, a bit disposed to brooding and the brooding it could be inferred from his mood, was not on pleasant things. A veil of sullenness often enwrapt him. His thought life, the most important part of the life of any of us, was one of continual protest. He complained that his profession was not a lucrative one. Once to prove his bitter contention he offered to give a dinner to every member of it in the United States who earned more than $5,000 a year. He was in the first stage of dollar madness, a profound dissatisfaction with his earnings.

One day I received a golden worded essay with his name attached. It came by mail, and I at first thought it a contribution to my shelf of friends' books. Study of it revealed the writer's limpid style and richness of imagery, but when I had reached the last page it was evident that it hadn't gotten anywhere. Nowhere but to promise another installment. The other installment promised early wealth if I would embark in the enterprise endorsed by the shining name. Fortunately I didn't embark. I understand that repentant thousands did.

Doubtless at the time he wrote that alluring pamphlet the writer believed in its promises. The power of calm judgment having deserted him, he dreamed that there was a pot of gold at the foot of the commercial rainbow. With passing months doubt must have unfolded. But he fought it down with this hope of gold. Weary of the details and routine of his profession, he foresaw ease and leisure and freedom from what had been termed "the great misgiving" which torments many men, the fear that they will be inadequate to the task of providing all the necessaries and comforts and a few luxuries for their families. The dollar madness grew in him.

While the fever was at its height he did mad things. The sheen of the metal blinded him to the image of truth. It obscured justice. It eclipsed his once high conception of the rights and possessions of others. Then came a cold-eyed and icy-voiced surgeon, skilled in mental and moral disease, wearing the livery of a district attorney, who diagnosed and placed him in prison to recover.

Life that is not a madness, an obsession, is a mosaic made up of many parts. There's a bit of the blue of true love, there's the white of an unstained ideal, the rose color of a favorite pastime. With a dollar dominator, who was not yet dollar mad, the favorite pastime was a love of arts which has enriched the world. In the normal life there is present the gray of duty, the sparse crimson of an occasional vivifying joy, and a bit of gold, the bit of gold is relatively a small part. If the mosaic were all gold it would not be a work of art, but a cubist painter's portrayal of dollar madness.

And So It Is.

A minister who guarded his morning study hour very carefully told the new maid that in no circumstances were callers to be admitted—except, of course, he added, in case of life and death.

Half an hour later the maid knocked at his door.

"A gentleman to see you, sir."

"Why, I thought I told yo ——"

"Yes, I told him," she replied; "but he says it's a question of life and death."

So he went downstairs—and found an insurance agent.

Advice to Lovelorn

By BEATRICE FAIRFAX

Man Who Takes the Girl's Money

Dear Miss Fairfax: I am 21 years of age and have been keeping company with a young man two years by senior for one year. I have found out during the time I have gone with him that he has a habit of telling untruths. He is unemployed at present and has no trade, but says that with the aid of a few hundred dollars he could make a success. He has asked me to lend him this amount. Would you advise me to lend this hard earned money or give him up, as we are not engaged. I do not think him capable of earning a good living before three or four years. Would you advise me to wait?

U. B. B. C.

The man who takes a girl's money is generally a poor, weak creature who is not worthy of love or admiration. Before lending your fiance your little hoard, consult your father or some male relative whose judgment is sound. A man of 23 years ought to be able to make his way without the financial aid of a woman.

Wear Black.

Dear Miss Fairfax: Please tell me if it is wrong for me to wear a white waist and a black skirt when I am in mourning for my father? Or if it is wrong for me to go to the moving pictures.

A READER.

Black is the universal mourning costume and should not be broken until the mourning period is nearly at an end. It is not out of place to quietly attend places of amusement after a decent length of time has elapsed since the death of a near relative, father or mother. The point is one to be decided by yourself.

Let Him Alone.

Dear Miss Fairfax: I am 15 years old and deeply in love with an 18-year-old boy whom I would like very much to go with. He took me home from a party one night and when I refused to kiss him good night he became offended. Since then he has not spoken to me. What shall I do to gain his friendship, as I value it very much? LONESOME.

You did right to refuse to kiss him. Save your kisses for the man who is some day going to be your husband, and I feel sure this is not the man. Do not try to win him; keep your self-respect and let him make the advances. No girl can never afford to surrender when she is in the right and you are so far. And put all thoughts of love and marriage out of your head for the next eight years.

THE OMAHA BEE—
THE HOME PAPER.