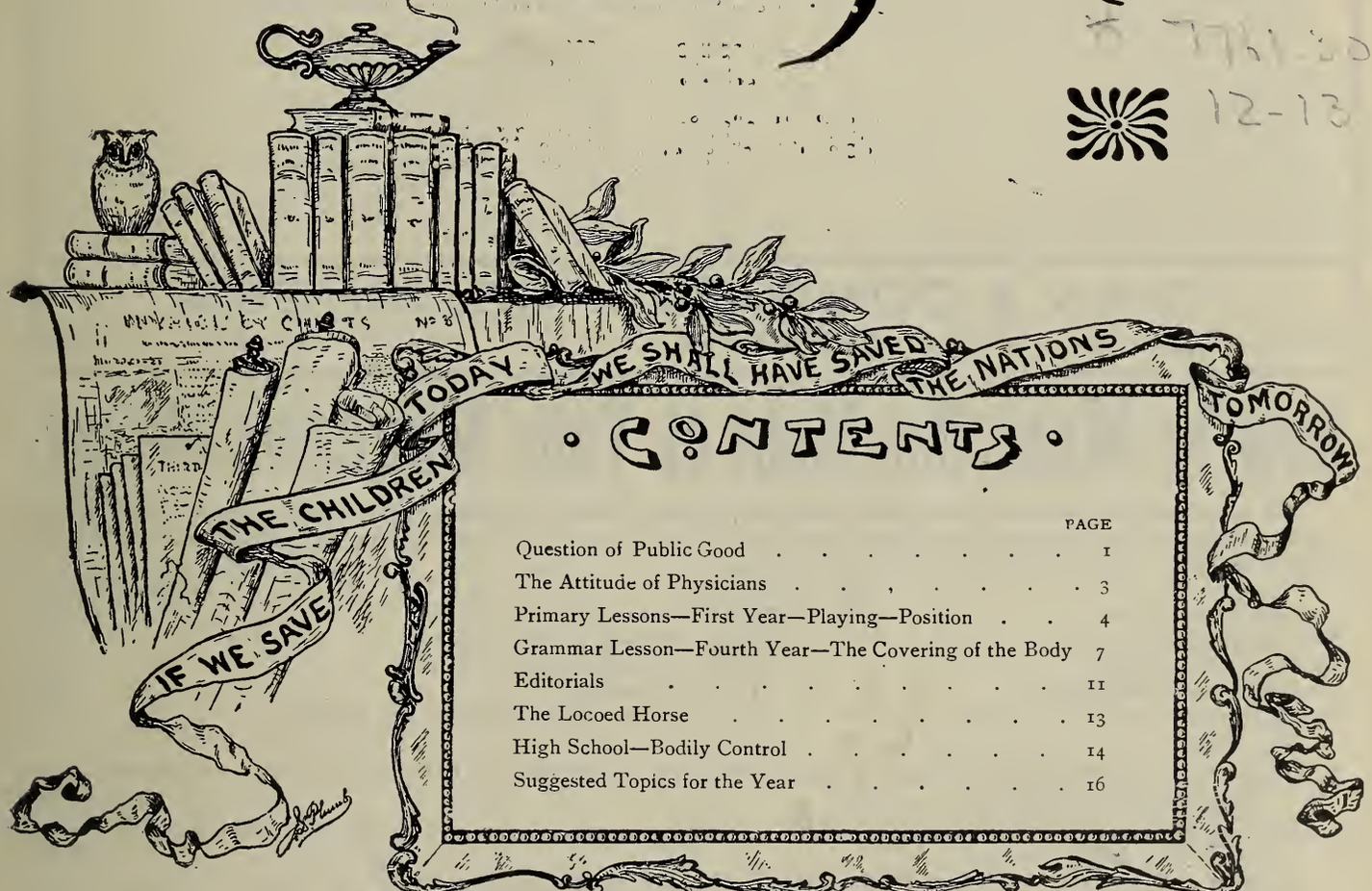
The School Physiology Journal



Contents

PUBLISHED AT
BOSTON MASS.
MARY H. HUNT, EDITOR

VOL. XII. NO. 1
SEPTEMBER, 1902

School Physiology Journal

Vol. XII *BOSTON, SEPTEMBER, 1902* *No. 1*

THE DAWN OF AUTUMN

When crickets sing and asters bloom in all the woodland ways,
And smoke hangs low, and far away the fields are lost in haze;
When in the corn there is a voice that whispers: "Summer's gone,"
And here and there a red leaf glows, first lights of autumn's dawn;
Then, soft as milkweed down, on me
Is laid the hand of mystery.

