

VOL. 34.

BATTLE CREEK, MICH., JULY 7, 1886.

strongly manifested at an early age, and during his res-

idence in Göttingen he made visits of scientific exploration.

During one of these he explored the banks of the Rhine,

the fruit of which is his first publication. In accordance

with the wishes of his father, he followed business occu-

pations for a number of years, filling at one time an office

in the mining department, spending several years in this

capacity. His researches here were published in a work

At the death of his mother he came into possession of a

considerable fortune, which enabled him from that time

on to devote himself to his most loved work of studying

nature. He accordingly, at the age of twenty-seven, re-

signed his office in connection with the mining depart-

ment, and entered upon a series of exploring tours. He

of two volumes

No. 27.

A SONG OF SUMMER.

The songsters are resting in shadowy nooks;
The birds and the blossoms are thronging to meet us,
With loveliness, perfume, and music they greet us,
For Summer, the beautiful, reigns!

The bobolink tilts on the tall, nodding clover,
And sings his gay song to us over and over;
The wild roses beckon, with deepening blushes,
And sweet, from the wood, sounds the warble of thrushes,—
For Summer, the beautiful, reigns!

The white lilies sway with the breeze of the morning.
In raiment more fair than a monarch's adorning;
The bright-throated humming-bird, marvel of fleetness,
Comes questing for honey-blooms, draining their sweetness,—
For Summer, the beautiful, reigns!

High up in the elm is the oriole courting,
A new suit of velvet and gold he is sporting;
With gay bits of caroling, tuneful and mellow,
He wooes his fair lady-love, clad in plain yellow,—

For Summer, the beautiful, reigns!

The blossoms and birds bring us, yearly, sweet token

That Nature's glad promises never are broken.

Then sing, happy birdlings, nor ever grow weary!

Laugh on, merry children, 'tis time to be cheery!-

For Summer, the beautiful, reigns!

-Emma C. Dowd, in St. Nicholas.

Written for the Instructor.

ONE OF NATURE'S NOBLEMEN.

ITH maternal kindness, Nature offers to all her children the chief. the most innocent, and the most universal of all pleasures,-one which may be enjoyed without expense, and is equally accessible to the poor and the rich. Yet how many there are who disregard the ennobling and soul-inspiring charms of nature, and constantly seek for other, and often harmful, pleasures and recreations! They forget that true pleasure and happiness are received from a knowledge of God; and this knowledge is not obtained from his divine word alone, but also from the manifold works of his hands spread out before us. Here we can also more fully learn to understand the gospel of Jesus Christ; for in teaching his disciples, our Saviour often made use of the works of nature to illustrate his teachings and to lead them to reflect on heavenly and spiritual things. It is a noble employment, and well worthy of man, continually to study the book of nature, from which he can gain some conception of the goodness, wisdom, and power of the Creator. The mind soon tires of

worldly pleasures and amusements, but there is an evergrowing enjoyment in contemplating the wonderful works of the Lord. Were we to reflect on them for a million of years, we would not become weary, but would ever find new charms in them.

In all ages of the world there have lived men who have been inspired with such a love of nature that they have devoted their lives to the study and investigation of its beauties and wonders. And one of the greatest and noblest of these in modern times—one who has contributed more, perhaps, than any other naturalist to the progress of physical science, is the one whose picture appears on this page, and of whom we will here give a short sketch.

Alexander von Humboldt was born at Berlin, Germany, Sept. 14, 1769. His father, whom he lost when he was not not quite ten years of age, was chamberlain to the king of Prussia. Being a studious boy, and having ample means to pursue the path of knowledge, he acquired a good education at the universities of Frankfort-on-the-Oder, Berlin, and Göttingen. His love of natural history was

spent three months at Jena, where he was the intimate associate of Goethe and Schiller. Circumstances now led him to Paris, where he became intimately acquainted with a distinguished young botanist, Aimé Bonpland, who afterwards was his companion in many and various scenes. Some time after, he succeeded in obtaining permission tlements in America and the Indian Ocean, with every additional favor which could promote his researches in the various departments of natural science. This tour was undertaken in company with his young botanist friend, and consumed five years, during which time he explored a vast extent of territory in Venezuela, Granada, Ecuador, Peru, Mexico, Havana, and North America. This course of travels is unparalleled for variety and importance of scientific results, not only in the different departments of natural history, but also in geography,

statistics, and ethnography. It has been truthfully said

that America was discovered anew by Alexander von

Humboldt, as it was through his researches that the peo-

ple of the Old World became acquainted with its plants, animals, natives, and many other natural resources.

Humboldt now took up his residence in Paris for a number of years, and occupied himself in arranging his collections of manuscripts and in experimenting on the chemical constitution of the atmosphere. In 1807–17, his great work, embodying the chief results of his travels, appeared in two forms, folio and quarto, in each consisting of 30 volumes, and containing 1425 illustrations.

In the year 1829 he again entered upon a tour of exploration, this time to the northern part of Asia, exploring principally the Ural and Altai mountains, the Chinese Dsongarei, and the Caspian Sea. The principal results of this expedition were the scientific examination of the beds which produce gold and platina, the discovery of diamonds

in an extra-tropical region, the astronomical determination of positions, magnetic observations, and geological and botanical collections. The whole journey occupied nine months, and extended over 10,000 miles. This expedition has led to increased knowledge of the earth's magnetism and of meteorology; for it was through the earnest proposal of Humboldt that a net-work of magnetic and meteorological stations has been spread out over the whole world, by means of which the general condition of the earth in this respect is constantly ascertained.

It is impossible to estimate the amount of Humboldt's contributions to science. During his journey in Spanish America he determined astronomically more than 700 positions with regard to its geography-His barometrical observations were very numerous. To him we are indebted for the most important generalizations concerning magnetism and climate, some re. sults of which are exhibited in the isothermal and other lines which have begun to be drawn in our maps. The botanical discoveries made by himself and Bonpland are given to the world in a number of valuable works. He is the founder of the new science called vegetable geography. He discovered not less than 3,600 new species of flowering plants. It is said that his knowledge was one of the most profound and covered the widest range of scientific investigations of all scientists that have lived on this earth. His works comprise the sciences of astronomy, zoology, botany, mineralogy, vegetable and animal geography.

