

SCIENCE.

SETTING A CAPTIVE FREE.—"Let us go into Martin's 'box' and see what he is doing this morning," said Nellie Morton to her friend Ruby McCahen.

Ruby was well pleased with the invitation, and Nellie knocked at the door of her brother's amateur laboratory.

"I could show you some beautiful experiments with chlorine, but Nellie says the gas suffocates her. Suppose I set this marble on fire for you."

The girls looked amazed, but not incredulous, for they had visited this conjuror and beheld his magic on previous occasions.

Martin struck a piece of marble which he was drawing out of a tow bag in a corner of the room while speaking, and hammered it into numerous small pieces. Then he set on the table a rather tall glass vessel. Into this he poured hydrochloric acid until the liquid was an inch deep. Then he dropped into the jar the bits of marble. Instantly began a violent commotion, a foaming and bubbling surprising to see, as the marble slowly wasted away.

When all was over, Martin lighted a taper and placed it in the glass. Scarcely had he done so before the flame expired.

"Why did it go out?" asked Nellie. "Because the marble contains a gas which our experiment set free. The name of the captive of the marble is *Carbonic Dioxide*."

Nellie and Ruby were about leaving the room with thanks—"Wait a moment," said Martin. "Here is a piece of marble that has been heated in a furnace of great power."

"It looks very white," said Ruby. "Yes, it is whiter than before it was subjected to the heat. But that is the only evident change. It has not lost any of its bulk, but I can now easily reduce it to powder. Let us see if I can do anything else with it."

Martin then removed the jar, and placed a plate on the table. It was like a very large and deep soup-plate. He put the marble on the plate and poured some water on it.

"I am going to show you another alteration in the nature of the marble. You see it looks like other marble upon which you might have poured water. Now watch it."

All looked intently at the plate and its contents. Presently the marble began to swell, then it cracked in many places, and then it crumbled to a fine white powder, while cloud after cloud of steam ascended.

"That just looks like lime," remarked Ruby.

"You are quite correct, Miss Ruby; this powder is slacked lime; the marble after it was burnt was simply quicklime."—*N. Y. Examiner.*

The strength of insects is simply prodigious. M. Plateau has been testing their powers; and announces as the result of his experiments that the smallest insects are the strongest, proportioned to their size, and that all are enormously strong when compared bulk for bulk with vertebrates. A horse can scarcely bear two-thirds of its weight, while one small species of June beetle can lift ninety-nine times its weight. Were the strength of a man in proportion to that of the beetle, he could play with weights equal to ten times the weight of a horse.

Our boys and girls may like to know how their slate-pencils are made. Broken slate from the quarries is put into a mortar run by steam, ground fine, and bolted like flour. It is then mixed with the flour of soapstone prepared in the same way. The mixture is made into a stiff dough and kneaded between two rollers. It is then put into a strong iron vessel with a nozzle, through which the dough is forced, coming out in slender strings. These are laid on a table and cut into pencil lengths, dried, placed on sheets of zinc and baked in a kiln. Finally they are sharpened and packed for sale.

THE PLANETS FOR AUGUST.—*Jupiter*,—is an evening star until the 7th, and morning star the rest of the month.

Our staid planet, the earth, rotates on her axis once in 24 hours. As her circumference is about 24,000

miles, her axial velocity at the equator is about 1,000 miles an hour, or 16 miles a minute. Jupiter rotates on his axis, with a volume nearly 1,400 times as great as that of the earth, in a few minutes less than ten hours.

Matters must be rather mixed there, according to our ideas, with a day not half as long, only five hours from sun-rise to sunset, and with a year nearly twelve times as long; for these are the conditions that held sway in the domain of our distant neighbour. We like better the more dignified length of the earthly day, the more stately axial rotation of our little planet, and the quicker return of the revolving seasons. No man of science has yet been able to explain, in all its bearings, the law which ruled in the arrangement of the sun and the worlds that round him roll, to tell where the fuel comes from that keeps up the sun's fire, to show the reason why four giant spheres still holding portions of their primeval fires were established on the outposts of the system, or why four small planets roll on in their swifter course nearer to the great central orb. Theories are plenty on all these points, but conclusions are not convincing. We are prone to think that the earth holds a favored place among the planetary brotherhood. It is well to think so, and the position will not be disputed in the present attainments of astronomical science.

Venus is morning star during the month, and is a charming object in the eastern sky during its course. On the 17th she reaches her period of greatest brilliancy as morning star, and observers who wish to behold the most lovely star that gilds the morn will find our celestial neighbor worth getting up early to see. She makes her appearance on the 17th, soon after 2 o'clock in the morning, nearly three hours before sunrise, casts shadows on objects illuminated by her rays, and holds her visible presence in the sky, even in the noon-day radiance of the King of Day, to those who know where to look for her.

Neptune is morning star, and leads the planetary choir in being the first to make his appearance above the horizon. On the 14th, at 11 o'clock in the evening, he reached the half-way house between conjunction and opposition, being then in quadrature, or 90° west of the sun.

Saturn is morning star, and is growing brighter and more conspicuous as he approaches the earth. It is however the day of small things in his history. On the 17th, when *Venus* is brightest, he may be found about 30° northwest of the fairest of the stars.

The Moon.—The AUGUST MOON was full on the 6th. On the 17th she makes a close conjunction with *Venus*, at 4h. 37m. in the afternoon. Although the nearest approach is invisible, the waning crescent and the radiant morning star will make a beautiful celestial picture on the morning of the 17th.