The woodland wavers; at my feet I hear the tall grass sigh;
A low, sweet music of regret runs through the earth and sky;
The creek is caught in a net of mist whose silvery meshes gleam,
And my heart beats low, and I walk as one walks wandering in a dream;
For, soft as milkweed down, on me
Is laid the hand of mystery.

—INGRAM CROCKETT

A QUESTION OF PUBLIC GOOD

THE claim urged that there is a reaction on the part of educators in general against the study of temperance physiology in the public schools has little basis in fact. The great body of teachers are for the honest and thorough pursuit of this study. The claim that, for the sake of harmony with the teachers concessions from what the good of the children and the state calls for must be made to satisfy the teachers rests on an unproved assumption as to their attitude. Looked at from the largest point of view, the question is, always, what is for the best good of the children and the state soon to be governed by them. Whoever is seeking first of all for harmony on this question is on the wrong track. The graveyard is the most harmonious place on this planet. There is no conflict of opinion there, but in the world of life where human progress has to beat its way, battle is almost always the price of harmony for the right. If Luther had said we must have harmony in order that the doctrine of justification by faith may go to the people, how different would have been the history of the world.

Every compromise for the sake of harmony and union in that conflict of opinion which preceded the Civil War only hastened the four years of blood which were the price of freedom for the slave.

The issue now pending is, *shall the coming majorities be educated* in the lower grades of our public schools, where alone they can be reached, to obedience to the laws of health including those which teach total abstinence.

Observation of the results of two schemes of study in temperance physiology, one with books, the other without them, an observation which began twenty years ago and covers not only our entire country but seven or eight other nations that have adopted in whole or in part what is called the American System of Scientific Temperance Instruction, shows that this study must necessarily be an oral and somewhat dogmatic one in the first three primary years. But fourth year pupils, ordinarily about ten years of age, having learned to read, are gaining information in other studies from books that are adapted to their grade in addition to what they learn from the teacher. The same plan is needed in this branch. The pedagogical fad that would remove text-books from these grades seems to be chiefly applied to this branch. Fourth year pupils have reached a stage of development fitting them to understand such simple physiological reasons for obeying the laws of health, including those that teach abstinence from alcoholic drinks and other narcotics, as are necessary to influence the formation of right habits at that impressionable age.

The subject broadens so much, beginning with the fourth year, that the average teacher is liable to teach error rather than truth in trying to put into simple language for a purely oral lesson such a science as physiology, in which frequently she has had insufficient training. Without books in the hands of fourth year pupils, to be used according to the best modern methods, the lessons, if not omitted altogether, are apt to degenerate into mere story telling or repeated exhortation. Such inadequate instruction, instead of truths that will guide to intelligent action, is all that the host of children who leave school at the end of the fourth year to become bread-winners get from the schools under the no-text-book plan.

A course of study that specifies the essential topics to be taught, and at the same time recommends that pupils who can read shall be deprived of books that tell what they ought to know about these topics, is an anomaly. The practical value of a mere mention of topics in a course of study is small, if the printed page

showing what is to be learned about these topics is denied pupils who can read.

The enemy of systematic classroom study of the facts which teach the physiological reasons for total abstinence and other laws of health gains his point when he agrees to the introduction of temperance topics into the course of study, if at the same time he can get the temperance people to agree that text books containing a development of these topics shall be withheld from such pupils.

The brewer hates the indorsed temperance physiologies, especially for the lower grades, *vide Brewers' Journal.* He knows as well as we that the coming law-making power is in the lower grades of the public schools, and he foresees the result upon his trade of giving these children definite printed statements of scientific facts against alcoholic drinks that they themselves can read understandingly at school and at home.

Acquiescence for the sake of harmony is a comfortable mood. It would be a thousand times easier to yield this point of text-books in the fourth year, than to stand for it, but there are always before me the faces of the boys and girls who without the best instruction in the lower grades will get started wrong, and especially of those in the homes of the poor who will never have a fair chance because they must early become bread-winners. The thought of these children whose school days end with the fourth year, the blood of some of them tainted with tendencies born of the cups and pipes of their fathers, has made the writer what critics are pleased to call "aggressive." The knowledge that a large proportion of the coming law-makers of this country will be the children now in such conditions appeals to the fear every true patriot must share for the perpetuity of the republic, if the saloon survives. Only through education of a coming majority can the saloon be abolished.