Humboldt died in Berlin, May 6, 1859, after having spent all of his fortune in travels and scientific works.

Let us, like this great naturalist, endeavor more and more to become acquainted with the God of nature; let us think of his greatness, and admire his wisdom and power, which we behold in

all the works of his hands. This employment will not only make us happy, but tend to make us good also; for a constant view of God through his wonderful works will surely inspire us with love and veneration for so glorious a Being. And let us prepare ourselves for a home in the new earth, where we shall have a mind and heart that can fully comprehend and appreciate the wonders of creation, not only on this earth, but throughout the immensity of the whole universe.

A. SWEDBERG.



THE SWEETEST PERFUME.

"See, Amy, I have found a four-leaved clover," shouted little Minnie, waving a clover stalk over her head. Amy sat reading by the open window, the sunshine falling on her pale, sweet face and golden hair.

At the sound, she closed her book, and looking up, smiled a welcome to the children as they came laughing up the lane, and into the room where she sat.

Minnie was first, eager and breathless. "Now you can have a real good wish," said she, laying the clover on Amy's book, "and it will be sure to come true.

Ben, coming close up to Amy, whispered softly, "Wish that you may get well and strong again, sister, that's the best wish." But Amy replied: "I have a wish far better than that, Bennie. But do n't you want to know what my

"If you tell, it won't come true," suggested Minnie.

"Tell us, any way," said Ben, "if you think it is the best wish, I know it is."

"It is that you may learn to know what is the sweetest perfume of this world."

'What a strange wish, Amy!" exclaimed Ben in wonder; "why, I know already-it is the scent of the flowers: roses, pinks, woodbine, and sweet-brier."
"Oh, yes," said Lucy, "and heliotrope, and violets, and

lilies of the valley, and mignonette."

"These are all very sweet, but they are not the sweetest," said Amy, "and not what I mean."

Ben thought a moment, and then asked, "Do you mean that precious oil that is made from roses in the East? think Cashmere is the place where the roses grow, and it is so costly that they sell it by the drop.'

"Yes," said Lucy, "I remember Aunt Mary once showed me a little long vial, covered with gold flowers, and with a glass stopper and white kid over it; she said it had never been opened, but the smell of the rose was so strong through it, that I did not like it half as well as the roses under our porch. You don't mean that, do you,

"No, my perfume is far, far more precious than the famous attar of roses," was Amy's answer.

"Do you mean any of the perfumes that ladies use?" asked Lucy, thinking this must be right, since it was not

the flowers Amy meant.
"Oh, I know," shouted Ben, in triumph; "it is musk.
I learned about it in my lesson yesterday; it says a grain of musk will make a room sweet for twenty years, and not

grow any smaller or lose any of its fragrance."
"Wrong again, Ben," said Amy, "the perfume I speak of will last forever, and always grow richer and sweeter.' "Ah, now you are laughing at us, you do not mean it," said he.

But Amy answered, "The perfume I mean comes from earth, but ascends to heaven. Our great poet, Longfellow, sings about a beautiful angel, who stands at the gate of the golden city, listening to the sounds that come up from

> "'He gathers the prayers as he stands, And they change into flowers in his hands, Into garlands of purple and red; Beneath the great arch of the portal-Through the streets of the city immortal Is wafted the fragrance they shed.

"It is not a true story about the angel, only a beautiful fancy of the poet; but I love it, because it shows how sweet and precious our prayers become after they reach heaven. To-day I found that the thought of the poet is true, for it came from the Bible. I was reading, when you came home, about heaven, as John saw it in his wonderful dream. You know when 'the disciple whom Jesus loved,' had grown to be an old, white-haired man, and was a prisoner on a lonely island, God gave him a vision of heaven so glorious that none of us can rightly understand it. Our prayers are represented to him as the sweet perfume of heaven; the white-robed angels, before the throne of God, bear in their hands this precious fragrance treasured in golden vials, like the rare and costly Eastern essence, but whose priceless value no tongue can tell. Read for yourand Amy, opening the book, pointed to the words, "having harps in their hands, and golden vials full of odors, which are the prayers of the saints."

"Who are the saints, sister?" asked Lucy.
"All those who love the gentle Jesus," said Amy. "This is my wish, the very best wish I could make. May you never forget that the most precious perfume of earth and heaven is prayer from those who love the meek and lowly Jesus; and may the sweet fragrance of your prayers go up to heaven every day of your earthly lives. One far more lovely than the poet's angel, Christ the Son of God, shall bear these to the Father's throne, and for his dear sake the answers will come quietly down in 'showers of blessings.'

The four-leaved clover has dried away to dust; sweet sister Amy faded like the flowers; but the odors of her constant prayers live in heaven, and her wish is granted, for the ones she loved are living lives of daily prayer.-Selected.

A BOY GROWN UP.

Young people rarely realize, when criticising their eldwere formed in early life. If their manners are rude, if they lack tact, if they are not well informed, it is because they have not made use of their opportunities. Manners are the truest indications of character. A discourteous person is both careless and selfish, for the best manners are but the expression of the Golden Rule; they are the card of introduction to strangers. A friend can introduce you to good society, but he cannot keep you there; that

A boy of kindly nature is rarely rude. A boy of selfish nature is polite only when his own desires are not interfered with.