It will be noticed that the moon passes very near *Venus* on the 17th, *Mercury* on the 22d, and *Mars* on the 24th. She will occult these three planets to observers whose places of observation are in line with her geocentric position; that is as seen from the earth's center. These fortunate observers will see the moon, if the hour be favorable, hide *Venus*, *Mercury*, and *Mars* from view on the dates mentioned, the three occultations occurring within the limit of seven days.—*Sci. American.*

HEALTH HINTS.

FOR EARACHE.—Keep on hand for this a phial of camphor. Camphor one, laudanum one, and sweet oil two parts. Warm a teaspoonful, and pour it in the ear. Lay on the affected part a bag of bran well heated; cover up with something warm to the feet, and drop to sleep.

FOR SORE THROAT.—Take a teaspoonful of black currant jam or jelly; put it in a tumbler, and fill up the tumbler with boiling water. Take this several times in the day, and drink whilst hot.

WOOLEN UNDERCLOTHING.—With regard to the sanitary importance of wearing woolen underclothing, the *London Lancet* says: "The

superior advantages of wearing wool next the skin are easily apparent on reflection. They do not depend merely on its texture and in virtue of its composition, of better adaptation in respect of temperature to the needs of various climates and the changes of seasons than any other dress material. Moreover, whether it be fine or rough, dense or light, woolen clothing, it is evident, exhibits a special facility for absorbing and distributing moisture. It is this property especially which renders it the natural covering of the constantly perspiring skin. If one be engaged, for example, in active exercise of limb, a linen fabric will absorb what products of transpiration it can till it is wet but will leave much moisture unabsorbed upon the clammy surface, whereas a flannel, from its more spongy nature, will rest upon a skin which it has nearly dried, and be but damp itself. It is obvious, then, that in the event of an after-chill, and this occurs in summer as in winter, the body is, in the latter case, most favorably disposed to resist it. Flannel is not less clean than linen, though it may appear less white; and, if the wearer bathe daily, it is surprising how long it will retain its purity. The disadvantage of skin irritation, to which it sometimes gives rise, is usually associated with coarseness of quality or freshness of manufacture, and is, with nearly all who have experienced it, a merely transient condition. Women, as well as men, but, above all, children and the aged, who are alike particularly apt to take cold, should certainly adopt a woolen material for their customary under garment. It is easily possible to adjust the texture to the season, so that it shall be warm enough in winter and not too warm in summer."

VARIETIES.

A BRIEF SERMON ON CRANKS.—The *Burlington Hawkeye* publishes a great deal of nonsense, but sometimes in its amusing way it states indisputable facts. The following is from a recent issue:

What would we do were it not for the cranks? How slowly the tired old world would move, did not the cranks keep it rushing along! Columbus was a crank on the subject of American discovery and circumnavigation, and at last he met the fate of most cranks, was thrown into prison, and died in poverty and disgrace. Greatly venerated now! Oh, yes, Telemachus, we usually esteem a crank most profoundly after we starve him to death. Harvey was a crank on the subject of the circulation of the blood; Galileo was an astronomical crank; Fulton was a crank on the subject of steam navigation; Morse was a telegraph crank. All the old abolitionists were cranks. The Pilgrim Fathers were cranks; John Bunyan was a crank; any man who doesn't think as you do, my son, is a crank. And by and by the crank you despise will have his name in every man's mouth, and a half-completed monument to his memory crumpling down in a dozen cities, while nobody outside of your native village will know that you ever lived. Deal gently with the crank, my boy. Of course, some cranks are crankier than others, but do you be very slow to sneer at a man because he knows only one thing and you can't understand him. A crank, Telemachus, is a thing that turns something, it makes the wheels go round, it insures progress. True, it turns the same wheel all the time, and it can't do anything else, but that's what keeps the ship going ahead. The thing that goes in for variety, versatility, that changes its position a hundred times a day, that is no crank; that is the weather vane, my son. You nevertheless thank heaven you are not a crank? Don't do that, my son. May be you couldn't be a crank, if you would. Heaven is not very particular when it wants a weather vane; almost any man will do for that. But when it wants a crank, my boy, it looks about very carefully for the best man in the community. Before you thank heaven that you are not a crank, examine yourself carefully, and see what is the great deficiency that debars you from such an election.

"What is the worst thing about riches?" asked the Sunday-school superintendent; and the new boy said, "not having any."

Purity, sincerity, obedience, and self-surrender—these are the marble steps that lead to the spiritual temple.

Earn your own bread, and see how sweet it will be! Work and see how well and cheerful you will be!

Flies spy out the wounds, bees the flowers; good men the merits, common men the faults.—*Hindu.*

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IT IS TRUE!

KIND WORDS. WHAT OTHERS THINK OF Buds and Blossoms.—The following is from *The Christian at Work*, a first-class religious weekly, published in New York: "In the City of Halifax, Nova Scotia, is published a monthly magazine called *Buds and Blossoms* and edited by J. F. Avery. Each number contains forty pages, plentifully and handsomely illustrated, and at 75 cents a year is certainly one of the cheapest publications extant. But better still, it is one of the best. Its pages are full of the gospel spirit, excellent temperance sketches, missionary intelligence, short stories, household hints and suggestions, all entertaining clean and wholesome literature, suitable for the home and family circle, and calculated to promote purity and knowledge among its readers. We do not know what the circulation of this excellent publication may be, but of this we are sure, it ought to be double whatever it is, for it is just the right kind of reading to be put into the hands of young folks; bright, cheery, hopeful and strong, without cant or sickly sentimentalism. We hold it as an indisputable truism that when an opportunity offers to promote the circulation of such literature among the young it becomes a religious duty to do so. Send to the publisher for a specimen copy, and you'll find that we have not said one-half the good things we might concerning it."

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REV. J. F. AVERY, Editor,
Mizpah Cottage, Kempt Road,
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