

The Bee's Home Magazine Page

Mystery of the Diamond

GARRETT P. SERVISS.

"Your romance of the Koh-i-noor was very interesting, so I am asking you to write more on the diamond. I have heard that carbon is charcoal and diamond is carbon. Then, could a piece of charcoal turn to diamond? What would make it turn? Is the yellowish diamond more valuable than the kind that reflects all colors? And what about white diamonds? Is it true that diamonds have been found in meteors, or fallen stars? What kind is generally found in them? What kinds of metals are found in meteors?—Miss M. V. H., Plainfield."



To answer your question I must try to lift the curtain that hides one of the greatest of nature's mysteries. No man has ever yet been able to see clearly what lies behind that curtain or completely to explain it, but the glimpse that we can get is of fascinating interest. One must approach these things with the open mind of a little child, content with facts alone where reasons cannot be had.

One of the simple facts that we must accept to begin with is this: Carbon, one of the seventy or eighty primary elements out of which all matter is formed, occurs, pure, in two entirely different and contrasted forms. These are, first, diamond; second, graphite or plum-ago (pencil lead). If each of these substances was a compound, or mixture of different elements, comprising in both cases carbon as the principal constituent, there would be no cause for mystification. But they are absolutely the same unaltered thing, although in appearance and in properties they are totally unlike.

The molecules of each are the same—they are molecules of carbon, and not otherwise—but, in one the molecules are so arranged that they form a transparent, so-called diamond, and in the other they are so arranged that they form a dark, soft, black or gray, substance, that leaves a dirty streak when rubbed upon paper.

The secret lies within them—it is in the internal play of the molecular forces—but what makes those forces act so differently when they work upon the same material is the work upon it. Burn a diamond and it turns to graphite.

Charcoal is a third form of carbon, ordinarily produced by the charring of wood, whereby all the other elements contained in the wood are removed, leaving the carbon in the form of a soft, black substance which, in some ways, resembles graphite.

Charcoal and a few similar substances are called amorphous, or "shapeless" carbon, because they are never crystallized, as diamond always, and graphite sometimes is. Yet charcoal, too, has the royal diamond blood. That blood sometimes sits on the throne and sometimes slits in the mine but, despite the turns of chance below, it is always itself. The proof of this statement forms an answer to your second question.

Yes, charcoal can turn to diamond, and the things that make it turn are great heat combined with great pressure. Here, in outline, is the process, as it has been performed in laboratories, especially by the French chemist, Moissan: Into a mass of molten iron a quantity of pure charcoal is put. Then the liquid iron, which dissolves the charcoal very much as water dissolves sugar, is placed in an electric furnace and heated to a temperature of nearly 5,000 degrees Fahrenheit. Immediately it is plunged into cold water in order to cause a quick cooling.

The result of the sudden cooling is the formation of a solidified shell on the surface of the iron which powerfully compresses the interior part, when it, in turn, cools and tries to expand. The result of this compression is to force the imprisoned carbon (charcoal) to crystallize into diamond. If the molten iron is allowed to cool at ordinary pressure the charcoal only turns to graphite. So we see that the magic wand whose touch makes diamond of what would otherwise be mere dull pencil lead is the wand of high pressure.

It is believed that this is substantially the way in which nature itself makes diamonds. In the great diamond mines of South Africa there is evidence that the gems were formed in the bowels of

ancient, and long since extinct, volcanoes, where, of course, both intense heat and enormous pressure were available in unlimited quantities. But nature, in its huge volcanic laboratories, works on a scale which we cannot imitate, so that there is no cause for surprise in the fact that while it can make diamonds as big as walnuts when it chooses, we can make none even as big as a pin's head. The largest artificial diamond is less than a millimeter in diameter. But it is genuine diamond, and with that fact to start with, who can say what may be done, some day?

There are a number of meteors which have fallen upon the earth from outer space that contain microscopic diamonds, resembling the artificial ones. None of them is large enough to be of any importance except as scientific curiosities, but as such they fill the mind with wonder. Where and how were they created—in what world or what star?

The principal metals found in meteors are iron and nickel, with occasional traces of cobalt, copper, aluminum, tin, magnesium.