Every man is the result of his own boyhood and youth. If he has read good books, kept himself informed of passing events, he becomes what the world terms a well-informed, intelligent man. If he has wasted his time in trifling conversation, read only sensational books and papers, neglected to develop the talent which he surely possesses, he becomes a superficial, a tiresome, if not a

If as a boy he has not cultivated the graces and amenities of life, he cannot expect to become that most delightful of men, a polished gentleman. If as a boy he has not studied to avoid collisions with those about him, has not recognized the rights of others, has not cultivated a desire to lead men to higher motives, to give to others the benefit of his own opportunities, he becomes that most unfortunate person, a tactless man; a nuisance wherever people are brought together. One of the lessons every boy can learn is to watch those men who arouse adverse criticisms, and carefully avoid their habits both of mind and body. Remember the old adage, "By others' faults correct your own."-Sel.

ONHEREVER you go, never go where you fear God's question being asked you, "What doest thou here?" Whatever the pastime in which you engage For the cheering of youth or the solace of age Turn away from each pleasure you'd shrink from pursuing Were God to look down and say, "What are you doing?"

Written for the Instructor.

A CREAMERY.

I WONDER how many of my readers have seen a cream. ery, or can tell what it is. We have one in Otsego, just a few doors from my house. I have just been all through it, and will tell you about it. A creamery is really a great churn, where butter is made. I think I hear Johnny say, Oh, I know all about churning butter, more than I wish I have to help mother do that every week, and it nearly breaks my back." Well, this is not that kind of a churn. This one I am telling you about cost five thousand dollars, and is as large as a small house. In fact, it is a house. It has four rooms. First, is the office, which is about as large as a good sized bed-room; and this is furnished with chairs, table, steam-heater, etc. Second is the engine room, where there is a nice little steam engine: for the whole machinery is run by steam, instead of a boy's arms. In the third room, which is the largest, the butter is made.

But we will go to the farm first, and see how they get the cream. Every farmer is provided with nice, large pails, of galvanized iron, holding about as much as an ordinary pail. Up in the center of the pail runs a tube. The milk is poured into this pail, and the pail set in cold water. The water comes up all around the pail and up in the tube, so that the milk is kept cool and sweet. There is a little glass gauge in one side of the pail, where you can look right through and see just how thick the cream is. Every day a man with a team comes around from the creamery and gathers this cream. About one inch thick of cream will make a pound of butter. This cream is taken off, leaving all the milk with the farmer. This is quite sweet and good, and is fed to the calves, or used in other ways. The cream is poured into large, galvanized iron cans, which will hold about a barrel. Nothing but the clear cream is taken into the creamery.

At the creamery it is emptied through a large strainer into a great vat, or trough. This will hold about two hundred gallons of cream, or about six barrels. Every morning the cream is strained again out of this vat into a large churn. So, you see, it is strained three times. It ought to be very clean by this time. The churn is simply a square box, like a large dry good's box. It will hold about six barrels. It is filled two-thirds full of cream, and shut up perfectly tight; and then it is turned over rapidly, just as you would turn a grindstone, and the cream dashes against the sides. In a few minutes the butter comes, but it does not look as it does in ordinary churning. It comes out in little round globules, or lumps, about as large as buck-shot, or small currants. The buttermilk is drawn off, and the butter is left alone. Then clean salt water is poured on to this, and it is washed two or three times, till all the buttermilk is out of it. Now it is put into tubs about as large as a pail, and is weighed. The salt which is put into the butter is also weighed, so that an exact amount of salt is always put in, to just so much butter. This varies from one ounce to an ounce and a quarter, according to different

Here stands a round table, perhaps five feet across. The outer edge is higher than the middle, and there is a hole in the center, towards which it all slopes like a tunnel. On this table are two rollers, larger than a stove-pipe, and they run by machinery. The butter is put on this table, which turns around, and the rollers run right over the butter and work out all the milk. A man stands by with a ladle and keeps it in shape, but the machine does the work. That, you see, is a good deal easier than it is for your mother to do it by hand with a ladle and a butter bowl. and the butter is worked much better. After it is worked over nicely, it is put into a tub again and set away in a cool room, till the next day. Now it is taken out and worked all over the second time. A very little coloring matter is worked in with the butter, to make it look yellow. The oil of cotton-seed and some other harmless things are used. The butter is then packed in large tubs, holding about sixty pounds, and it is now ready for market. Butter made

in this way is much better than that made in the ordinary way. It is worked more thoroughly; it is kept cleaner, tastes much sweeter, and is always just the same. It does not vary in color, which is always a rich, fine yel-Being worked just right, it does not become oily, or greasy, does not look white and flaky, and is not streaked. Hence, creamery butter sells much higher than other butter. Dairy butter, or ordinary butter, now brings from twelve to fifteen cents, while creamery butter brings from twenty to twenty-four cents. If you will look in any city paper, at the market reports of butter, you will find creamery butter marked a good deal higher than dairy butter.

With the big churn run by steam, one man can make six hundred pounds of butter in a day. That is pretty good work, is n't it, at butter making? A cow that will make one pound of butter a day does pretty well,-better than most cows will do; hence you see this one man can do all the churning for six hundred cows every day. This is a great improvement on old-fashioned churns. Away back in Bible times, they used to put the milk in a sheep-skin sewed up tight, hang it on a pole, and churn it that way. I do not think I would like that butter. Then they invented our common wooden churn, which was worked with a dasher, up and down, as you children all know. That was hard work. A great many churns have been invented to make churning easy. Probably you have seen some of them. Sometimes they are fixed so that a dog can do the churning. Sometimes they are run by horses, but I think that our modern creamery churn beats them all; and if I were to use any butter, I think I would like the creamery butter the best. D. M. CANRIGHT.

MENDING A PEN.

When our grandfathers and grandmothers were young, they wrote with pens made of goose-quills, and these pens after a little while became worn, and needed mending. Then the schoolmaster used to take a pen, and press his thumb nail up against the point until the pen split down the back. Afterward he whittled it down to a proper point, and made a very good pen of it. Nowadays quill pens are mostly out of use; and boys and girls use pens made of gold, steel, rubber, and other material.

The trouble with many of these pens is that they have bad points. They do not write easily, but scratch the paper instead of running smoothly over it. Such pens need mending, and they are very easily mended by a careful hand. The trouble is with the point, which is roughly cut, and not properly finished and polished.