Present harmony in Connecticut is cited as a desirable example. Harmony is good if it does not cost too much, but in that state it has been bought at the expense of all legally required temperance education for primary children. Fifteen per cent of these, the Connecticut school reports show, do not go to school beyond the primary and so may never get any temperance education. Eighty-five per cent, according to the same report, leave school before completing six years of school. Under the provisions of the new temperance education law, the sixth year is the first where any use of text-books is required, even for teachers; hence there must be a great majority of the children in Connecticut who, under the present "harmony" law, will have no text-book instruction whatever on this subject. Thus the school has surrendered the future right of way to the saloon.

The plan of harmony proposed in Massachusetts is

First, to take text-books on this subject out of the hands of fourth year pupils who have books in other regular branches.

Second, a proposition not yet formally reported, to take all formal, definite study, either with or without text-books, from the fifth year pupils.

Statistics show what the results of this plan would be, for in one of the most advanced educational centers in Massachusetts forty-nine per cent (almost a majority) of public school pupils drop out before reaching the sixth year. This being true in such a city, it is self-evident that an even larger proportion of all the children of the state fail to reach the sixth year, the first possible opportunity for them to have definite text book instruction on this subject if the above plan is carried out. This would not be a mere modification of method but sacrifice of principle; not a minor point but distinctly a major one, for it would take systematic text-book study on this subject away from the majority of the children of the state, and would prevent such growth of temperance sentiment as is now following the instruction where it is given in accordance with the spirit and letter of the present law.

The advocates of this plan urge that much incidental instruction will be given during the fifth and seventh years should the study be dropped those years. What is called incidental instruction usually consists in waiting until the pupil has, for instance, begun to smoke cigarettes, and then lecturing him on the unadvisability of his course. On the contrary, systematic classroom study teaches the pupil the physiological reasons for not using cigarettes, before he has begun to smoke them. The first is the old reformatory method, namely, moral suasion; the second is the preventive, scientific method which seeks to start the pupil on the right path.

Sixty-one and a half per cent of the population of Massachusetts is now foreign-born or of foreign born parentage (more than a majority), while thousands more of immigrants are being landed at our port to add to this population. No state needs temperance education for all pupils in all its public schools more than this old Commonwealth. MARY H. HUNT.

A very small boy during his papa's severe illness, heard a great deal said about nervous prostration. Feeling ill one day, he threw himself upon the sofa, exclaiming, "Oh, dear, I'm 'fraid I'm going to have nervous prospects!"—*Ex.*

THE ATTITUDE OF PHYSICIANS

IT is not long since opposers of temperance physiology in the public schools were saying that the movement would be short-lived, because medical men were ranged against it on the ground that the teachings were inaccurate and exaggerated.

This assertion has always been without foundation in fact. More than any other class of people, physicians are in a position to know the ravages which alcohol makes upon the human body and the danger which is inherent in even the most moderate drinking.

There is scarcely a prominent medical journal in the country which has not emphasised this evil and uttered its voice in protest. The most enthusiastic indorsement of the accredited text-books has come from prominent medical authorities in this country and Europe, and doctors everywhere, instead of opposing the study of temperance physiology,are its staunchest friends.

A single morning's mail brings to the desk of the editor of this magazine three pamphlets on the subject written by three medical men in as many parts of the country, the testimony in each case being the same, viz., that the supposed value of alcohol as a beverage is a mistake and that its evil effects should be taught every child in the land.

Dr. W. B. Parks, of Atlanta, Georgia, in a paper read before the Georgia Sociological Society in that city, June 24, 1902, on the origin of alcohol, examines the absurd inconsistencies in the use of alcohol which tradition has handed down to us, and then says:

"I insist that we have reached the stage of the educative method by which the effects of the dreaded monster, alcohol, can be analyzed, not from a collective or rational standpoint, but by the aid of science and chemistry which enable us to demonstrate the poisonous effects of alcohol on all parts of the human organism.

