


The YOUTH'S INSTRUCTOR

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No. 45

The Time



The time to do a kindness,
To speak a word of cheer,
To ease another's burden,
To drive away a tear,
To soften down a sorrow
That clouds a brother's brow,
Is not, O friend, to-morrow,
But now, now, now!

There's not a day that passes,
Nay, there is not an hour,
To help a weary mortal
Is not within your power;
Hold out the hand of kindness,
The word of cheer allow,
Not waiting for to-morrow,
But now, now, now!



The word that's timely spoken,
The act that's timely done,
You never will regret them,
By them heartease is won;
To-morrow we may neither
Be here to good endow,
O Friend, the time for doing
Is now, now, now!

— Henry Waldorf Francis, in *Progress Magazine*.



ABOUT eight hundred aeroplanes have been built in France, to date.

SPAIN, it is said, sacrificed eight thousand bulls during 1909 in her national sport, the bull-fight.

WOMEN in Norway over twenty-one years of age who pay a certain income tax, and who have suffered no legal disqualification through lawbreaking or misconduct of any kind, are accorded the right of suffrage.

"THE atmospheric conditions in the Argentine Republic are so favorable for wireless telegraphy that the postmaster-general of that country proposes its substitution for the present telegraph system."

"THE Eldorado" is a new national forest just created in California by President Taft. This new reserve consists of 809,910 acres listed out of the southern portion of the Tahoe National Forest, and 31,701 acres taken from the public domain.

UNCLE SAM finds it no easy task to restock the national forests after the great conflagrations, such as have occurred this summer and fall. Ten tons of seed have been used in this year's campaign; and one hundred twenty-five thousand seeds of the jack-pine are required to make one pound. The seeds of the Western yellow pine are considerably larger; but, altogether, the ten tons of seed represent, it is claimed, about three hundred million single seeds. The col-

lecting of these, extracting them from the seed-bearing cones, and germinating them in the government nurseries, represent an amount of labor and expense little realized by the ordinary citizen.

Do You Know?

Do you know that you know and use the most accepted pronunciation for the following words? —

Conversant reptile
exquisite ferocity

These words, together with a number of others, were recently mispronounced by two public speakers. Why not form the habit of correct pronunciation? The "Speaker's Manual," published by the Review and Herald, of Takoma Park, D. C., and sold for twenty-five and fifty cents, will be of great aid to you in forming this much-to-be-desired habit. Send for a copy, and interest others to do the same.

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The Youth's Instructor

VOL. LVIII

TAKOMA PARK STATION, WASHINGTON, D. C., NOVEMBER 8, 1910

No. 45

A Message From a Prison Cell

W. A. SPICER

AMONG all the cheering testimonies borne at a recent great camp-meeting in Friedensau, Germany, one of the strongest came by letter from a prison cell.

In more than one country of the world young Seventh-day Adventists have been called upon to endure imprisonments for loyalty to the Sabbath of the Lord. In the military nations where every able-bodied young man must pass the ordeal of military training, our brethren have at times been brought into the straitest places. In some countries, by persevering loyalty to the truth amid hardships, their conscientious convictions have finally secured recognition, and the release of our youth from requirements contrary to the law of God. At other points brethren are still passing through the fiery trial.

The communication that came to Friedensau was sent by a young man under eight years' sentence in military prison for refusing to work on God's holy day. His testimony is contained in a letter which he wrote to his mother. The mother not being able to attend the meeting, the young sister to whom our brother is engaged copied the words out and sent them on, thinking, as she said, that his testimony might "strengthen the faith of the brethren." His words are as follows:—

"The Lord is true. 'Behold, what manner of love the Father hath bestowed upon us, that we should be called the sons of God: therefore the world knoweth us not, because it knew him not.' 1 John 3:1. I thank God that all is well with me.

"I remember Friedensau; and that brings to my mind the thought as to whether all those who are gathered there really find joy in the Lord. I repeat the Bible verse, 'The joy of the Lord is your strength.' Blessed are those who make this their personal experience.

"It is nearly eight years, as you will remember, since I was baptized at Friedensau, and made the covenant of a good conscience with God. About half of this time I have spent in prison; and with no other thought in mind than the glory of God I must freely say, 'Why did the Lord show just me such grace that I should be called to suffer for his precious name? Why did he select just me in my poverty and unworthiness?'

"During the time of my trial I have been granted many special and beautiful memorials of God's great goodness. How blessed it is to wait upon the Lord! I can say with the psalmist, in expressing my longings, 'My soul thirsteth for God, for the living God: when shall I come and appear before God?' Ps. 42:2.

"Be still, my heart;
In quietness lies wondrous power,
As now temptation, grief, and pain,
A thousand dart-like fears shall shower.
Be still, be ever still.

"Thou knowest that thy God is near,
As fortress, shield, and guard;
While on thy vision like a star,

Shines through the night his Word.
Then still, be ever still.

"The way of sorrow yet is thine,
Till purged from earthly dross;
No one shall enter heaven's door
Who hath not borne the cross.
Be still, be ever still.

"In quietness, with God fare on,
Through night or tempest wild;
Into the Father's house of rest
He'll lead, at last, his child.
Now still, be ever still.

"He only is my rock and my salvation; he is my defense; I shall not be greatly moved.' Ps. 62:2."

The hymn of resignation written in German with which our brother closes his testimony, necessarily loses much of the strength and sweetness of the original in free translation. As one of the sisters read this testimony from a young prisoner of the Lord, it laid hold upon every heart in the great congregation. Truly the grace of God is a wonderful gift; and it strengthens the heart to endure and to be brave through every trial. Some who have gone forth under these conditions to make the trial in their own strength have not been able to endure. But wonderfully the Lord has wrought in delivering our young men, and in strengthening those who have had to pass through the furnace of affliction. Truly the perils of the last days are thickening about us; and while some of our number are thus enduring hardness, let us give our own hearts and lives and all to service.

The Progress of the Word

Among the Orientals

THE encouraging reports from Christian workers in China, tell us the missionary outlook in that country, as in many others, is full of promise. "Nominally," writes one, "religious freedom does not exist; but in practise—apart from the restrictions on students in government schools and colleges, and on the higher officials—there is in China as wide a tolerance and as unrestricted an opportunity for missionary work as in any non-Christian nation." Nowhere else on earth are such vast religious issues trembling in the balance.

"Can any Christian contemplate the prospect of this people breaking away from their ancient and cherished past—not knowing whither they are tending, nor who are their best guides, nor what is their safe goal—without being deeply moved? Rival voices are calling, rival prophets are attracting, and rival claims striving for the mastery of this people who constitute in population at least, the greatest factor in the world's life." It is God that China needs, and many of her people are reaching out after him. The Spirit of God is opening the blind eyes of the Orientals, that they may see the shining of his love, and the beauty of his holiness, and the joy of his salvation. Reader, we must pray more earnestly for these souls.

With sincere thankfulness we read that the circulation of the Scriptures in China has outstripped all previous records. The British and Foreign Bible Society distributed 1,365,000 copies last year, more than ninety-nine per cent of which were actually sold. To quote from the China Inland Mission report, "Gates of brass have been broken, and bars of iron cut asunder, so that the land which Morrison found closed against the gospel, and without a Bible, is now not only open throughout its length and breadth, and possessed of the Word of God in its own tongue, but has some two hundred thousand adherents to the Christian faith."

"Elsewhere in the far East, we can also rejoice over favorable omens and widening opportunities. In the southwest provinces of Japan the British Bible Society, which works here in partnership with the National Bible Society of Scotland, sent out last year the unprecedented number of three hundred eleven thousand copies of the Book."

In Korea, through much tribulation, multitudes are coming into the light of the gospel. "The results of the wonderful religious awakening have shown themselves in an eagerness for the Scriptures which it has been often difficult to satisfy. Nearly forty-six thousand Korean New Testaments, and one hundred sixteen thousand portions of Scriptures were sold last year." Thousands are importunate for the complete Bible in their own tongue. The work of translating the Old Testament makes steady progress, and it is earnestly hoped that before many months the Korean Bible will be printed and published.

Korea is dragged out of her age-long darkness and slumber, into the stern light of the warfare and ambitions of stronger nations. Her self-respect all bruised, forced reluctantly into inevitable subordination, the iron has entered into her soul. Where will she find comfort? The Word of God has been put into her hand just in time. Tens of thousands are reading it, societies in remote villages are formed for studying it, and mighty waves of spiritual influence are going over the land." God's Book is going before his remnant people, preparing the hearts of many for his last message to the world.

This little sketch may fitly conclude with a contrast which a prominent worker has drawn in eloquent words. He says: "Not many months ago, there swept into Peking the train bearing the dalai-lama from Tibet,—the mysterious, incarnate Buddha, emerging from his remote, inviolable solitudes. And as he reached the railway station in Peking—itsself not long ago unknown to the outside nations—there stood upon the platform a Bible colporteur, who during this last year sold there nearly fifteen thousand Gospels and Testaments. O striking symbol! The far-away darkneses and superstitions of mankind are coming, thick and fast, within our ken; as they come, waiting to greet them stands the living Word, which drives away all darkness, opening the doors of the palace of clean thought, healing the ache of unknown sorrow, bearing the power that transforms the lives of men." "The Lord gave the word: *great was the company of those that published it.*" Let us see that we belong to that company.