Would you like to know how I mend my pens? When I buy a new gold pen, I try it; and if it does not glide smoothly over the paper, and make a good mark, I take a fine oil-stone, or whetstone, and rub it gently over that, holding the pen much as if I were writing with it, turning it over and over, and pushing it backward and forward until it will pass over the oil-stone in any direction smoothly, and without catching or scratching. Then I thrust the point of the pen into a raw potato, and pull it out, and no matter how greasy it has been, the ink at once flows read-

Steel pens may be treated in the same way, and may be made to glide over the paper as smoothly as costly gold ones, simply by polishing off the points, which have been left rough in the haste of machine manufacture. Many pens that have been thrown aside as useless, because they scratch, may thus, by having their points polished, be made almost as good as new; only care must be taken not to polish them too much, as there is some danger of grinding off the point of a pen, especially of a gold pen, the point of which is made of iridium, a very hard metal, which is soldered into the pen, and if it is loosened from its place, the pen is spoiled, and must be re-pointed. But with patience and care it is quite easy for people to mend their pens, so that writing with them will become a pleasure.

When your pen is mended, be careful what you do with If you are insulted, outraged, and wronged, and wish to give a man a piece of your mind, you can write it all down, and see how it looks. Put it into the drawer and let it lie there awhile, and then take it out and examine it carefully, to see what you think of it. You may conclude to burn it up.

The pen is mightier than the sword, but it is an instrument that cuts both ways. Many politicians have written letters which have ruined them politically; and many a man by writing his name on the back of another man's note, "just to accommodate," has been stripped of everything he possessed n this world. Many a man by writing another man's name on a piece of paper has got himself into trouble, and been confined within prison walls for long and tedious years. Learn how to mend pens, and then take great care how you use them.—The Little Christian.

ONE SIN.

IF one note in the organ be out of key, or harsh of tone, it mars the whole tune. All the other reeds may be in harmony; but the one defective reed destroys the sweetness of all the rest. In every tune it makes discord somewhere. Its noise jars out into every other note. And so one sin destroys the harmony of the whole life. A boy or girl may be obedient, filial, industrious, and honest; but illtemper is a jarring reed that touches every grace with chill and discord. Let every affection be right; then there is music in the life.—Selected.

The Sabbath - School.

FOURTH SABBATH IN JULY.

IMPORTANT BIBLE SUBJECTS.

LESSON 14.-THE LAW THAT WAS ABOLISHED, AND THE LAW OF GOD.

- 1. What has Christ abolished in his flesh? Eph. 2:15.
- 2. What is love? 1 John 5:3.
- 3. Can the same thing be both love and enmity?
- 4. In another place what testimony did Paul give concerning the law of God? Rom. 7:12.
 - 5. How did he feel towards it? Rom. 7: 22.
- 6. Then can it be the law of God, or ten commandments, that is spoken of as "the enmity" in Eph. 2:15?
- 7. What did God speak to the people from Sinai? Deut. 4: 12, 13.
- 8. Did he speak any other words in the hearing of the
- people, besides the ten commandments? Deut. 5:22.

 9. When the Lord had finished speaking the ten commandments, what did the people say? Ex. 20: 19.
- 10. What did Moses and the people then do? Ex. 20:21. 11. How did the Lord, after he had given the ten commandments, give other instruction to the people? Neh.
- 9:14, last part. 12. Where do we find some of the things which the Lord gave through Moses? Exodus, chapters 25-30.
- 13. Is there any part of the instruction that has reference to flesh? Lev. 4; 6:25-30; 10:16-18.
- 14. Did these offerings really take away sin? Heb. 10:4.
- 15. Who only can really take away sin? John 1:29; Heb. 9:26.
- 16. How did Christ bear our sins? 1 Peter 2:24.
- 17. Of what must we be partakers in order to have eternal life? John 6:53, 54.
- 18. Were the sacrifices to be continued after Christ suffered? Heb. 10:4, 5.
- 19. Then how are they done away ?-Christ abolished them "in his flesh;" that is, they found their fulfillment in the body of Christ.
- 20. Were these ordinances a cause of enmity between the Jews and the Gentiles? Acts 11:2, 3.
- 21. After Christ, did this cause of enmity exist? Gal. 6:15.
- 22. Through Christ what union was effected? Eph. 2: 16-18.
- 23. Are those thus brought together planted on a new foundation? Eph. 2: 19, 20.
- 24. After circumcision and the ceremonies connected with it had passed away, what still remained in full force? 1 Cor. 7: 19.

A SERIOUS QUESTION.

WE want to ask a serious question. How do our teachers deal with the children, or the fellow-teachers, who fall into sin? Our question applies chiefly, of course, to our young men and young women. We all know how again and again our hearts are wrung by the failure of those who were the subjects of high hope. But how do we act toward them? Do we at once give them up? Do we push them further on in their evil way by our neglect? we suspect all signs of penitence as fatal? Do we settle it in our own minds that one slip is a fall, and one stumble a ruin? Or do we pursue them into their evil ways? and solemnly vow before God that we will not rest until we have won them back? Do we watch for them? Do we fan the slightest spark of returning life? Do they feel that they cannot get away from us? And are they encouraged to try again for the pure and right, because they know that we shall stand beside them to help them? Fellowteachers, make the downward road nearly impossible for your scholars, because your love cannot wear out, but spends itself in watchings, and persuadings, and helpings. After Christ, and for him, let us "seek and save the lost." -Sunday-School Chronicle.

THE TEACHER'S AUTHORITY.

To many little children, the teacher's word is final The primary teacher can hardly realize how authority. completely she is enthroned in the confidence of the child. One teacher of our acquaintance one day taught her class that Jesus was born in the City of David, omitting to mention that it was Bethlehem of Judea. After Freddie came home, his father asked him what the lesson was about

- "About Jesus and where he was born," said Freddie. His father read to him about the birth of Jesus.
- "One thing, papa," said Freddie, "you said wrong. esus was n't born in Bethlehem."
- "Why, yes, Freddie, here it is, right here in the Bible."
 "I don't care," said Freddie, "my teacher said he was born in the City of David; and I guess she knows."