"We are ready to prove that alcohol is a curse as a beverage, and is delusive as a medicine, misleading in its effects both physician and patient, and we would recommend that its evil effects be taught in all our schools, and also taught and demonstrated from the lecture platforms, the pulpits, and in our Sunday schools, vigorously and persistently, without apology or compromise, until the traditional, ignorant and superstitious beliefs are forever eradicated from the minds of the young."

Dr. Didama, Vice President of the American Medical Temperance Association, at the annual meeting at Saratoga, spoke of alcohol as a predisposing and exciting cause of disease and crime, quoting at length from James Thacher, M. D., a direct ancestor of the editor of this magazine, and a prominent physician and surgeon on George Washington's staff throughout the Revolutionary War.

Even at that early date, Dr. Thacher had become thoroughly convinced of the destructive effects of distilled spirits upon body and mind, thus foreshadowing the day when alcohol in every guise should be combatted by the intelligent physician.

Dr. N. S. Davis of Chicago, addressed the same association, of which he is president, on "The Relation of Alcohol and Alcoholic Liquors to the Economic, Sanitary, and Moral Interests of the Human Family, and the True Principles of Legislation that should Govern their Use."

Briefly reviewing the direct experimental investigation conducted by American physicians for determining the actual effects of alcohol on the living human body, Dr. Davis comes to the definite conclusion that as the real questions involved "strictly relate to public economy, health, and morals, they must be dealt with in the public schools, the departments of health, the courts of justice, and not in the field of party politics. Already," he says, "has the study of physiology and hygiene, especially including the nature and effects of alcoholic liquors and other narcotic drugs, been made imperative in the public schools of all the states and territories, and text books correctly teaching the great central truth that alcohol is a deceptive and dangerous poison are furnished for their use. Let this be fostered and increased in efficiency, until we have a generation on the stage of action who no longer call diluted alcohol either a beverage or a food but simply a poison drug."

This testimony from Dr. Davis in regard to the use of text-books is especially noteworthy, coming as it does at a time when opponents of temperance education in the schools are trying to deprive a large class of pupils of their use.

Friends of the scientific temperance education movement everywhere will welcome Dr. H. D. Didama, Dean of Syracuse Medical School, and Rev. James R. Day, Chancellor of Syracuse University, as members of the Advisory Board of this Department. Dr. Didama ranks high in the medical world and his knowledge of the alcohol question, being that of the specialist, eminently fits him for service as a member of the text book committee on which he has consented to serve. Dr. Day is well known as an administrator and educator. His councils concerning a form of education which concerns the children of the entire country will accordingly be grateful not to this department alone but to the whole people. The closing words in his letter of acceptance ring true. He says:

"Never was there such demand for all good people to unite in the great cause as now."

PLAYING

IT is noteworthy that there are few complaints against the study of temperance physiology whenever teachers are thoroughly acquainted with the subject, and have a deep sense of its importance in shaping the habits of the children under their care. No one can interest others in a subject which he does not know himself and over which he is not already enthusiastic.

Knowledge, then, of the laws of health and growth, of the workings of all the bodily powers and their development to the highest point of efficiency, of the nature of alcoholic drinks and of their effects upon the structure and functions of the different organs of the body, together with the ravages which these substances have the power to make upon the mental and moral nature of those who use them habitually, even in small quantities, is the first essential. Given this, the teacher's desire for the child's well being will enable him to work out his own methods suited to the various natures with which he has to deal.

It is a help, however, to have material at hand which he can thus adapt, and it is with this thought in mind that the following suggestions are offered.

Before the child who enters school this fall for the first time can know why he should not drink cider or beer, he must learn certain facts of general hygiene and other facts of elementary physiology. He must begin to know himself and what he can do.

His first lesson, therefore, may appropriately be on play; not simply that he may amuse himself as he pleases, but because play is one of the things which will help him grow and give him greater command of his body. The exercises which follow are intended for children entering school this fall for the first time, or for ungraded classes of foreign-born children who know little or no English.

Vary the work continually as indicated, making alternate use of reading matter, class talk, stories and games.

Employ pictures and natural objects freely to illustrate every point. Give each child a picture of the scene on which the reading lesson is based. These can be had in quantity at one cent each and will prove an excellent investment. Above all, to every feature of the work should be added the strong sweet personality of the teacher, leavening the whole lump and arousing the possibilities that lie dormant in every child.

READING LESSON

(To be written on the board)

Nan is my pet cat.