In regard to the relative values of diamonds of different colors, it may be said, generally, that the perfectly transparent, uncolored stones, which show no hues except those produced by refraction, stand at the head. Sometimes a tinted gem, if possessing extraordinary "fire," and of considerable size, may excel in value. The Russian crown, for instance, has a deep red diamond, which, because of its rarity, is very highly valued.

Heavens in November..

By WILLIAM F. RIGGE, S. J.

There is nothing of special interest transpiring this month. The days shorten an hour during the month, being ten hours and twenty-five minutes long on the 1st, nine hours fifty-three minutes on the 15th and nine hours twenty-five minutes on the 30th. The standard time of the rising, meridian passage or setting, and of the sun and moon at Omaha during the month, are given in the following table:

SUN.			MOON.				
Time.	North.	South.	Time.	North.	South.		
11 52	12 40	21	Mon.	12 24	7 27	2 18	1
11 53	12 40	20	Tue.	1 32	8 12	2 42	2
11 54	12 40	19	Wed.	2 38	8 57	3 06	3
11 55	12 40	18	Thu.	3 43	9 42	3 29	4
11 56	12 40	17	Fri.	4 47	10 27	3 52	5
11 57	12 40	16	Sat.	5 51	11 12	4 15	6
11 58	12 40	15	Sun.	6 54	11 57	4 38	7
11 59	12 40	14	Mon.	7 57	12 42	5 01	8
12 00	12 40	13	Tue.	8 59	1 27	5 24	9
12 01	12 40	12	Wed.	10 00	2 12	5 47	10
12 02	12 40	11	Thu.	11 01	2 57	6 10	11
12 03	12 40	10	Fri.	12 02	3 42	6 33	12
12 04	12 40	9	Sat.	1 03	4 27	6 56	13
12 05	12 40	8	Sun.	2 04	5 12	7 19	14
12 06	12 40	7	Mon.	3 05	5 57	7 42	15
12 07	12 40	6	Tue.	4 06	6 42	8 05	16
12 08	12 40	5	Wed.	5 07	7 27	8 28	17
12 09	12 40	4	Thu.	6 08	8 12	8 51	18
12 10	12 40	3	Fri.	7 09	8 57	9 14	19
12 11	12 40	2	Sat.	8 10	9 42	9 37	20
12 12	12 40	1	Sun.	9 11	10 27	10 00	21
12 13	12 40	0	Mon.	10 12	11 12	10 23	22
12 14	12 40	0	Tue.	11 13	11 57	10 46	23
12 15	12 40	0	Wed.	12 14	12 42	11 09	24
12 16	12 40	0	Thu.	1 15	1 27	11 32	25
12 17	12 40	0	Fri.	2 16	2 12	11 55	26
12 18	12 40	0	Sat.	3 17	2 57	12 18	27
12 19	12 40	0	Sun.	4 18	3 42	12 41	28
12 20	12 40	0	Mon.	5 19	4 27	1 04	29
12 21	12 40	0	Tue.	6 20	5 12	1 27	30
12 22	12 40	0	Wed.	7 21	5 57	2 00	1
12 23	12 40	0	Thu.	8 22	6 42	2 23	2
12 24	12 40	0	Fri.	9 23	7 27	2 46	3
12 25	12 40	0	Sat.	10 24	8 12	3 09	4
12 26	12 40	0	Sun.	11 25	8 57	3 32	5
12 27	12 40	0	Mon.	12 26	9 42	3 55	6
12 28	12 40	0	Tue.	1 27	10 27	4 18	7
12 29	12 40	0	Wed.	2 28	11 12	4 41	8
12 30	12 40	0	Thu.	3 29	11 57	5 04	9
12 31	12 40	0	Fri.	4 30	12 42	5 27	10

The dot or period between the hours and minutes indicates p. m. times. The times not so marked are a. m. The sun is fast the whole month on sundial time, the exact amount in minutes being found by subtracting from twenty-four the minutes given after twelve in the "moon" column. From the 1st to the 6th the sun is at its earliest of the whole year, being only seven minutes slow of standard time, which last is always twenty-four minutes fast of local time. The sun enters Sagittarius on the 23d. The moon is new on the 7th at 1:32 a. m., in first quarter on the 15th at 5:03 p. m., full on the 23d at 11:36 a. m., and in the last quarter on the 31st, at 4:19 p. m. It is in conjunction with Venus on the 5th, Jupiter on the 15th, Saturn on the 25th and Mars on the 28th. Venus is becoming conspicuous in the evening sky in the southwest. In Europe it will surely be taken for a Zeppelin. Mars rises on the 15th at 8:14 p. m., sets at 8:28 p. m., Jupiter is south at 8:19 p. m., and is in fine position for observation.