Nent Sabbath, the teacher reviewed the last lesson, and said, in passing: "Jesus was born in Bethlehem of Judea, sometimes called the City of David." Just here, Freddie broke out: "Then the Bible was right, after all."

IF your cup seems too bitter, if your burden seems too heavy, be sure that it is the wounded hand that is holding the cup, and that it is He who carries the cross that is car-

Our Scrap-Book.

MAN'S PLEA.

MAN'S plea to man is, that he never more Will beg, and that he never begged before; Man's plea to God is, that he did obtain A former suit, and therefore sues again: How good a God we serve, that, when we sue, Makes his old gifts the examples of his new. -Quartes.

THOSE CLEVER GREEKS.

PERHAPS our readers do not know what care has to be exercised in the construction of a column or building to give it the right appearance to the human eye. By giving attention to what Arlo Bates says, in the October St. Nicholas, as printed below, you will become satisfied that the architect has to calculate with great nicety to give beauty and perfectness to his workmanship; and in examining the letter s, as he directs, you will see what a great difference in appearance a slight change makes. The following quotation will afford entertainment and instruction to

"If you turn a book upside down and look at the letters, every s will seem much smaller at the bottom than at the top, although, when the book is properly held, both halves appear the same size to the eye.

"The upper part of the type that prints the letter s is made smaller than the lower half to correct the fault of the eye, which always slightly exaggerates the former. When the letter is turned over, this same trick of the sight makes the difference seem greater than it really is; and, of course, were it of the same width all the way, it would still look uneven.

were it of the same within all the way, it would still look uneven.

"In greater matters, the false report of the eye is greater. If a tapering monument, like that on Bunker Hill or like the obelisk in Central Park, were made with perfectly straight sides, it would look to us—for, you see, we really cannot trust our own eyes—as if it were hollowed in a little; or, as we should say in more scientific language, its sides would appear concave.

"Those clever Greeks, who did so many marvelous things in art, thought all this out, and made their architecture upon principles so subtle and so comprehensive that we have never been able to improve on them since. They found that their beautiful Doric columns, if made with straight sides, had the concave effect of which I have spoken; and so, with the most delicate art in the world, they made the pillar swell a little at the middle, and then it appeared exactly right.

"This swelling of the column at its middle was called entasis. Of course it had to be calculated with the greatest nicety, and was actually so very slight that it can only be detected by delicate arrangements, but it added reactives.

"This swelling of the column at its middle was called entasis. Of course it had to be calculated with the greatest nicety, and was actually so very slight that it can only be detected by delicate measurements; but it added greatly to the beauty of the columns and to their effectiveness.

"Then the lines which were to look horizontal had to receive attention. If you look at a long, perfectly level line, as the edge of a roof for instance, it has the appearance of sagging toward the middle. The Greek architect corrected this fault by making his lines rise a little. The front of the Parthenon, at Athens, is one hundred and one feet three and a half inches long, and, in this, the rise from the horizontal is about two and one-eighth inches. In other words, there is a curvature upward that makes it a little more than two inches higher in the center than at the ends, and the effect of this swelling upward is to make the lines appear level. Indeed, this same Parthenon—the most beautiful building in the world—when delicately and carefully measured, was found to be everywhere made a little incorrect, so that it may appear right, which is certainly what may be called an architectural paradox. The graceful columns, which seem to stand so straight, are made to lean inward a little, since, if they were perfectly true and plumb, they would have the effect of leaning outward. The pillars at the corners slant inward more than the others, and everywhere the corners are made to look square by being in truth a little broader angled, and lines are curved in order that they shall appear straight to the eye."

PRIMITIVE TIME-PIECES.

THE following interesting paragraphs on primitive timepieces we quote from an article on "Primitive Clocks" by Frederic G. Mather, in Popular Science Monthly:

Frederic G. Mather, in Popular Science Monthly:—

"The story is that King Alfred had no better way to tell the time than by burning twelve candles, each of which lasted two hours; and, when all the twelve were gone, another day had passed. Long before the time of Alfred, and long before the time of Christ, the shadow of the sun told the hour of the day, by means of a sun-dial. The old Chaldeans so placed a hollow hemisphere, with a bead in the center, that the shadow of the bead on the inner surface told the hour of the day. Other kinds of dials were afterward made with a tablet of wood or straight piece of metal. On the tablets were marked the different hours. When the shadow came to the mark ix., it was nine o'clock in the morning. The dial was sometimes placed near the ground, or in towers or buildings.

"But the dial could be used only in the daytime; and even then, it was worthless when the sun was covered with clouds. In order to measure the hours of the night as well as the hours of the day, the Greeks and Romans used the clepsydra, which means, 'The water steals away,' A large jar was filled with water, and a hole was made in the bottom through which the water could run. The glass, in those days, was not transparent. No one could see from the outside how much water had escaped. So there were made, on the inside, certain marks that told the hours as the water ran out; or else a stick with notches in the edge was dipped into the water, and the depth of what was left showed the hour. Sometimes the water dropped into another jar in which a block of wood was floating, the block rising as the hours went on. Once in awhile, some very rich man had a clepsydra that sounded a musical note at every hour.

"Another way of measuring time among the ancients" and the decenters.

rich man had a clepsydra that sounded a musical note at every hour.