ERNEST LLOYD.

A Sanctified Wheel-Chair

THE conference missionary secretary was speaking to the little company at Garden Grove, California, on methods of reaching others with the truth. At the close of the service an interested young woman near the front occupying a wheel-chair said to him that she wished she could do something. She said she believed she could write letters. He encouraged her, and the missionary society kindly entrusted to her the writing of letters to five persons to whom the *Signs of the Times* was being sent each week, and she began her work with enthusiasm.

A few weeks later, in that same church another missionary service was held, and I had occasion to mention several encouraging reports in connection with missionary correspondence work. At the close this same worker said to me: "Those experiences which you related are just like some I have been having." Then she spoke of the letters she had received from some to whom she had written who are interestedly reading the paper. The missionary society that day increased its *Signs* club, and gave her five more papers to use. Should not her experience, given in the following letter, just received, thrill her fellow Missionary Volunteers, and inspire them with the desire to do such work for God? She writes:—

"I have been leaving the papers with some of the neighbors since you were down here the last time. I took the third paper to one home in which I am interested, and the lady told me that she had decided to keep the next Sabbath. It was a surprise to me. She is beginning to have a struggle, for her husband is opposed to it. But I am praying for her, that she may not become discouraged. It is so hard for me to sit in a wheel-chair when there is so much I could do if I were like other people."

Think of it, young people. God is using the sanctified wheel-chair, with its earnest occupant. She has never walked in her life, though about twenty years of age, yet her willingness to serve is, by definite effort, with God's blessing, bringing results.

Are you faithfully using the ability he has given you, and improving the opportunities within your reach to pass on to others a knowledge of the blessed truth? If not, let this be an inspiration to you to do so.

J. R. FERREN,

Miss. Sec. Pac. Union Conf.

Scattering the Literature

I RECENTLY came across a most interesting and encouraging little story which well illustrates the effective and far-reaching influence of faithful tract work. A Christian brother, while on a steamer during a short vacation, improved his moments in giving out tracts to the passengers. Among others who received one was a gentleman belonging to Glasgow, who remarked, as he received it, that he feared such efforts did little permanent good. "I am not opposed to such work," he said. "In my younger days I did a great deal of it, but I can not say that I ever saw any fruit from it."

The tract distributor was somewhat damped by that remark, coming from one who evidently was a Christian of many years' standing. But he instantly remembered that his own conversion was brought about by means of a tract, which he received when a lad of twelve, as he walked along the street one wintry night. He was passing the door of a mission hall, when a young man, standing evidently for the purpose of

STAND with anybody that stands right. Stand with him while he is right, and part with him when he goes wrong.—*Abraham Lincoln.*

getting passers-by to go in, handed him a tract, and asked him to go inside and hear the gospel story. He did go in, and heard words there that awakened him to think seriously of eternity and his state before God, and he went home in deep soul trouble. In his anxiety he turned to the tract he had received, read it, and was saved. The tract distributor told this story to the gentleman, who listened with evident interest, and when it was finished, said, "May I ask where this most interesting event took place?"

The young man named the street, the hall, and the very night on which he got the tract, and was invited inside. The gentleman's eyes filled with tears; he grasped the distributor's hand, and said with great emotion: "It was my work for many a night, when a young man newly converted, to stand at that door giving tracts, and inviting passers-by, and I well remember inviting in the bright-eyed lad that wintry night. But I lost heart soon after that, and gave it up, thinking such work was almost useless. Now, after twenty years, *God has let me know it was not in vain*, and if he spares me to return to the city, I shall by his grace return to the service he gave me long ago."

But the twenty intervening years were lost. How many more golden sheaves might have appeared to that Christian's account in the great day of the Lord had he continued in the service that the Master gave him to do! Reader, the Master has given you a similar work in your community. No Christian is so obscure that he can not be of service in this great tract work. There is opportunity for all to engage in the distribution of our "God-given literature." Start out to-morrow with a few tracts or leaflets in your pocket. Scatter the literature like wheat over a field. Harvest is sure to follow. God will produce the results. *Dedicate a pocket to the King's business*, and carry some of our "God-given literature" with you on the cars, into the shops and stores, anywhere, everywhere. Do something to start others out in this line of work. *Conquer the sin of hesitation*. Let me assure you that the Master will give you as pleasant a surprise as he gave the old gentleman that day on the steamer. Some day he will let you know that your labor of love was not in vain. Remember to-day: "He counted me faithful." 1 Tim. 1:12. He is counting *on you* — *on me* — to be faithful in this service of sowing the seeds of truth. Believe me, we can not afford to disappoint him.

ERNEST LLOYD.

The Catholic Church

THOMAS E. WATSON, editor of the magazine bearing his own name, and a well-known writer and lecturer, and once a candidate for the presidency of the United States, has given much attention to the past and present work of the Roman Catholic Church. He perceives far more clearly than the majority of men to-day the real character of the work done by this church, and its desires and plans for the future.

Mr. Watson is, of course, meeting with much opposition in his campaign against the encroachments Rome is making upon American liberties. The majority now refuse to believe that she will ever make America her stronghold; and we fear that not until it is too late to loosen her grip upon our nation will they come to understand her malignant designs and deeds.

Cardinal Logue, from Ireland, recently said in a public meeting in Baltimore that he expected "to see America classed as a Catholic nation." "Catholicism will be the salvation of America," he declared.

One voice at least has been raised in protest, that of Dr. Aked, pastor of the Fifth Avenue Baptist Church, of New York. He said: "The Catholic Church, through all ages, has been the unrelenting foe of liberty and education." If she has always been that, she always will be, according to her own statements.

Lafayette, himself a Roman Catholic, said: "If the liberties of the American people are ever destroyed, they will fall by the hands of the Romish clergy." And Mr. Watson, after recounting the various ways in which Rome is tightening her hold upon us, exclaims: "God of our fathers! Isn't it enough to terrify the American patriot, when he sees the unthinking girls who are burying themselves alive in the enclosed orders, sees the priest shackling the press; sees the church of idolatry and superstition absorbing our people by the million and eating the heart of independence out of a great nation? Protesting missionaries! Again we ask you, What will it profit ourselves, our country, or our God, to redeem Jamaica and Cuba and South America from the Romish priests, and lose to them our own republic?"

In 1800 there were no Catholic churches in this country, it is said; now there are 12,449. In 1800 there were but 50 priests at work in the United States; now there are 15,000. In 1800 there were only 10,000 Catholics here; now there are 14,000,000.

"Our forefathers knew what the Catholic hierarchy was," says Mr. Watson. "Its record — reeking with crime and fraud — was familiar to them. Its enmity to popular rights, its foul partnerships with tyrannical kings, its frightful atrocities of persecution, its devouring greed and its corrupting influence upon nations were but too well known. The convents which had become brothels, the shameless sale of licenses to commit sin, the peddling of indulgences which remitted sin, the massacres encouraged by the church, the ghastly and wholesale murders of the Inquisition, the broods of bastards that clung around the knees of cardinals and Popes, the monstrous impositions and hypocrisies by which the priests preyed upon the masses while holding them down in the densest ignorance, victims of the nobility, of the king, and of the papal hierarchy, — all had excited a profound indignation in the men who framed our government. Everything that the fathers could do to save us from the insidious encroachments of priestcraft was done.

"But the children forgot the reason why the fathers so dreaded the Roman Church. The children know not the record of crime and devastation which caused our fathers to detest the Roman hierarchy. Consequently the Pope has found our republic an easy prey to his designs."

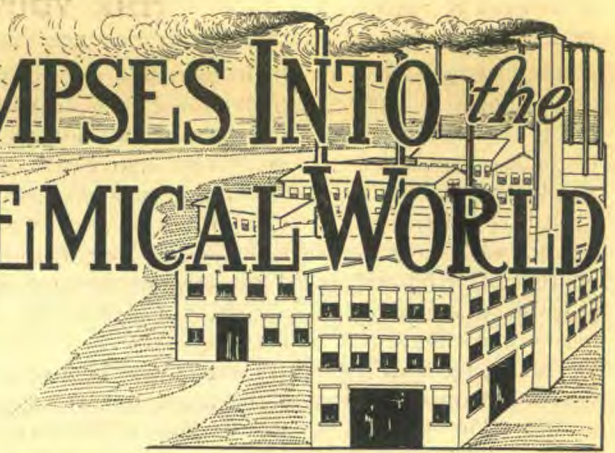
Why shouldn't the children forget when Rome has muzzled the press; has eliminated from the histories used in the public schools everything of special objection to the Catholic Church, and when she has eliminated from the public libraries the books that would inform the children of her past dark and bloody history?

Let us arouse ourselves; Rome is awake! And if we sleep at this time, our country, "the land of the free and the home of the brave," will forever pass out from our control into the hands of those who know no ruler but the lord of the Vatican, and no law but that issued from Rome.

ALL sunshine makes the desert. — Arab Proverb.



GLIMPSES INTO *the* CHEMICAL WORLD



The Structure of Matter—No. 1



HE heavens declare the glory of God; the earth is full of his riches; so is the great and wide sea. He watereth the hills from his chambers. He looketh on the earth, and it trembleth: he toucheth the hills, and they smoke. His open hand satisfies the desire of every living thing. He giveth power to the faint, and to them that have no might he increaseth strength. There is no searching of his understanding.