Crichton Observatory. Omaha, Neb.

I Know a Girl There! *

No. 5 Los Angeles

By Nell Brinkley

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The big blond chap with the cross-cropped head like rough pluck to the fingers, the very blue eyes, and blue socks to match, smiles over his nuts and cheese to the brown-eyed chap with the rebellious lock of dark hair that defies cropping and shadows one eye, and says he: "Oh, Los Angeles! Oh, yes, I know a girl there!" And so that is Los Angeles—the definition of a certain type of girl. Me, myself, who am now far away from my beloved South-West land, I always see the sea-girl when I think Los Angeles. The girl who dines and walks through the streets is not the type. The true girl of the palmy, dreamy city of Angeles is always, to my mind, in the sea or just out of it, or walking its sands in flat-heels and bare head yearning for it. A gay, small person she is—even when she's a blonde, a tone or two darker

than the far-East girl—glad of eye, adroit of body, dreaming under a scarlet beach umbrella, racing the sun-washed sand, tossing a medicine ball, flying into the surf with a daring glare, coming up laughing like a sea-witch, putting out to sea with a long, sure stroke, playing with the sea as a delighted bird does his shallow garden bath! She may be busy sometimes—surely I know she is—but somehow I see her always a gayly-colored sea-anemone who does not "spin!"

Here's to all of her—trooping the sands—where the indigo and jade water of the matchless Pacific rolls sweetly in, in swimming suit of knit green and orange and royal blue and scarlet, like bizarre sea-flowers on graceful silken stems, with little life-guard caps with their pompons of woolly white!—NELL BRINKLEY.

Too Much Class System in America

Snobbishness, Conceit and Arrogance Encouraged by College Societies and Other Organizations—Many Deserving Persons Forced to Endure Needless Suffering.

By ELLA WHEELER WILCOX.

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We Americans talk much of the abominable class system which prevails in Oriental countries to a great degree and to an equal degree in all European countries. We decry it and declare it unchristian. Nevertheless, all over America, a similar condition of things exists wherever there is a college or university.



College societies cultivate snobbishness, unkindness, conceit, intolerance and a great many other vices which mar the lives of men and women. A woman who is the mother of two exceptionally beautiful and gifted daughters, now in college, writes feelingly on this subject.

Her girls do not possess worldly wealth, but they possess all other qualities which should make them desirable associates. The members of this college society have not hesitated to hurt and to humiliate these girls.

After speaking of the mental, spiritual and physical charms of her daughters who have been so humiliated, the mother says: "Take the opposite type of girl for an example of those who belong to this society. Their parents are affluent, even wealthy, in some instances so wealthy that the conversation of the girls is adorned with references to the number of servants they keep, the number of their automobiles and other similar possessions. They think of and consider no one but themselves. They can stab girls like mine to their sensitive souls and never give it a thought. They seem to actually enjoy this cruel demonstration of their petty power.

"My girls have almost perfect dispositions and a natural instinct to obey the golden rule. They are incapable of hatred, envy or malice, but they can suffer, and they have suffered, through the slights they have received from their schoolmates, who belong to this so-called high order of college society."

This is but one of similar cases which exist everywhere in America where colleges societies exist. It is the same with men's colleges. False ideals of life, false standards, result from such societies. Teachers and professors do nothing whatever toward correcting the evils and the unjust conditions emanating from these college associations.

Because the members of these societies are usually young men and young women of wealthy parents and of financial, social or political power, no effort is made to change or better their methods. It is the old story of the power of might over right. The teacher, even the president of a college, who undertook to reform a college society and to make it democratic and humanely American in accordance with the early ideas of what American standards should be would soon find himself asked to resign.

As our country grows older and richer these evils grow more pronounced. It is useless for worthy young men and women to rebel against the tyranny of college class societies. They must simply reach a higher moral outlook and realize how small and petty a thing membership in any society is when compared with the one great purpose of life, that of character-building.