"Another way of measuring time among the ancients was by the sand, or hour-glass. This was made of pearshaped bits of hollow glass with a very small opening between them. It held just sand enough to run from the upper into the lower pear in the space of one hour. The glass was then turned the other side up and the sand ran back, also taking an hour. You have seen glasses of this kind where the sand runs out in three minutes. They are used for boiling eggs. King Charlemagne, a thousand years ago, had a glass of this kind that ran for twelve hours without turning. It was marked on the outside with

red lines to show the escape of the sand. Hour-glasses were so common after this that they were carried in the pocket like watches. Every minister had one to mark the length of his sermon, which was a very serious matter in England during the protectorate of Cromwell, very few sermons being as short as one hour. It is said of one minister that when the sand ran out of his glass, he turned it over, saying, "I know that you are all good fellows, so let's have another glass." Once, when the preacher had turned his glass a second time, showing that he had already preached two hours, the sexton asked him to lock the door and put the key on the nail when he was through, because the few people that were left wanted to go home to dinner. We also read that, in the early history of New York, the soldiers who defended the city used hour-glasses to tell when they should go on guard."

GREAT COST OF THE FIRST PENS.

It is only a few years since Bulwer gave expression to the thought that "the pen is mightier than the sword; yet in the short time which has since elapsed, these words have acquired a new truth and a new application; the pen has conquered the sword in the field of commerce, as completely as it had formerly triumphed in the fields of has conquered the sword in the field of commerce, as completely as it had formerly triumphed in the fields of high policy and world government. The little civilizer (as it may well be called) is now in every hand; but within the memory of many men still living the steel pen was simply a curious and costly toy, noticeable as an ingenious mechanical fad, but not at all as an invention likely to come into practical use. The earliest form of this article was certainly not promising. A piece of sheet steel was bent into a tubular form, and cut or filed away to imitate the shape of a quill pen, the junction of the two edges forming the nib, which, of course, extended all up the back of the pen. These were known as early as 1810, but were regarded as articles de luxe to be given away as presents, and not for use. They were highly polished, perhaps gilt or silvered, and sold for as much as five shillings each. In 1824 Mr. James Perry, the founder of a system of education once famous as the "Perryan" system, took up the steel pen as a practical invention, and by indomitable energy overcame the difficulties in its construction and the objections to its use. He patented several varieties, and spared no expense to attain perfection. His brother informed Mr. Samuel Timmins, of Birmingham, that he paid seven shillings per pound for his steel, and five shillings per pen to the first workmen he employed, and that for years afterward the price given to his workmen was thirty-six shillings per gross.—Exchange.

DO DOGS COUNT?

If the following canine story, published in the St. Nicholas, be true, one would conclude that the dog referred to in the narrative could count, or else that he possessed some other remarkable trait which enabled him to discern that one of the drove was missing. Is it not possible that he made the discovery in the same manner that we miss one from the family group? Is it by count that we miss father or mother, brother or sister, or any familiar face from the home circle? How is it with the dog? Can the readers of the Instructor tell? The story reads:—

"Old Fetch was a shepherd dog that lived in the Highlands of the Hudson. His master kept nearly a dozen cows, and they ranged at will among the hills during the day. When the sun was low in the west, his master would say to his dog, 'Bring the cows home;' and it was because the dog did this task so well, that he was called Fetch. He would run to a flat rock and hold his ear down close to it, having learned that he could thus catch the far off tinkle of the cow-bells better than any other way. If he could not hear them, he would range about until he did, and then he was off like a shot in the direction of the sound.

he could not hear them, he would range about until he did, and then he was off like a shot in the direction of the sound.

"One sultry day he departed as usual upon his evening task. From scattered, shady, and grassy nooks, he at last gathered all the cattle into a mountain road, leading to the distant barnyard.

"One of the cows was known to be a little perverse, and on that evening she gave fresh evidence of willfulness. A part of the road ran through a low, moist spot bordered by a thicket of black alder, into which this cow pushed her way, and stood quietly. The others passed on, followed some distance in the rear by Fetch.

"As the cows approached the barnyard gate, he quickened his pace, and hurried forward, as if to say, 'I'm here, attending to business.' But his complacency was disturbed as the cows filed through the gate. He whined a little, and growled a little, attracting his master's attention. Then he went to the high fence surrounding the yard, and standing on his hind feet peered between two of the rails. After looking at the herd carefully for a time, he started off down the road again on a full run. His master now observed that one of the cows was missing, and he sat down on a rock to see what Fetch was going to do about it. Before very long he heard the furious tinkling of a bell, and soon Fetch appeared bringing in the perverse cow at a rapid pace, hastening her on by frequently leaping up and catching her ear in his teeth. After leading the cow through the gate in a way that she did not soon forget, Fetch looked after her a moment with the air of one remarking to himself, 'You'll not try that trick again,' and then he lay down quietly to cool off in time for supper."

A ROCKING STONE.

While on a recent excursion in the vicinity of West Farms, New York, the Hyatt Chapter of the Agassiz Association paid a visit to the celebrated balancing rock of that locality. This rock is the result of a glacial action, and measurements proved it to be 29 feet 7½ inches in circumference, mean altitude 7 feet 7 inches, 6 feet on one side and 9 feet on the other. It is composed principally of a grayish granite, and the imprinted lines are plainly discernible. Its weight is estimated at 30 tons, and yet it is so evenly balanced in its rock-bed socket that the smallest member of the party, a lad of 12 years, was able, with one finger of his left hand, to gently rock it to and fro.—Christian Weekly.

The oldest pieces of wrought iron which are known are probably the sickles which were found by Belzoni, under the pedestal of the Sphinx, in Karnac, near Thebes; the blades which Wyse found imbedded in the wall of the Great Pyramid; and the piece of a saw which Layard dug up at Nimrod. These remains are now owned by the British Museum.

For Our Little Ones.



Written for the Instauctor. MY BOY.

of (IS cap is in the corner, And his shoes are on the stair, And his roguish face is smiling Underneath his tumbled hair: Finger marks are on my windows, And he's scattered every toy, And his brain is full of projects; Yet I can but love my boy.

I put away his playthings; I smooth his tumbled head, And hang up cap and jacket, And put my boy to bed. And the house grows, oh, so silent! As I sit alone and rock; And I'm glad the cat is purring, And I'm thankful for the clock.

FANNIE BOLTON.

FOR CHRIST'S SAKE.

How can I make myself do things, mamma?" asked Alice Grey of her mother one day.