She has five little kittens.

One day I found them all on the table.

Three kittens were playing with the clock.

One had broken the glass door and put her head in the rim.

Blackie was on the curtain.

What do you think the other kitten was doing?

CLASS TALK

Find how many of the children have kittens at home, and encourage all to talk about them. Ask what their names are. What do they like to play with? Did they ever get into mischief? Tell about it. Will they always stay little kittens?

What makes kittens grow into big cats, and little boys and girls into big men and women? Explain that play is one thing that helps very much.

Find what plays and games the children like best, and select one of these to play with them. One of the favorites is always the following or some of its variations:

THE FARMER'S CORN

1

Now the farmer plants his corn, plants his corn, plants his corn,
Now the farmer plants his corn, plants it in a row.

2

Now the corn begins to sprout, begins to sprout, begins to sprout,
Now the corn begins to sprout, planted in a row.

3

Now the leaves begin to grow, begin to grow, begin to grow,
Now the leaves begin to grow, planted in a row.

4

Now the blossoms begin to show, begin to show, begin to show,
Now the blossoms begin to show, planted in a row.

5

Now the corn is getting ripe, getting ripe, getting ripe,
Now the corn is getting ripe, planted in a row.

6

Now the farmer cuts his corn, cuts his corn, cuts his corn,
Now the farmer cuts his corn, planted in a row.

7

Now he puts it in the barn, in the barn, in the barn,
Now he puts it in the barn, planted in a row.

Let the children choose one of their number for farmer. (1) The farmer places the children one after another in a row, on the floor or stools, hands over their faces. (2) Children put down hands and sit very erect. (3) Rise slowly, hands together pointing upward. (4) Open hands slowly like a flower. (5) Sway slowly from side to side. (6) Farmer touches children one after another and they sink to the floor. (7) Farmer leads children one by one back to their seats.

Whatever play is chosen as the favorite will be called for day after day by the children. This is the time to teach generosity. All can not be leader or have the best parts in any game. Ask why we should take turns. Help the children to understand that selfishness is always unfair to others.

POSITION

OF equal importance with the development of the bodily powers in the child is the training of his mind. Up to the time of entering school his chief business has been to exercise his body through play, now the brain comes in for its proper share.

"One day I found them all on the table"

He must learn to sit still as well as to move about, to stop as well as to go on. The second lesson in hygiene may thus appropriately be on position in sitting and standing.

This will be all the more effective if presented in connection with school life in some other country unfamiliar to him.

Show the picture of the primary school in Brittany. The strange surroundings, and the quaint dress of teacher and children will attract the little ones at the start and arouse interest in the

READING LESSON

This is a school in France.

Does it look like your school?

The children have books just as we have. They are learning to read.

Only girls go to this school. The boys have a school of their own.

See what a sweet face the teacher has.

She wears a white cap, and so do all the children.

They have on wooden shoes.

I think they like to go to school.

CLASS TALK

How do we know these are not American children?

In what ways is their dress different from ours?

Tell how the desks and the room are different. What are the children doing? Find the one that is standing straightest. Which one of you knows how to stand better still? Try it. Let us all see if we can stand straight and tall.

SITTING POSITIONS

Erect: Chest high, chin back, head erect. Lower part of body only against seat back. Feet squarely on floor in front.

Working: Same as above, except that body is bent forward at hips to angle of 45 degrees.

Resting: Same as above, except that entire back, beginning at bottom of spine, rest against seat back.

Have the children take these different positions several times daily, changing from one to another at the word of command. Vary the exercise by telling a story which brings in these positions and which can be acted out by the children.

ACTION STORY

One of the children in this schoolroom we have been reading about was writing a letter to her teacher. Before she began she took a good position to work in. (Feet squarely on the floor in front, end of spine against back of chair, body bent forward at hips, shoulders erect.)

In her letter she told about the baby sister at home. Sometimes Mamma would let her hold the baby. Then she sat up very straight (lower part only of the body against chair back) while Mamma put baby Rose into her arms. How

important she felt! She wanted to rock back and forth (rocking motion), but the doctor said that was not good for baby, so she sat bolt upright and played she was a coachman on his box. When her back felt tired she leaned back a little, and tried to make every part of it touch the back of the chair.