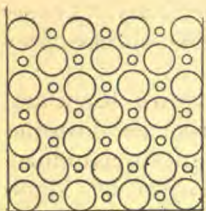
But while man can not comprehend the fulness of God's power and wisdom, he finds his greatest pleasure and profit in studying the handiwork of God. "Ask now the beasts, and they shall teach thee; and the fowls of the air, and they shall tell thee: or speak to the earth, and it shall teach thee: and the fishes of the sea shall declare unto thee." "Lift up your eyes on high, and behold who hath created these things, that bringeth out their host by number: he calleth them all by names by the greatness of his might, for that he is strong in power; not one faileth."

When we go to the beasts for knowledge of God's creative power and wisdom, we are studying zoology; when we go to the birds, ornithology; to the earth, geography, geology, mineralogy, and physics; to the fishes, ichthyology; to the heavens, astronomy.

But all these yield us the greatest benefit only as we consider them in the light of that latest and most practical science, chemistry.

As an introduction to some elementary chemical facts and principles it will be necessary to give our attention first to the nature and construction of matter.

Matter is anything which takes up room. Place a book on the table. As long as the book remains in that identical spot, you can not put another in the same place. The first book takes up the room, occupies the space, hence is matter. All the things, then, that we see and handle are forms of matter. Air is matter. If you take a bicycle pump, and close up the opening, so that the air can not escape, and then attempt to push the piston down, you will find that you can not get it to the bottom. The air can be compressed considerably, so that the piston may be pushed down some distance; but it finally refuses to go farther unless the air is released, showing that the air takes up room. In the same way a small-necked bottle can not be filled under water unless there is some provision made for the escape of the air from the bottle. Matter, then, may be invisible.



As peas will fit into the space between the iron balls filling a vessel; so will the molecules of some substances fit into the intermolecular spaces of other substances. See the paragraph on intermolecular spaces on the next page.

Molecules and Atoms

All matter in general is conceived of as being composed of small particles called molecules, and these molecules of still smaller particles called atoms. An atom is defined as the smallest particle of matter that can enter into combination and form molecules. A molecule is a quantity so small that it can not be divided without changing

its nature. For example, a molecule of sugar is the smallest part of sugar that exists. If such a molecule is divided, it is no longer sugar, but has been separated into the three things of which



Microscopic animals found in a drop of water

sugar is made. A molecule of sugar contains forty-five atoms of three kinds. A molecule of salt contains two atoms, each of a different substance; and just as soon as these two atoms are broken apart, we no longer have salt. "Since the discovery of radium some advanced thinkers have abandoned the atom and adopted the electron as the ultimate unit;" that is, atoms are supposed to be broken up into electrons.

If we place under a strong microscope a drop of water out of a vase in which flowers have been standing, we can see hundreds of tiny animals running about in the water; but we can not see one with the eye alone. But while molecules are invisible, their actual size and weight have been estimated approximately by physical methods.

If you will take a piece of paper, and make a cup three eighths of an inch long and of the same width and height, you will have a cup that will hold almost a cubic centimeter of gas. It has been estimated that a cubic centimeter of gas at normal temperature and pressure contains 36,000,000,000,000,000,000 molecules. It would then require 800,000,000,000,000,000,000 atoms of hydrogen to weigh one gram, which is one fifth as much as a five-cent piece weighs.

The late Lord Kelvin used the following illustration to help one to realize the extreme smallness of molecules: "If a drop of water be imagined as magnified to the size of the earth, the molecules would probably be larger than small shot but smaller than baseballs." If molecules are so small, atoms must be still smaller.

A rose may fill room after room with its fragrance, hence millions of particles must be thrown off. And yet no loss of weight can be determined by the most sensitive scales. A grain of musk will scent a room for years by constantly discharging into the air particles of musk, and still the original grain does not perceptibly diminish in weight.

Radium gives off particles so small that they will easily pass through a leaden tube whose walls are one fourth of an inch thick. It has been calculated that



"The small black dots at *a* represent the position of the molecules of a small body at a given instant. The circles may represent the range of the motion of the individual molecules. At *b* more heat has been added to the body, the molecules require more room in which to vibrate, the body is larger. At *c*, after more heat has been added, the body has become a liquid. To represent on the same scale the gaseous condition would require a diagram larger than the page of an ordinary book."

matter. The chemical world depends upon the behavior of these small divisions toward one another.

Intermolecular Spaces

The molecules of any given substance are supposed to be separated by spaces that are large as compared to the molecules themselves. But the spaces between the molecules of a gas are much greater than those of a liquid or solid. In some substances the distance between the molecules is many times the diameter of the molecule. If you take a glass of water level full, you can sprinkle in considerable sugar or salt without running the water over. The molecules of sugar or salt must fit into the spaces between the molecules of water.

There is no substance free from these molecular spaces; all matter is porous. Lead, silver, and gold are considered very dense, solid metals, yet hollow silver and lead globes have been filled with water and placed under a screw-press. The globes flattened when pressure was applied, which diminished their size, and the water was forced out, collecting on the outer surface of the globes. The molecules of water must have been smaller than the spaces between the molecules, or particles of the metal. Gold will absorb mercury, or quicksilver, just as a piece of wood absorbs water, hence this very dense metal also is porous.

The strength of a cannon is tested by forcing water into the bore. When the pressure becomes very great, small drops of water appear on the outside of the cannon. This water has been pressed through the spaces or interstices between the particles of iron.

The Molecules in Motion

The molecules of matter are thought to be in constant motion, and since a body expands when heated and contracts when cooled, it is supposed that the heat sets the particles in more rapid motion, and pushes them farther apart. "If it came to a race between an express-train and a molecule of oxygen," says James Philip, "the train would be hopelessly out of it; for the oxygen molecule slips along at the rate of about twenty miles a minute."

An iron ball that will just pass through a ring when cold will not pass through when hot. An iron rod is longer when hot than when cold. The rails of a track laid to touch in summer will be separated in winter. Tall monuments, like Bunker Hill and Washington Monument, are influenced by the heat of the summer sun. The stone is expanded on the side of the greatest heat, and the monument perceptibly bends in the opposite direction.

Just recently, "to ascertain whether the Eiffel Tower had suffered any displacement as the result of

the Seine flood, an examination was ordered. It revealed the fact that the position of the top of the lightning-rod, in relation to a datum, had not undergone any variation since previous examinations in 1896 and 1908, but that this point had a daily motion of from one and one fourth to seven inches, varying in direction with the season and produced by the heat of the sun. During winter, the sun strikes only the southern side of the tower, while in summer it strikes all sides, producing a displacement in a general direction perpendicular to the meridian, and more complicated than during the spring and fall."

Glass apparently has no pores, no solid, liquid, or gas ever having been made to pass through it. Yet it expands and contracts on being heated and cooled; hence it, like every other kind of matter, must contain physical pores.

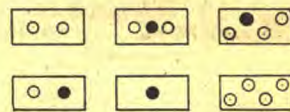
Construction of a Molecule

The number of atoms in a molecule varies. In the case of the more familiar gases, such as oxygen, hydrogen, nitrogen, and chlorine, the molecule consists of two atoms, while some substances contain scores of atoms to the molecule. In a few rare cases, as mercury, zinc, and cadmium, there is only one atom to the molecule. All the atoms of a molecule may be alike, or they may all differ, and this fact makes a basis of division. Those substances whose molecules contain atoms of only one kind are *elements*; those whose molecules contain dissimilar atoms are *compounds*. Gold is an element, it contains only gold. Salt is a compound, its molecule containing an atom of sodium, and an atom of chlorine.

There are only about seventy-five elements known to the chemist; all of the rest of the thousands of substances about us are compounds, made by combining two or more of the elements. Aluminum, arsenic, carbon, chlorine, gold, hydrogen, oxygen, iron, lead, silver, mercury, nickel, phosphorus, platinum, potassium, silicon, sulphur, tin, zinc, iodine, and nitrogen are among the common elements.

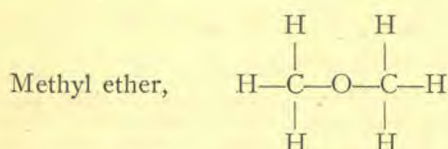
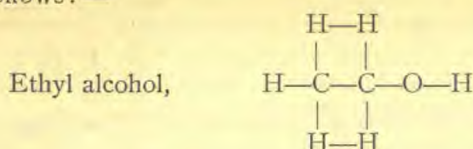
There is no more interesting problem in the realm of nature than that of the infinite variety of substances the Creator of the universe has made from these seventy-five basal elements. The shimmering star, the crystal fountain, the sparkling ruby, the roadside dust, the flower's tempting nectar, the rose, the tree, the peach, the bird, the boy,—all of these are combinations of two or more of the elements.