"Make yourself do things! What do you mean, child?"
"Why, mamma," said Alice, "I want to do right things. I want to do as the Bible tells me. But the trouble is that somehow I can't do what I want to do, or at least do as much as I want to do, or-well, you know, mamma, what

"I suppose, my daughter, you mean that you do not come up to your standard," her mother replied.

"Yes, mamma, that is it," said Alice. "You know how to make things plain."

"It is not a new difficulty, Alice, dear," Mrs. Grey con-"So holy a man as Paul was troubled in the same way. 'How to perform that which is good I find not,' he said. You must not be disturbed, my daughter, if you are not able all at once to reach the excellence you long for. But it is worth while to try for it. Indeed it is the only way of success. We are greatly helped by our motives oftentimes. What are your reasons, Alice, for doing the things you do?

"Well, they differ, mamma," said Alice. "I give to the missionary society of the Sunday-school because I want to do what little I can for the heathen."

You generally are kind to sister Lucy," said Mrs. Grey;

"why is that?"

"Oh, well, mamma, it would be shameful for an older sister to be unkind to a younger one. Besides, I want Lu to love me," said Alice.

"You have been studying very diligently, my dear child, all these months past. Your father and I have been very much gratified that you have been so studious," Mrs. Grey continued. "What have been your motives in studying?"

"Why, mamma, dear, you do n't want me to be a dunce, I know," said Alice. "It is very pleasant to be at the head or near the head of one's classes. I must confess I like to be praised. But, mamma, after all, while I do some of these things, there are others that I know I ought to do, but which somehow I can't seem to do. Why is it?"

said Mrs. Grey, My dear daughter, a motive that I think will help you. You can put it into everything you do. It is this-for Christ's sake. If you act from that motive it will be easier to do things than would otherwise be the case. Let us see how this motive would work in the things we have spoken of. It is a proper motive to give to the missionary society so as to do good to the heathen. But it is a better one to give for Christ's sake. It is right to be kind to your sister because it would be shameful to be anything else, and because you want her to love you. But it is even better to be what a sister ought to be for Christ's sake. So in studying. It is a remedy for all small ambitions, and it keeps you per-

sistent in effort when you study for Christ's sake. And you see, my dear, how this motive can go into every part of your life."
"Yes, mamma," said Alice; "only is it not

too great a motive for little things? It does not seem as if Jesus would care about my studying and such things."

Don't make that mistake, Alice," said her mother. "Jesus cares for everything that con-cerns one of his children. There is nothing little in that sense. You can do everything that it is right to do at all from this motive. And you will find, I am sure, that it will help you. It will keep you back from the wrong things, and it will make you strong for the right. Try it, Alice, and see.'

Alice did try it, and found that it helped her, as she expressed it, to do things. Dear children, all of you, just see what a strong motive this is-for Christ's sake!-The Child's Paper.

HONESTY THE BEST POLICY.

"What a lot you have got! We have only caught five between us."

'I've been fishing all the afternoon," said Frank, looking with pride at his bucket, in which some six or eight sticklebacks were swimming

'Mind the keeper does not catch you," said the elder of the two Bruces, who had just come upon Frank Saunders, in a sheltered corner of the Park.

"Why?" said Frank, innocently. "Doesn't he like fishing?"

Both boys laughed heartily. "Not at all, when you do Why, he'd be so angry he'd as likely as not send you in to feed the fishes yourself. But you've only got to keep out of his way, and you'll be all right."
"I'll put them back," said Frank. "I didn't know it

was n't allowed."

"You're silly!" exclaimed Ned. "You're safe enough.

He never comes around here."
"I'm not afraid," said Frank, gazing regretfully at his sticklebacks as he poured them back into the lake; "but I would n't steal anybody else's fish any more than I would their money.'

At this moment an old man came up, and the Bruces suddenly disappeared.

"Yes, sir, 'replied Frank, gathering up his little rod.
"I didn't know it wasn't allowed. I always fish in the Park in London, and I thought it would be the same here.

"Oh!" said the old man; "have you seen the gold fish

in the pond?" "No, sir."

"Would you like to see them?"

"Yes, sir. Are you the keeper"? "No; but I can show you the fish."

Frank followed his guide, who led him through beautiful

gardens and hot-houses, to the fish-pond. He was delighted with all he saw, and the old man smiled at his exclamations.

"Where do you live?" he asked.

"I'm staying with my aunt, at the shop, for a fortnight, said Frank, "and then I must go back to school."

"Well, you may come here every day, if you like."
Then, turning to a gardener who was passing, "Mullins, let this boy go anywhere he likes about the gardens; and see if you can't find him some fruit,"

"Yes, my lord."

Frank looked up with some alarm. "Is this place all yours?" he said.

"It is," said the old man, "and I am pleased to welcome to it a boy whom I can thoroughly trust; for if he won't take my sticklebacks, I know he will not touch my fruit and flowers."-Selected.

T was for His name Paul said he was willing to give up everything; or, as we say, "for Jesus' salve Papa says he storged gives the money for missionaries. Mamma goes early every Sabbath morning to teach a class in the Sabbathschool, though she has so much work to do and so many children to dress she hardly knows how to spare the time; but she says: "I won't give my class up; I will try to keep it for Jesus' sake."

Then Molly, wanted a new sack this winter, and had as nice one picked out; but when the news came of the poor starving people who could not get work or enough to eat, and papa asked, "What can you give them, Molly?" she thought hard about it, and then the next day said, "I'll give up my new sack and wear the old one."

"What!" said Nell, "wear that old one?"

"Yes," said Molly, "for Jesus' sake."

Now what can you do "for the name of Jesus"? If you drop some of your candy pennies into the missionary-box, won't that be for him? If you leave the play you like so well to mind baby for mother when he is cross, is n't that for the name of Jesus?—Our Children.

"Honor thy father and thy mother."

Letter Budget.