STANDING POSITIONS

Rising: Turn in seat to face aisle. Body erect, hands in lap. Rise slowly to feet, bearing weight on right foot, bring left foot up to right. Repeat, bearing weight on left foot and bringing up right foot. Repeat, bearing weight on both feet. In no case should children help themselves up by placing hands on the desk or seat.

Standing: Heels together, or nearly so. Toes turned outward. Hips back. Chest high. Shoulders back. Hands at the side. Head erect. Eyes straight in front. Chin drawn in.

Filing: Standing position in rows or files. Face front. Repeat until this position is taken in unison. Advance five steps. Halt. Face the right. Halt. Face the right. Advance five steps. Be seated. Repeat until each file can rise, turn, move to any part of the room, and return to its row.

A School in Brittany

Marching: Standing position by files. Face front. Mark time softly by the feet, first to the count, left, right, left, right, etc., then to taps of the bell or piano. As soon as the children catch the step, have each file in turn march out, across the room, and back to place, the other files marking the time.

ACTION STORIES

(To illustrate Rising and Standing)

Up in the branches of a maple tree was a robin's nest with three baby birds in it. As soon as it was fairly light one morning, one little robin sat up as straight as he knew how (erect position). Then he raised himself on his right foot and drew the other up after him. How tall he was!

By this time, number two was awake. He stood on his left foot and drew the right one up after him. He was tall enough to look over the edge of the nest into the big tree.

Then the third little robin thought it was his turn. He stood up on both feet at once, higher and higher, till he could peep over the heads of both his brothers. Then he gave a little hop right out of the nest.

Not one of these robins used his wings or his beak to help him get up. They all knew that their legs were made to stand on, and they used them for that purpose.

(To illustrate Filing and Marching)

One day there was a long procession on the fair grounds. Ten fire companies (or as many as there are files of children) were to march in it. First came Company A in red and black uniforms, then Company B in crimson and gold with a tall drum major at the head (etc., until each file has been designated and stands in position).

They marched up Broad street, Maple street, Brook avenue (aisles in the school room), then down Main street past the Grand Stand (platform), where the Governor (teacher) sat to review the procession.

Every one in line stood as straight and as tall as he could, and all kept step to the music, left, right, left, right. The band played and flags waved. It was a splendid procession.

Johnny—"I wish I was Tommy Jones."

Mother—"Why? You are stronger than he is, you have a better home, more toys and more pocket money."

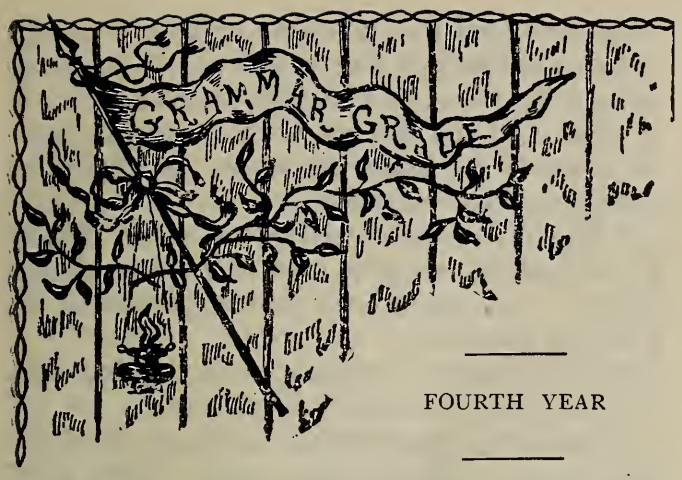
Johnny—"Yes, I know, but he can wiggle his ears."—*Men of To-morrow.*

Teacher—"Frank how many different kinds of force are there?"

Frank—"Three kinds."

Teacher—"Name them."

Frank—"Bodily force, mental force and the police force."—*Tid-Bits.*



FOURTH YEAR

THE COVERING OF THE BODY

SIGNS are not wanting that the business world is coming to the aid of the hygienist in the matter of personal cleanliness. Public offices are now equipped with every toilet convenience, and even left partly unfinished until rented that the prospective tenant may have the plumbing arranged to his liking.

Such fastidiousness in employers means radical changes in the entire personnel of the establishment. The business man who has a private bath attached to his office that he may leave it as immaculate as he enters, will not tolerate a slovenly bookkeeper or an office boy with unkempt hair and finger tips stained with cigarettes.