And the most marvelous part of this great wonder is that some substances whose molecules are composed of exactly the same kind and the same number of atoms are in themselves very different. The formula C_2H_6O (carbon, two parts; hydrogen, six parts; oxygen, one) represents the composition of the molecules of two different substances, an ether and common alcohol. How, you ask, can two entirely different substances be composed of exactly the same things in the same proportion and of the same weight? The only answer seems to be that the atoms composing the molecule must be *arranged* differently. For example:



The upper row, passing from left to right, represents a molecule of oxygen, which contains two atoms of the same kind to the molecule; one of water, which contains two atoms of hydrogen and one of oxygen; and one of ammonia, which has one of nitrogen and three of hydrogen. The lower row represents a molecule of salt, which contains two different atoms; one of mercury, which has only one atom; and one of phosphorus, which has four atoms of the same kind.

The arrangement of each of the molecules of the two substances just mentioned is sometimes represented as follows:—



We must remember, then, that since the molecule is the smallest portion of a compound substance, the differences between different compounds must be due to the difference between their molecules. The peculiar properties which distinguish each compound must reside in the molecule. Molecules differ in the *kind* of atoms that compose them; in the *number* of atoms; and in the *relative positions*, or arrangement, of the atoms in the molecule.

Salt and water are composed of different elements; sugar, vinegar, alcohol, and oxalic acid are composed of the same elements—carbon, hydrogen, and oxygen—but in different proportions; while starch and woody fiber (cellulose) are composed of the *same* elements in the *same* proportion, but the atoms are differently arranged.

The purpose of chemistry, then, “is the investigation of the objects that lie all about us in nature, the study of their *composition* and of their *relations* to one another, the explanation of the various phenomena in connection with them, and the ability to apply this knowledge to practical uses. A knowledge of chemistry adds a charm to many of the common things of life, clothing them with new beauty. Later it will be noticed that the great manufacturing industries of the world, without the application of its laws and principles would result in failure. Whether studied, therefore, for its intellectual or for its practical value, it is of the greatest importance.”

F. D. C.



Kindness of Animals to Their Mates in Trouble

Who has not seen an entire neighborhood of sparrows, robins, bluebirds, and other songsters, with angry notes and ruffled feathers darting from bush to bush because a cat had climbed up into a tree in the vicinity of a family of young birds?

The writer was once crossing one of the beautiful bays of the Florida coast in a small sailboat, when his attention was arrested by a queer-looking bird far out at sea, and high up in the air. The bird was descending in my direction, and as it passed over only about two hundred feet above, I had a clear view of it. It was a large sea-bird, known in that locality as a “man-o-war hawk,” and the interesting thing about it was that it was carrying one of

its mates that was evidently very sick or disabled.

These birds are web-footed, and their feet are small compared with the size of the bird. In this instance they had clinched their feet together in such a way that the sick bird hung with its back down, but head first, with wings partly open, and in a position to offer as little resistance as possible to the air. They were steering directly toward a dense grove of palm trees some acres in extent, half a mile away on the mainland, and when over the center of the grove, they stopped, and settled down through the tree-tops out of sight. In a moment or so the well bird reappeared at the spot he had entered, and flew out to the Gulf again.

I was so much interested in the matter that I steered the boat over to the clump of woods, landed, and tried to find the sick bird; but after hunting a while, was compelled to give up the search on account of the high grass and bushes in the densely matted jungle.

The helpless bird was probably an old one whose strength had given out, or else it was sick or wounded. In either case its comrade had carried it a long way to a spot where it could die in peace, unmolested. There must have been an understanding and a co-operation between them, as the sick bird must have turned on its back, and presented its feet for the grip, and then maintained the correct attitude to interfere as little as possible with the flight of its rescuer.

But who gave the well bird wisdom to direct its course to the palm-tree grove where its disabled mate could die in seclusion? Much can be learned from the habits and instincts of the lower orders of God's creatures.

W. F. HASTINGS.

The Dogs of Constantinople

THE ownerless, vagrant dogs of Constantinople—the scavengers of the city—are, in spite of their reputation, the kindest, gentlest members of the dog family, and the most intelligent. Such is the opinion of Mr. Alfred Bigelow Paine, who, in “The Ship-Dwellers,” describes at some length the traits and habits of these animals. They do not wander about alone, but have divided themselves into groups or squads, and their territory into districts, with borders exactly defined, and there is a captain to each of these companies.

The captain is a sultan with the power of life and death over his subjects. When puppies come along, he designates the few—the very few—that are to live, and one mother nurses several of the reduced litters. When a dog gets too old to be useful in the strenuous round, he is starved to death.

The minister's wife told me that she had tried to feed one of these dying dogs, but even when the food was placed in front of him, he would only look pleadingly at the captain, and refuse to touch it. She brought him inside, at last, where he was no longer under that deadly surveillance. He ate then, but lived only a little while. Perhaps it was too late; perhaps the decree was not to be disobeyed, even there.

The minister's wife told how once a male member of her household had shown some mark of attention to one of the dogs of their neighborhood group. A day or two later she set out for a walk, carrying her parasol, holding it downward. Suddenly she felt it taken from her hand. Looking down, she saw a dog walking by her side, carrying it. It was the favored animal, trying to make return to any one who came out of that heavenly house.—*Youth's Companion*.



THE HOME CIRCLE

Many of life's sweetest and most helpful experiences are, often for mere want of thought, sacrificed by the uncourteous.—Mrs. E. G. White.



Cleansing Agents, and Remedies

Gathered From Here and There

WHEN milk is spilled on top of the stove, and begins to burn, sprinkle with table salt. It will stop smoking, and can be readily scraped off.

Boil three or four onions in a pint of water, apply with a soft brush to gilt frames, and flies will keep off them.

Crockery that has become dark and discolored, may be restored to its original whiteness by rubbing it with a little damp baking-soda.

To prevent the smoking of a lamp, soak the wick in strong vinegar, and dry it well before using. It will then burn both sweet and pleasant.

Salt and lemon juice is a good iron-rust remover. Place article in sun. Renew the salt and lemon juice several times.

To every quart of warm water add a tablespoonful of ammonia. Wash cut glass in this water, rubbing it with an old tooth-brush, after which rinse in water of the same temperature, and turn upside down to drain.

Colored gingham or cotton dresses should have the color set before they are laundered. This is done by soaking them for a few hours in salt and water: half a cupful of salt to a tubful of water. They may then be washed in the usual way, blued sparingly, and hung in a shady place to dry. The sun will fade them quicker than anything else. In fact, it is well to soak them in the salt and water before making them up, if possible.

Lamp chimneys washed in hot suds, drained a little, and dried with a clean cloth, will have a finer polish than if rinsed.

Clean the soot out of stovepipes and flues by placing a piece of zinc on top of a hot fire in the stove. The zinc melts and forms a chemical which destroys the soot. If it is not easy to obtain the zinc, buy a washboard and tear the zinc off; it will well repay the outlay. Worn-out zinc mats may be used.

Fill the boiler half full of cold water. Cut in very thin pieces one-half cake of soap, and add two tablespoonfuls of coal-oil; then put in the clothes, and let boil for half an hour, stirring frequently. Then with very little rubbing, the clothes are ready to rinse, blue, and hang out.

Gingham or other colored shirt-waists that have become discolored by perspiration under the arms, may be restored by soaking the waist an hour or two in cold water, then rubbing the places with plenty of corn-meal instead of soap when washing.

To remove ink stains, take a cup or glass and hold the goods firmly over it; wet the ink spot with fresh milk, letting the fluid pass through the cloth into the vessel below. When thoroughly saturated with the milk, rub lemon juice thoroughly into the cloth with the tips of the fingers. Alternate milk and lemon juice

as directed until the spot disappears. This method is said to be efficacious if the goods has not been laundered after receiving the stain. If ink spots are rubbed on both sides with butter, put away overnight, and then washed in the usual way, no trace of the stain will remain.

To clean hair-brushes dissolve a lump of baking-soda the size of a walnut in a quart of hot, soft water. Shake the bristles through the water, keeping the back and handle of the brush as dry as possible. When the bristles look clean, rinse in cold water. After wiping the back and handle of the brush, stand it on the bristles to dry. The use of soap softens bristles, and wiping has the same effect.

Do not hang rugs on a line to clean, as in this way the edges are weakened by the weight of the rug. Avoid using a wire carpet beater for good rugs. Instead, lay each rug flat on the grass or the porch floor, and gently go over it with a wicker beater. Do this to both sides of the rug, thus loosening the dirt. After this, both sides should be thoroughly swept, taking care to use the broom the way the nap of the rug lies. If the rugs look soiled, they may be wiped with a clean, lintless cloth wrung out of tepid water to which has been added a tablespoonful of turpentine. Never shake rugs, as that frays the ends, or destroys the fringe.

To renovate an old refrigerator, scald out thoroughly with warm soap-suds. When dry, paint over the whole of the inside with aluminum paint, the same as is used for hot-water radiators. Two coats may be necessary.

A simple method of removing fruit stain from the most delicate colors as easily as from white is to moisten the stained spot with camphor before wetting the goods. The stain will come out when washed. When I take off a table-cloth, I moisten any stains with camphor before placing with the soiled clothes, and there is no delay on wash-day.

Berry stains are easily removed by pouring boiling water through the stained portions of cloth.

Turpentine removes paint from fabrics, also from window-glass. So does benzine or naphtha.

Mutton tallow and white chalk blended together and bound on the finger is an excellent remedy for runrounds and felons if applied when first started.

Should you step on a rusty nail, tack, or pin, set your foot in a basin of kerosene. It will save the doctor's bill, and suffering.