HERE are letters from about forty boys and girls, all written in January, and all to have a place in this paper, if we fulfill the promise to clear the letter box of the January letters. Well, let's see what can be done about it.

MABEL A. WEED, of Eaton Co., Mich., and ELIZABETH VANDERPOOL, of Yam Hill Co., Oregon, each about fourteen years old, write for the first time. Both are members of the Sabbath-school. Mabel was baptized at the Jackson camp-meeting last fall. Elizabeth has five brothers and two sisters. One brother, eight years old, is deaf. Her mother teaches the infant class of Sabbath-school.

mother teaches the infant class of Sabbath-school.

Three little girls, thirteen years old, write,—Hattie G. Rosser, of Michigan, Huldah A. Nelson, of Nebraska, and Addie Dickens, of Minnesota. Hattie attends their Sabbath-school regularly, of which her brother is superintendent. Huldah has two brothers, but her only sister died two years ago. She is trying to be a Christian girl, hoping to meet you and her sister in the new earth. Addie's eldest sister is a member of the missionary society and leads the singing in the Sabbath-school. Addie keeps the Sabbath with her parents and two sisters. Her father is seventy-two years old.

In this lot, are letters from five little girls, each eleven

enty-two years old.

In this lot, are letters from five little girls, each eleven years of age; and what is good, all are Sabbath-school scholars. Their names are, Cora Moores, of Michigan, Mary R. Welch, of Indiana, Clara A. Atwater, of Minnesota, Flora S. Marshall, of Indiana, and Carrie Wild, of New York. Cora likes the Instructor, and kindly reads it to her brothers and sisters. It was mary's first letter to the Budget. She must write again. At the time Clara wrote, she was not well, and the snow was so deep that she could not go to day school. Three feet of snow fell in one storm. Her oldest sister died of diphtheria last year. Flora writes that they were not allowed the use of the school-house, and so had to hold meetings and Sabbath-school in a private house.

Of the forty letters, only eleven were written by boys.

lowed the use of the school-house, and so had to hold meetings and Sabbath-school in a private house.

Of the forty letters, only eleven were written by boys. These were from Allie E. Bagley, Vermont; Johnnie Ferguson, Wisconsin; Elberi Avery, Ohio; A. Chace, Mt. Pleasant; O. P. Bolinger, Illinois; Samuel P. Fyock, Pa.; Eddie S. Knight, Kansas; Jimmie Clay, Minnesota; John S. Heck, Pa.; Leon Tichenor, address unknown, Geo. Daso, Ohio. Allie is an orphan boy, living with his uncle and aunt. His aunt keeps the Sabbath. He cannot attend the Sabbath-school, but he has the Instructor, and considers it a great blessing. What is Elberi going to do with all his ducks and chickens? We shall probably hear in his next letter. We want another letter from the Mt. Pleasant correspondent. Ali Chace is probably not coasting now, although he wrote of the fine sport he was having in that way last January. Samuel helps mamma do missionary work when not in school; and if he is as painstaking as with his letter written to the Budget, he will be of some use. Although it was snowing and blowing when Eddie Knight wrote, he had only missed one day from school. Jimmie is learning to read and write for himself. How mamma will enjoy that! John has lost only one Sabbath from school. Of Leon's parents, three brothers, and three sisters, only one brother and his mamma keep the Sabbath with him. But he has faith to believe that some of them will sometime keep it. Let us all remember them. Geo. Daso was staying at his grandparents. What a fine chance he has to write an interesting letter; and we shall be looking out for it, George. for it, George.

Next come three letters from the same post-office in Lee Co., Iowa, written by three little girls,—Emma Shenick, Ada Batten, and Maud M. Raines. Emma walks two miles to Sabbath-school nearly every Sabbath. She has read the New Testament through once, and as far as Excellent in the Old Testament. Probably Ada and Maud go to the same school with Emma, as they, too, attend Sabbath-school.

SARAH STEVENS writes from Eaton Co., Mich., and EMMA MCBRIDE from West Virginia. Emma belongs to a Sabbath-school of about eighty members. Gertie Watt, of Kosciusko Co., Ind., says she studies hard at school, then when examination day comes, she gets a good grade. EMMA Nelson, of Chicago, says: "I am a quick-tempered girl, but I will try to overcome it. I wish to be a good girl and follow the Saviour."

DAISY GRANT of Ohio, had a Merry Christmas and a

good girl and follow the Saviour."

Daisy Grant, of Ohio, had a Merry Christmas and a Happy New Year, and is trying to keep the commandments. Lena and Anna Kelloge, little sisters ten and eight years old, who live in Illinois, Anna Bennett, of Minnesota, Bette O. Stanfield, of Iowa, Mary Larsen, of Dakota, and Gracie Haines, of Wisconsin, write as if they really and truly meant to do right. Carl Roper is a member of a Minnesota Sabbath-school, but because of bad roads in winter, he cannot always go.

A little Iowa girl, by the name of Clara Evans, writes of the nice time she had at a neighbor's house, where some of them met to place their offerings to missions, and a few useful presents to each other, on a Christmas tree. Dora L. Phelan, a good little girl way out in Arkansas, loves the Instructor, and her Sabbath-school, which numbers about twenty-five. And here is a letter from Edith Mack, but some how the post-office address is lost off, so we cannot tell where she lives; and then we have a letter with a post-office given, but we cannot find the name of the little writer.

THE YOUTH'S INSTRUCTOR

IS PUBLISHED WEEKLY BY THE

S. D. A. PUBLISHING ASSOCIATION,

Battle Creek, Mich.

Mrs. M. J. CHAPMAN. - - Editor. Miss WINNIE LOUGHBOROUGH, Ass't Editor.

The Instructor is an illustrated, four-page sheet, especially adapted to the use of Sabbath-schools. Terms always in advance.

Single copy,
5 copies to one address,
10 or more copies to one address,
50 cts. a year.
50 cts. each.

YOUTH'S INSTRUCTOR,
BATTLE CREEK, MICH.,

PACIFIC PRESS, Oakland, California.