The greatest, the most successful, the most useful, the most admirable people in our nation today have not, as a rule, shone in their youth as leaders in college class societies.

Many who shone twenty years ago, and who adopted the airs of snobs toward those who were not members of the organization, would today gladly exchange places with those same snubbed classmates. It is to be understood, of course, that many excellent, kind-hearted and decently behaved young men and women belong to college societies; but it is also to be understood and emphasized that the general tenor of these societies is toward un-American standards and un-Christian conduct toward their fellow students.

It is very much like the military spirit abroad of officers toward the rank and file. Detestable, if not to use a stronger word beginning with the same first letter.

Life's Honor System

By BEATRICE FAIRFAX.

Several years ago one of the best-known women writers in the country had a class in literary criticism at the college I attended. On the day of examination she appeared before her class of thirty women, read aloud ten examination questions, and then remarked: "It is now 2 o'clock. I shall be here to receive your examination papers at 5. You are at liberty to go anywhere you like to answer the questions. I shall, of course, trust you neither to communicate with one another nor to consult any books of reference."

I think there was not a girl in that class who would have cheated, even if her college degree had depended entirely upon her passing that examination with honors. The important thing was to pass it with honor.

Would you like to know how that college examination was conducted. Some of us stayed in the room where it had been given out, and quietly and silently set about putting down what we knew on the subject of literary criticism. Some of us chose to go to our own rooms to write in the quiet and cool of familiar surroundings. And some sought the "back campus" and gave our knowledge of the subject full sway under the shade of the

colleagues. No one cheated. No one asked help. No one wanted to because no one would have been willing to face the bar of her own judgement and acknowledge herself incapable of being as simply honorable as she was expected to be. And no one suspected any one else of dishonest or double dealing.

If you find it impossible to believe this simple little tale of absolute honesty, there is something wrong with you. If you can't believe the other people, when free and able to cheat will still refrain from doing so, then you, yourself, must be incapable of playing fair. Are you willing to so adjudge yourself?

If you cannot believe that the honor system works, it is because it would not work for you.

No normal human being with any instinct of decency likes to fall simple trust and confidence. Oh, I know that bank presidents abound and Sunday school superintendents slope with funds and other people's wives, and that in competitive examinations there are all sorts of cheating. But these people are not working under the honor system. They are under bond of suspicion, watched and guarded by all sorts of checks and means to keep them honest.

The Majority of Persons is Always to be Found Trustworthy and Honest. . . .

And if they can "get away with it" they feel like the little boy who, when locked in his room to meditate on his wrong-doing, implicitly climbs out of the bedroom window and "shines" down the old apple tree, whose branches lead him to freedom.

How many people fail to put down the penny for their daily paper when they find it untended and lying in piles that are guarded by stones from the wind's onslaughts, but that have no guardian present to insure honest payment? Papers lying thus make a mute appeal to honesty. They suggest that it is taken for granted that you will pay for what you take.

Cafeterias find it possible to trust in the honesty of their patrons. In such you help yourself to what you want and announce the sum of your indebtedness. If you should cheat and deny rightful payment of the full sum under these circumstances, you are a perverted creature. The natural thing to do is to pay what you owe, because it is taken for granted that you will.

I am not proposing that we turn the world upside down, remove all barriers to wrong-doing and give cranks and feeble-minded and even insane creatures

full sway. I am merely saying that the normal human being is decent and honorable. When he cheats it is probably largely to admire his own cleverness in escaping detection. His own instinct bid him be honest. And if the world shows that it expects him to be honest, he would be ashamed to disappoint it.

The honor system works whenever it is absolutely simply applied. In a community where it is used, the weight of public opinion swings over to taking honesty in others for granted. Who would dare go against it? Who wants to be dishonorable when everybody expects him to be decent? Who likes to disappoint the faith of a child? Who cheats and absolutely trusting woman? Never the sober, honest, decent citizen.

And the citizen who lies just beyond the pale of decency and honesty can be reclaimed often by a faith that takes the best in him for granted. Even as we don't disappoint people when they expect wrong-doing from us, even as we want the game when we've given the name of thief, so honor can score by taking our honor for granted.

Wherever the honor system grows, honor grows to meet it. We are all inherently decent—or we are abnormal. Abas with suspicion and doubt! More power to honor and the honor system!



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