No family medicine-chest should be without some good antiseptic, as peroxide of hydrogen. This is of the greatest value in disinfecting any abrasion of the skin. It destroys all germs with which it comes in contact, and should be immediately applied to pin pricks or any other of the so-called trifling hurts. Formaldehyde is one of the best antiseptics known.



Children of China.



Indian Child,
Central America.



"The Little Helper,"
Japan.



Two Little Girls in New Guinea.

CHILDREN'S PAGE

Bible Shoes

Who is this man by Horeb's mount,
Who heard, like thunder-sound,
"Put off thy shoes from off thy feet;
For this is holy ground"?

And who are these,— this Heaven-led host,—
Who wandered, we are told,
And wore the same shoes forty years,
Which yet waxed never old?

And who is this, beside the gate
Of Bethlehem sits down,
And takes his kinsman's shoe, before
The elders of his town?

Who is this exile hastening home
To find forgiveness sweet,
A father's kiss—a robe—a ring—
And shoes for weary feet?

And who is this that passeth by,
The latchet of whose shoes
We are not worthy—you and I—
To stoop down and unloose?

ELIZABETH ROSSER.

Kings and Queens

"I AM glad we have no royalty in America," complained Barbara, from the window-seat. "It is hard enough to learn all about every Mary and Henry in England."

"Is the lesson going hard?" asked Aunt Kate, looking up from her sewing by the open fire.

"It is not going at all," said Barbara. "It has come to a perfect standstill. I no sooner get an Edward all learned than I find a Henry on the throne, and then right away there are more Edwards, and there is always a William bobbing up."

"I wonder if I could help you," said Aunt Kate. She had a pleasant way of helping Barbara out of difficulties.

Barbara came over to the hearth-rug and opened her book with a disgusted gesture.

"If they had only been named something different—if once in a while they had ever had a Barbara, for instance," and she laughed in spite of her vexation. "But they all had such common names, and so little variety, too!"

"I have been through it all," said Aunt Kate, "and perhaps my plan for learning the order of succession may help. It is years since I repeated the rhyme which grandfather gave me; but take your pencil, and copy this down."

Barbara did as she was told, with this result:—

Norman William, "the Conqueror,"
Then William, his son,
Henry, Stephen, and Henry,
Next, Richard and John;
Then Henry the Third,
Then of Edwards a trine,
Then, following Richard,
Three Henrys in line;
Next, after two Edwards,
Richard, number three;
Two Henrys, Sixth Edward,
And Mary we see;
Not long was her reign;
And after her death
Came the spacious times
Of Elizabeth.

Then followed Scotch James,
And Charles, who was slain,
And then, after Cromwell,
Charles Second did reign.
Then came James the Second,
From the throne removed.
Then William and Mary
Together, much loved.
Anne, four Georges, and William Fourth
In straight succession came,
Followed by Queen Victoria,
Of good, illustrious name.
Then Edward the Seventh,
As "Peacemaker" known
Throughout all of Europe
To India's zone.
And now George the Fifth,
The Seventh Edward's son,
Is the reigning king
On Great Britain's throne.

"But Edward was not king when grandfather went to school, and now there is a new George!" cried Barbara.

"Well," said Aunt Kate, "you do not write very fast, and so I composed the rest."

"Perhaps I may have to finish the verse with more names when I'm an aunty," said Barbara, gathering up her papers. "I know I can remember them now, because I can sing-song them—but I still wish there had been a greater variety of names."—*Youth's Companion.*

A Geographical Social

Ask each person to come representing some geographical point. The guessing of places represented as people arrive will start a lively conversation and keep the ice from forming.

After the place signified by each symbol or sign worn is disclosed, introduce the following game: Let the company be gathered in a circle with one person in the middle. He may point to a person and say, "Name a city in Illinois before I count ten," or, "a river in Europe," etc., or he may ask whatever geographical question he may choose. If the person fails to respond before ten is counted, he must take the place of the one in the middle.—*Selected.*

The World and the Child

GREAT, wide, beautiful, wonderful world,
With the wonderful water round you curled,
And the wonderful grass upon your breast—
World, you are beautifully dressed!

The wonderful air is over me,
And the wonderful wind is shaking the tree;
It walks on the water and whirls the mills,
And talks to itself on the top of the hills.

You, friendly earth! how far do you go
With the wheat fields that nod, and the rivers that flow,
With the cities and gardens, the cliffs and isles,
And people upon you—for thousands of miles?

Ah! you are so great, and I am so small,
I tremble to think of you, world, at all;
And yet, when I said my prayers, to-day,
A whisper within me seemed to say,

"You are more than the earth, though you are such a dot:
You can love and think, and the earth can not!"

—*Selected.*

THE CHILDREN'S COOKING CLASS

CONDUCTED BY D. D. FITCH

Ways of Cooking Eggs — No. 10



SHALL take it for granted that you can boil, poach, and scramble eggs acceptably; so I shall in this lesson tell you something about shirred eggs. I had cooked for some time before I learned this appetizing but simple method of preparing eggs.

Individual granite shirr-pans are sold at most hardware stores. For family use a granite pie pan will answer the purpose well.

PLAIN SHIRRED EGGS.—Oil the pan, drop the egg on it, sprinkle with salt, and set in the oven. Eggs will cook in this way quickly, so must be watched closely, and removed before they are overdone.

CREAM SHIRRED EGGS.—Prepare as for plain shirred eggs, adding one-half cup of milk or cream to five raw eggs.

TOMATO SHIRRED EGGS.—Prepare as for plain shirred eggs, using one-half cup of strained tomatoes for every five raw eggs. Grated onion may be added if desired.

PLAIN OMELETS.—Break three eggs in a bowl; add three tablespoonfuls of milk or water and a pinch of salt; beat all together well. Have ready a hot skillet; pour into it about one teaspoonful of oil; tip the skillet from side to side in such a way that the oil will come in contact with all parts of it. Pour out that which remains, and pour in half of the egg mixture. By lifting one edge of the omelet from the pan with a thin knife, and at the same time elevating the opposite edge of the pan, the uncooked portion will run under, and thus keep the bottom from burning. When the whole has become fairly well set, turn one half of the omelet over, and then by inverting the omelet pan the omelet may be turned onto the warm dish on which it is to be served. Cover and set in a warm place while you are repeating the process with the remainder. Place a sprig of parsley on top of each one, and they are ready for the table.

Tomato omelet, green pea omelet, and onion omelet are prepared by laying on the omelet, before it is doubled, a spoonful of the article from which it is named. An omelet may also be served with an appropriate sauce poured over it.

OMELET SOUFFLE.—The preparation of an omelet soufflé calls for practically the same materials, only they are put together in a different way. Separate the whites and yolks, beat the whites very stiff; then add the yolks, the salt, and, if desired, a little milk, lightly stirring all together, and pour at once into the hot omelet pan. Allow to cook for two or three minutes, then set pan in the oven until the omelet is well risen. Turn it onto a hot dish, and serve with haste, as it will soon fall and become tough. It may be that later we shall be able to teach you the art of making omelet soufflés that will hold their shape much longer.

Our next lesson will be on the preparation of toasts.

Credit Book

It would be a good plan for each one following the cooking lessons to secure a small note-book, and enter in it a list of all the different foods you think you could successfully prepare if you were left alone in the kitchen. After you have made such a list, get some one of the older members of the family, mother, father, or sister, to place an O. K. after each one they think you have satisfactorily prepared. With this for a starter, each week add several new ones, endeavoring to get for each entry an O. K. on the first trial, if possible. Remember that "the eating of the pudding is the proof thereof." Such a note-book well filled out will be a valuable keepsake in the future.

D. D. FITCH.

The Principles of Candy Making

THE desire for home-made candy is much greater than the measure of success which attends the efforts of the amateur confectioner. Most house daughters and housewives are able to make well a few kinds of candy, but generally they find it a difficult matter to follow successfully the recipes for confectionery which are not familiar to them. The trouble results from lack of practise, for candy making, which is usually undertaken only occasionally, is a difficult branch of cookery. But the girl who once in a while wishes to make candy for her family and friends may in part overcome this handicap of lack of practise by following a few simple rules, well known to professional confectioners, and zealously guarded by them.

BE ACCURATE.—If the rule calls for one-quarter teaspoonful of a flavoring extract, measure that amount with a measuring spoon; do not take up any spoon that happens to be convenient, and pour in what seems to be about the right quantity.

The weather is of more moment in candy making than in plain cooking. Do not try to make candy on a muggy day; the results will probably be unsatisfactory. But if forced to disregard this warning, attempt but little, act quickly, and remember that damp weather is the only excuse for the substitution of intuition for rule.

CLEANLINESS.—Cleanliness to the point of chemical purity is necessary in making confectionery. Never make candy in a pan which has ever been used for anything else. Heating lard and even cooking vegetables leave a taint which may spoil the delicacy of flavor of candy made in the same dishes.

ALUMINUM DISHES.—Aluminum dishes are preferable to tin or granite for heating mixtures. For mixing, wooden spoons are better than metal ones, because the mass which is being stirred does not stick so readily. But the operator must remember that very little heat will char wood.

FONDANT.—Fondant, which forms the basis for many kinds of candy, is difficult to make and handle. When the mixture—generally one part of water to four of sugar—first begins to boil, cover the dish and allow the cover to remain until steam is seen ascending all round the cover. Then remove the cover and boil until the mixture strings—that is, until it will form a hair-like thread when poured from a spoon.



A TEMPTING OMELET

ARE you an active member of the cooking class?

When the fondant is done, quickly pour all of it on a platter large enough for the mixture to be in depth not more than an inch. Do not scrape; pour just once, and very quickly. Because of the sudden cooling, a second pouring will cause granular streaks to run through the mass, thus destroying the fineness of texture of the whole. Then, instead of beating, "cut in" the fondant, using a four-inch wall-paper knife—a tool which can be bought for from ten to twenty-five cents. "Cutting in" is scraping up the whole mass, folding it over, and cutting through with the knife. This motion is repeated, from each side of the pan in turn, until the fondant becomes a ball, which can be kneaded by the hand.

As a general thing fondant should be made at least three days before its use, and placed in an air-tight glass receptacle. Indeed, storage up to three weeks is desirable. The mellowing which results, coupled with care in following the suggestions given above, will obviate much of the amateur's difficulty with fondant.

In the making of many sorts of candy, it is desirable that liquids—such as chocolate for the coating of creams—remain hot after all the cooking has been done. As the ordinary stove gives too much heat for the purpose, confectioners use a working slab, moderately heated by electricity or steam. A cheap and effective substitute for that expensive device is a soap-stone.

NEVER CUT CANDY IN A PAN.—The attempt to cut candy in a pan will always result in pieces with crumbling edges, as the knife has to be dragged through the candy instead of cutting down sharply, and as the sides of the pan allow no room for the expansion which the width of the knife will cause. Moreover, there is always waste in the corners and at the sides. Instead, procure smooth iron bars, two fifteen inches long and two eighteen inches long, both three eighths of an inch thick and two inches wide—any blacksmith shop can furnish them at slight expense—and place them, set on edge, in the form of a rectangle on a marble slab. Be sure that the bars are carefully smoothed, for otherwise they will be untidy and soon rust. By lapping the edges and moving the bars back and forth, a receptacle of any size desired can be made. After buttering slab and bars, pour the candy into the enclosure. When it has cooled, remove the bars, and with one sharp incision cut the candy clear across. Use a sharp knife of uniform thickness and width, preferably with a thin blade.

MARbled CLoTH.—Use marbled cloth instead of waxed paper to dry candy upon. Then there will be no danger of little particles of the paper adhering to the candy. Candied fruit and similar confections, however, should be drained on nicked wire netting about nine inches by twelve, with half-inch mesh. Place the netting over a dish, and pour upon it the whole mass of fruit and sirup. By pouring all of it at once, the coating of sirup will be uniform. It will dry evenly, as the air will reach all sides alike. After most of the moisture has evaporated, the fruit will be ready to be rolled in sugar.

Sprinkle a shallow dish with coarse sugar. Roll each piece of fruit in a separate place in the dish, taking care that the sugar is absolutely dry when the fruit is placed in it. If the sugar is damp, it will mat so that the confection is mussy to the eye and unpleasant to the palate. Moreover, the scales of damp sugar will jar off, leaving a break in the complete covering which is necessary for the preservation of the fruit. One rotting piece will contaminate another, until the

whole boxful is unfit for use. If the sugar is properly applied, candied fruit, well packed, will keep for several weeks without injury. For drying, use the pieces of netting, so supported that the air can circulate freely beneath them.

AVOID BEET SUGAR.—It will form lumps when the particles of cane-sugar will remain separate. For creamy mixtures and frostings, confectioners' sugar, almost as fine as corn-starch, may well be used.

Pack soft candies in layers separated by waxed papers backed by cardboard. Remember that the best-made confections will be unappetizing when presented or served unattractively.

These suggestions are made to supplement good recipes for candy. If they are observed, and the amateur confectioner remembers that she is engaging in a difficult task which requires patience and care, her way will be made easier.—*Youth's Companion*.



M. E. KERN Secretary
MATILDA ERICKSON Corresponding Secretary

Society Studies in Bible Doctrines

No. XXXIX — Destruction of the Wicked

SYNOPSIS.—Justice demands the destruction of those who reject the gospel, choosing to retain sin in their lives. The wicked who are living when Christ comes, will be destroyed by the glory of his coming. When all the wicked are raised after the one thousand years, they will be led by Satan against the New Jerusalem, where they will be destroyed by fire. This destruction will be complete, so that the wicked will be no more.

Questions

1. What will surely come to the wicked because of their sin? **Isa. 13:11; Prov. 11:21.**
2. What shows the justice of this? **Rom. 2:4, 5; John 3:16, 18.**
3. What is their punishment? **Rom. 6:23; 2 Thess. 1:9.**
4. When will the rewards for righteousness and sin be given? **Rev. 22:12.**
5. What will be the effect of the coming of Christ on the wicked? **2 Thess. 2:8.**
6. Under what circumstances are the wicked finally destroyed? **Rev. 20:7-9, 15.**
7. How complete is this destruction? **Mal. 4:1; Obadiah 16.**
8. What is the nature of the fire which destroys the wicked? **Matt. 25:41; 3:12.**
9. To what other fire has a similar term been applied? **Jude 7.**
10. To what then must those who choose the evil look forward? **2 Thess. 1:9; Ps. 37:10.**

Notes

2. "For six thousand years the great controversy has been in progress; the Son of God and his heavenly messengers have been in conflict with the power of the evil one, to warn, enlighten, and save the children of men. Now all have made their decision; the wicked have fully united with Satan in his warfare against God. The time has come for God to vindicate the authority of his downtrodden law. Now the controversy is not alone with Satan, but with men."—*Great Controversy*, page 656.

5. "At the coming of Christ the wicked are blotted from the face of the whole earth,—consumed with the spirit of his mouth, and destroyed by the brightness of his glory.

Christ takes his people to the city of God, and the earth is emptied of its inhabitants."—*"Great Controversy,"* page 657.

6. "Fire comes down from God out of heaven. The earth is broken up. The weapons concealed in its depths are drawn forth. Devouring flames burst from every yawning chasm. The very rocks are on fire. The day has come that shall burn as an oven. The elements melt with fervent heat, the earth also, and the works that are therein are burned up. The earth's surface seems one molten mass—a vast, seething lake of fire. It is the time of the judgment and perdition of ungodly men,—the day of the Lord's vengeance, and the year of recompenses for the controversy of Zion."—*"Great Controversy,"* pages 672, 673.

7. "In the cleansing flames the wicked are at last destroyed, root and branch,—Satan the root, his followers the branches. The full penalty of the law has been visited; the demands of justice have been met; and heaven and earth, beholding, declare the righteousness of Jehovah."—*"Great Controversy,"* page 673.

Missionary Volunteer Reading Courses

NOTE.—Do not drop behind. Cramming can never do what plodding does. It is easier to do a little reading every day of the month than to do a month's reading in one day. It would be well to make an application to mental work of the best rules you know for eating. Reading regularly will strengthen the mental "digestive organs," but long fasts are apt to disable these organs for work; and overeating is sure to bring dyspepsia.

Senior No. 4—Lesson 6: "Successful Careers," Chapters 25-29

Test Questions

1. WHAT does America owe to Alexander Wilson? How should his experience inspire those who look back on wasted opportunities?
2. What special service did Matthew Maury render to his country? to the navy?
3. How does the life of David Wilkie prove that little causes produce great results?
4. How does the life of Elisha Kane prove the transforming power of God?
5. What good traits do you see in that defiant, mischievous youth?
6. What three rules did he make for his second arctic expedition? Do you think he had the essential qualifications of an explorer?
7. How did Hugh Miller fit himself for a literary career?
8. Do any of the biographies this week prove that manual training is valuable in fitting one for life-work? Explain.
9. What light do the biographies throw on Prov. 16:9?
10. How does this week's reading show the importance of observing nature? the greatness of little things? the value of spare moments? the necessity of joining physical exercise with mental application?

Notes

THE NATIONAL OBSERVATORY, or Naval Observatory, in charge of the Bureau of Navigation, is on the heights north of the Georgetown and Rockville road, in Washington, D. C. It has a twenty-six-inch equatorial telescope, is admirably equipped for astronomical work, and holds a high place among the institutions of its class. From this observatory time is telegraphed daily to all parts of the United States.

It is of interest to note that Harvard University, which has established an observatory in Peru, has placed F. E. Hinkley, a Seventh-day Adventist, in charge. He conducts the work of this institution on a strictly Adventist basis. Early in the summer one of the Boston papers containing an article on Halley's comet, stated that the best picture taken of this interesting visitor was that obtained by F. E. Hinkley, of the Peru Observatory.

ARCTIC EXPLORATIONS.—In the spring of 1909 Dr. Frederick Cook announced by cable that he had discovered the north pole on April 21, 1908. Mr. Cook left this country July 4, 1907, in search of the coveted goal. He had only one white companion with him, who, on account of illness, had to return, thus leaving Dr. Cook to make the trip with two Eskimos. The explorer reported that there was nothing to distinguish

this spot from the fields of ice which lie for hundreds of miles all about it. There was neither open polar sea nor habitable land, only one great gorge of ice, and it in slow motion. No sign of animal life was to be found. "Such is the place men have toiled to see,—a great sea of moving, grinding ice; beneath, quiet waters; above, the silent stars." A few days following Dr. Cook's announcement came one from Robert E. Peary, who for twenty-three years has been engaged in arctic exploration, containing the news that he reached the pole on April 6, 1909. This telegram greatly lessened the enthusiasm with which Dr. Cook was being received. Mr. Peary branded his rival as an impostor, and for a few months a sharp controversy was waged between the two explorers and their friends. Dr. Cook left this country under an assumed name, and is now reported to be in London. Interest at present centers chiefly about the south pole, and it is probable that England, Japan, France, and America will all be searching for it at the same time.

Junior No. 3—Lesson 6: "How the World Is Clothed," Pages 135-162

Test Questions

1. WHERE is knitting supposed to have been invented? What kind of stockings did people formerly wear?
2. When was the first stocking-frame invented? What improvements have since been made?
3. Explain three ways in which stockings are made by machinery. Name other garments now manufactured.
4. What is pillow-lace? Why is it very expensive?
5. Which countries make most of the hand-made lace? What city has four hundred lace factories? Which has seven thousand lace-making machines?
6. What countries were among the first, as far as we know, to use leather clothes? Where are such clothes still used?
7. What is the difference between a fur and a piece of leather?
8. What countries help to furnish the leather needed in the United States?
9. What animals give us shoes? gloves? saddles? belts? traveling bags?
10. How are hides made into leather?
11. What is tanning? How is it done? What acid is used?
12. How is chamois, morocco, Russia, japanned, and cordovan leather made?
13. What style of shoes were worn by the ancient Romans and Greeks? What kind of shoes would you probably wear if you lived in Holland? Russia? If you were a Chinese girl?
14. What do Mohammedans do with their shoes when they enter church? Do Japanese women wear their shoes in the house? Why?

Notes

Garments made from the wool of the Shetland sheep are very warm. Shetland wool shawls, and, in fact, almost all their garments, are light, and produce a feeling of heat a very few minutes after being put on. They bring a high price in this country. A great many Scotch people still knit their own stockings and underwear, thinking they are much warmer than those they could buy.

Lace making is very injurious to the eyes. Blindness frequently comes to those who have worked at the trade for a number of years. In some countries in making fine drawn-work, in order to keep the delicate threads from breaking, the workers have to sit in damp cellars, which is not the best for their health.

Improve To-day

GATHER ye rosebuds while ye may,
Old Time is still a flying;
And this same flower that blooms to-day,
To-morrow will be dying.

—Robert Herrick.



TAE INTERMEDIATE LESSON

VIII — Jesus on the Cross

(November 19)

LESSON SCRIPTURES: John 19:25-37; Matt. 27:45-56; Mark 15:33-41; Luke 23:44-49.

MEMORY VERSE: "Who his own self bare our sins in his own body on the tree, that we, being dead to sins, should live unto righteousness." 1 Peter 2:24.

The Lesson Story

1. It was "the third hour," or about nine o'clock in the morning, that Jesus was crucified. During the dreadful hours he hung on the cross he suffered such agony that even the angels hid their faces from the fearful sight. They saw with wonder that he thought only of others, and not of himself. He beheld his mother near the cross, for she could not endure to stay away from her dying Son. "Now there stood by the cross of Jesus his mother, and his mother's sister, Mary the wife of Cleophas, and Mary Magdalene.

2. "When Jesus therefore saw his mother, and the disciple standing by, whom he loved, he saith unto his mother, Woman, behold thy son! Then saith he to the disciple, Behold thy mother! And from that hour that disciple took her unto his own home." The disciple whom Jesus loved was John. During Christ's ministry John ever kept close to his Master, and by beholding his unselfish life he had become like his Lord. While Jesus was dying, he was close to the cross. John could never forget Jesus while caring for his mother.

3. For many years as a child and as a young man Jesus had been his mother's willing helper at home. He helped carry her burdens, and was always a loving, obedient son. Even while dying, he did not forget to provide for her, and in both his life and death he became an example to us to love and care for our parents as long as they live. We never grow too old to help and to honor father and mother.

4. "Now from the sixth hour there was darkness over all the land unto the ninth hour." This was from noon until three o'clock in the afternoon. Then there was silence around the cross. No one jeered or mocked. All were filled with terror. In the darkness about the cross the Father was present to behold the sufferings of his beloved Son. Jesus did not feel that he was near, but rather felt that sin had separated him from his Father forever. It was this that made his sufferings so great, and broke his heart. He felt what all sinners will feel who are finally lost. "And at the ninth hour Jesus cried with a loud voice, saying, Eloi, Eloi, lama sabachthani? which is, being interpreted, My God, my God, why hast thou forsaken me? And some of them that stood by, when they heard it, said, Behold, he calleth Elias."

5. "After this, Jesus knowing that all things were now accomplished, that the scripture might be fulfilled, saith, I thirst." "And straightway one of them ran, and took a sponge, and filled it with vinegar, and put it on a reed, and gave him to drink. The rest said, Let be, let us see whether Elias will come to save him."

6. "When Jesus therefore had received the vinegar, he said, It is finished." "And when Jesus had cried with a loud voice, he said, Father, into thy hands

I commend my spirit: and having said thus, he gave up the ghost."

7. As Jesus died, "the veil of the temple was rent in twain from the top to the bottom," to show that the sacrifices and temple services pointing forward to his death had come to an end. This veil was a great curtain sixty feet long and thirty feet wide which separated the most holy place from the rest of the sanctuary.

8. "And the earth did quake, and the rocks rent; and the graves were opened; and many bodies of the saints which slept arose, and came out of the graves after his resurrection, and went into the holy city, and appeared unto many.

9. "Now when the centurion, and they that were with him, watching Jesus, saw the earthquake, and those things that were done, they feared greatly, saying, Truly this man was the Son of God." "And all the people that came together to that sight, beholding the things which were done, smote their breasts, and returned. And all his acquaintance, and the women that followed him from Galilee stood afar off, beholding these things." There were also women looking on afar off, "among which was Mary Magdalene, and Mary the mother of James and Joses, and the mother of Zebedee's children."

10. "The Jews therefore, because it was the preparation ["that is, the day before the Sabbath"], that the bodies should not remain upon the cross the Sabbath day (for that Sabbath day was an high day), besought Pilate that their legs might be broken, and that they might be taken away. Then came the soldiers, and brake the legs of the first, and of the other which was crucified with him. But when they came to Jesus, and saw that he was dead already, they brake not his legs: but one of the soldiers with a spear pierced his side, and forthwith came there out blood and water. And he that saw it bare record, and his record is true. . . . For these things were done, that the scripture should be fulfilled, A bone of him shall not be broken. And again another scripture saith, They shall look on him whom they pierced."

11. It was for us that Jesus endured the agony in the garden, the shame and abuse of his trial, the cruel blows on his bleeding back, the nails driven through his hands and feet, the suffering on the cross. He was treated as we deserve, that we might be treated as he deserved. We should try every day to understand more of his love, and thank him for it. If we accept what he offers, his death will not be in vain in our behalf.

Questions

1. At what time of the day was Jesus crucified? Why did angels hide their faces? Of whom did Jesus think while suffering and dying? Whom did he see near his cross? Why was she there? Name two other women who came to the crucifixion.

2. What disciples came with these women? What did Jesus say to his mother? What did Jesus say to John? What did John do from that hour? Why did Jesus love John? Why could he never forget Jesus?

3. What did Jesus do while at home for many years? In what ways did he help his mother? What did he become to us in his life and death? How long should we love and care for our parents? What do we never grow too old to do? Repeat the fifth commandment.

4. What took place at noon? What change came upon those who had been mocking Jesus? Who was

present but hidden by the darkness at the cross? Of what was Jesus not conscious? What did he think had separated him from God? What made his suffering so great? What took place about the ninth hour? What did Jesus exclaim? What did some say who stood by?

5. What did Jesus then know had been accomplished? What did he say? What did one person do? How did others try to prevent this kind act to the dying Saviour?

6. When Jesus had received the vinegar, what did he say? In what way did he cry? What did he then say? What next took place?

7. What showed that the earthly sacrifices for sin came to an end when Jesus died? Describe the veil. Where did it hang?

8. What events took place when Jesus died? How did the earthquake affect the graves? Who arose? At what time did they come out of their graves? Where did the resurrected saints go? To whom did they appear?

9. Who stood near the cross as Jesus cried out and died? What did he and all who were with him say? What did all the people do? Who stood afar off beholding these things? What had these women done for Jesus while he was living? What three are specially mentioned?

10. Upon what day was Jesus crucified? What did the Jews beseech Pilate to do? Why? What law had been given them concerning this? See Deut. 21:22, 23. Give the rest of the points in paragraph ten.

11. What did Jesus endure for us? Why was he willing to do this? How may we show our thankfulness for such love? Repeat the memory verse.

say? What immediately followed? John 19:30; Luke 23:46; note 3.

8. What occurred as Jesus died? What event followed on the day of the resurrection? Matt. 27:50-53; note 4.

9. How did these wonderful events affect the Roman centurion? Luke 23:47; Matt. 27:54.

10. What effect did they have upon the multitude? Luke 23:48.

11. What women are especially mentioned as witnesses of these things? Mark 15:40, 41.

12. As the Sabbath drew near, what request did the Jews make? John 19:31.

13. How was this request complied with? Verse 32. When they came to Jesus, what did they find? Verse 33.

14. What did one of the soldiers do? What followed? Verse 34; note 5.

15. What testimony does John bear? Verse 35.

16. What type here met its fulfilment in Jesus? Verses 36, 37; see Ex. 12:46; Num. 9:12. See also Ps. 22:16, 17; Zech. 12:10.

Notes

1. The sixth hour mentioned by John (19:14) seems to be Roman time, or six o'clock in the morning. John wrote his Gospel many years later than the other evangelists. The sixth hour of Matthew was noon. The sun was darkened; nature was convulsed at the death of her Author. The heavens were clad in the garb of mourning, the darkness lasting from noon until 3 P. M. It was not an eclipse of the sun, for a total eclipse of the sun can not last at any place above four minutes, while this darkness lasted three hours. Hales's "Chronology," Vol. I, page 70, quotes from an old Roman document, written by Aurelius Cassiodorus Senator, about A. D. 514, as follows: "In the consulate of Tiberius Caesar Augustus V and Aelius Sejanus (U. C. 784, A. D. 31). Our Lord Jesus Christ suffered on the 8th of the Calends of April (25th of March); when there happened such an eclipse of the sun as was never before nor since."

Hales continues: "In this year, and in this day, agree also the Council of Casarea, A. D. 196, or 198; the Alexandrian Chronicle, Maximus Monachus, Nicephorus Constantinus, Cedremus;" and approved for this year though on a different date by Eusebius and Epiphanius, Kepler, Bucher, Petavius. "This obscuration of the sun, must have been preternatural, in its extent, duration, and opposition of the moon, at full, to the sun. It was observed at Heliopolis in Egypt, by Dionysius, the Areopagite, afterward the illustrious convert of Paul at Athens, Acts 17:34, who, in a letter to the martyr Polycarp, describes his own and his companion, the sophist Apollonides' astonishment at the phenomenon, when they saw the darkness commence at the eastern limb of the sun, and proceed to the western, till the whole was eclipsed; and then regrade backward, from the western to the eastern, till his light was fully restored; which they attributed to the miraculous passage of the moon across the sun's disk. Apollonides exclaimed, as if divining the cause, 'These, O good Dionysius, are the vicissitudes of divine events!' Dionysius answered, 'Either the Deity suffers, or he sympathizes with the sufferer!' And that sufferer, according to tradition, record by Michael Syncollus, of Jerusalem, he declared to be 'THE UNKNOWN GOD, for whose sufferings all nature was darkened and convulsed.'—Hales's "Chronology," Vol. III, page 230.

2. These words marked the close of a period of agony, the climax of the Saviour's suffering. It was the sinner's Substitute, made sin for us, suffering in our stead, overwhelmed with the awful load of the world's iniquity. It seemed as though God had forever shut himself away from the divine sufferer; had forsaken him in his last trial.

3. Our Lord's sayings upon the cross number seven. Note them.

4. When Jesus died, the graves were opened with the quaking of the earth. But those in the graves did not then arise. It was sin that had locked the graves of men; but Jesus died to save men from sin; hence the graves were opened. But the sleepers did not come forth from the dead till Christ, the first-fruits, arose.

5. Sometimes there was added to the punishment of crucifixion that of breaking the bones by means of a club or hammer. This would not itself bring death, but the breaking of the bones was always followed by a *coupe de grâce* [finishing stroke], by sword, lance, or stroke, which immediately put an end to what remained of life. Thus the 'breaking of the bones' was a sort of increase of punishment, by way of compensation for its shortening by the final stroke that followed.—Edersheim, "Life and Times of Jesus," Vol. II, page 613.

THE YOUTH'S LESSON

VIII—Jesus on the Cross

(November 19)

LESSON SCRIPTURES: John 19:25-37; Matt. 27:45-56; Mark 15:33-41; Luke 23:44-49.

LESSON HELPS: "Desire of Ages," chapter 79; Sabbath School Worker.

PLACE: Calvary.

MEMORY VERSE: 1 Peter 2:24.

Questions

1. What four women are mentioned as standing by the cross? John 19:25.

2. To whose care did he commend his mother? In what spirit did John receive this charge? Verses 26, 27.

3. What terrifying event occurred at the sixth hour? How long did the darkness continue? What was the direct cause? Matt. 27:45; Luke 23:45; note 1.

4. From the midst of the darkness what despairing cry was wrung from the heart of Jesus? Matt. 27:46; note 2.

5. How did some of the people interpret this agonizing cry? Verse 47.

6. What did some in an endeavor to relieve Jesus' thirst offer him? What did others say? John 19:28, 29; Matt. 27:48, 49.

7. When Jesus received the vinegar, what did he

The Youth's Instructor

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A Moment in the Morning

A MOMENT in the morning, ere the cares of day begin,
Ere the heart's wide door is open for the world to enter in;
Ah, then alone with Jesus, in the silence of the morn,
In heavenly, sweet communion let your duty day be born.
In the quietude that blesses with a prelude of repose,
Let your soul be soothed and softened, as the dew revives the
-rose.

A moment in the morning take your Bible in your hand,
And catch a glimpse of glory from the peaceful promised land;
It will linger still before you, when you seek the busy mart,
And, like flowers of hope, will blossom into beauty in your
heart;
The precious words, like jewels, will glisten all the day,
With a rare effulgent glory that will brighten all the way.

When comes a sore temptation, and your feet are near a snare,
You may count them like a rosary, and make each one a
prayer.

A moment in the morning,—a moment, if no more,—

It is better than an hour when the trying day is o'er.

'Tis the gentle dew from heaven, the manna for the day;

If you fail to gather early—alas! it melts away.

So, in the blush of morning take the offered hand of love,

And walk in heaven's pathway and the peacefulness thereof.

—Selected.

The Tagged Travelers

As the New York express drew into the Philadelphia terminal, passengers on their way to the platform passed a seat in which were two young men. Each one paused an instant to note the scared look in the eyes of the young men, a look explained by the tags attached to their coats. They were immigrants, and they were on their way to friends with whose address they had been tagged. The immigrant who sat nearest the aisle looked appealingly at every man who drew near. But no one stopped to inquire what the look meant, until one of the last men to leave the car approached. He was in a hurry, but he had time to stop to see if he could be of any assistance. The immigrants did not understand his words, but it was impossible to misunderstand his kindly smile. They pointed to their tags. The passenger assured them that he would see them on the proper car to go to their destination. What a look of relief there was on the faces of the young men! Another passenger, looking back from the door, regretted that he had not stopped long enough to be of assistance. He had more time at his disposal than the man who did stop. But he had missed his chance because of carelessness. We have no right to be careless. God has put us in the world to be a blessing to other people.—Selected.

In a Nutshell

"BIBLE READINGS IN A NUTSHELL" is the title of a Bible game gotten out by George C. Cary, of Long Beach, California. Mr. Cary is a brother to our missionary in the islands of the Pacific. Some of the titles of the readings are: "The Second Advent of Christ," "End of the Wicked," "Nature of Man," "Proper Diet for Man," "The Seven Seals," "The Two-Horned Beast," "The Twenty-Three Hundred Days," "The Investigative Judgment."

There are fifty cards, or readings, in the game, and nearly four hundred questions on Bible truth. These cards might be made of real service in studying the Word of God, and they would make an interesting present to young persons not of our faith, for they would doubtless incite some to earnest consideration of the subjects so intimately related to the last gospel message to the world.

The game can be secured from the author at Long Beach, California, for twenty-five cents.

A Source of Strength

HAYDN, the great musical composer, once was in the company of other noted artists when one of them asked how one might recover inner strength quickest after a period of great exertion. Different methods were suggested, but when Haydn was asked what method he followed, he said: "In my home I have a small chapel. When I feel wearied because of my work, I go there and pray. This remedy has never failed me."

Experience tells us that Haydn was right. In believing prayer to God we tap the source of *all* strength. —Selected.

The Grace of Expression

THE workmanship wherewith the gold is wrought

Adds yet a richness to the richest gold:

Who lacks the art to shape his thought, I hold,

Were little poorer if he lacked the thought.

The statue's slumber were unbroken still

In the dull marble had the hand no skill:

Disparage not the magic touch that gives

The formless thought the grace whereby it lives!

—Thomas Bailey Aldrich.

An Aerial Fleet for the Army

CONGRESS will be asked during its next session to authorize the formation of a battalion to be known as the Aero-Wireless Battalion, which is to be a part of the United States signal corps. This organization will be composed of four companies of one hundred fifty men. The men will be trained in taking observations from balloons and aeroplanes, and also in dropping explosives, while the air-ships will be equipped with wireless apparatus, in order that there may be constant communication between the occupants and the coast forts. It is understood that the corps will be started with at least three dirigible balloons and fifteen or twenty aeroplanes. This, it is claimed, will necessitate an outlay of about six hundred thousand dollars.

The officials of the War and Navy departments feel that recent developments in aviation have proved to Congress the necessity of keeping abreast of the other nations. It has been calculated by some of the experts in the Navy department that the aeroplane is seven tenths less dangerous to the crew than is the submarine.—L. William Thavis, in *Popular Mechanics*.