Thus it has come about that young people who want work nowadays must look, smell and be clean to a degree undreamed of ten or even five years ago. It is not a matter of inclination but of business necessity, and those who earliest learn the lesson will find themselves in possession of the best places.

Tact must be used in presenting the subject of cleanliness. The majority of children are not naturally careful of their personal appearance, but they resent being told of it. Begin by studying the skin itself and finding:

What it is for.
What it is made of.
Why it does not wear out.
How it should be taken care of.

Make the work objective. Whatever the child can see or hear or handle will appeal to him and can be made a part of his working knowledge.

THE LESSON

"This is our first physiology lesson this year," said Miss West, "and it is about a part of the body that is always in sight whether we look at a person's face or his hands. We can see it even if he turns his back. What is it?"

"It is the skin."

"Right, and one of the things we want to know about it is

(1)

WHAT IT IS FOR

I notice that Jack has cut his finger. Perhaps he can tell us."

"It is to keep the blood in," was Jack's instant conclusion. "It would all run out if we didn't have any skin on our bodies."

"Look at this chart of the blood-vessels and see if Jack is quite right."

"I don't think he is," said Hetty, "because the blood isn't loose in the body; it is in little pipes."

"Yes, it is only when we cut one of these little pipes that the blood can run out," added Miss West. "But they are so close together that we can hardly prick ourselves anywhere without puncturing one of them."

"I think the skin is to cover up our bodies," said Rose, "and to keep them from getting hurt, because when I hurt my hand last week, it was all red and sore till the new skin grew."

"How many agree with Rose that one use of the skin is to protect our bodies?" asked Miss West. "I do, too, but we have not found out the whole truth yet. You have all played blind man's buff? How can one who is blindfolded tell whom he has caught? He can not see."

"He feels of his clothes."

"By touching him."

"By the sense of touch."

"Where is the sense of touch?" asked Miss West.

"Oh, I know what you mean," said Agnes, "It is in the skin, and that is another use the skin has. It gives us the sense of touch."

Miss West started down one of the aisles with a basket filled with different small articles. "Shut your eyes and feel of what I give you until you know what it is and can tell about it. Then put it in your desk and open your eyes."

Five or six of the class were sent to the board to write their discoveries, while the rest discussed what they had found.

Robert spoke first:

"You gave me a knife with two blades, one large and one small. It had a wooden handle tipped with steel. It was about three inches long"

Elsie: "I had a round stone about as large as an egg. It was heavy."

Kate: "Mine was a silk handkerchief. It was nearly square."

"What color was it?" asked Miss West.

"I don't know," said Kate, "you told us not to look."

"That is right. We can not tell the color of anything by feeling of it. What qualities of an object can we find out by touch?"

"Yes, its shape, size, whether it is hard or soft, rough or smooth, thick or thin, heavy or

light, warm or cold. You see the skin tells us a good many things through this sense.

"Now open your physiologies, and see if they tell anything more about the work of the skin. How will you find the place? Harry is right, look in the index for it. We will use this chapter for our reading lesson this afternoon.

(2)

WHAT IT IS MADE OF

"Let us begin our lesson today by taking a good look at the skin on our hands. Shut your hands tight and find if it fits perfectly in every part. Open your hand and answer the same question."

"It is loose and wrinkled on the joints, when I open my hands," said Ella.

"So it is. Take hold of the wrinkle on your left forefinger and hold it tight. Now shut your finger. Can you do it? Why not?"

"There isn't room enough. Oh I see now what the wrinkles are for. The skin is loose on the joints so that we can move them."

"What do we call anything that will stretch?" asked Miss West. "Pinch up a bit of skin on the back of your hands and find whether the skin is elastic. How do you know?

"Press your fingers close together and hold them up to the light. What do you see? What gives them that rosy look about the edges? Would you think then that the skin is thick or thin? Find the thickest places, the thinnest. What do we call places on the hand which get very thick and tough from rowing a boat or doing any hard work?

"You'll leave enough to grow, won't you, mister?"

"What will happen if we dip the corner of a handkerchief in water? Ralph may try. Put the end of your finger in the water too, and keep it there as long as you do the handkerchief.

"Why does the water rise in the handkerchief and not on your finger?"

Nobody knew, so Miss West told about the pores in the handkerchief which soaked up the water, and showed them through the microscope.

"There are pores in the skin, too, but they are so arranged that waste matter from the body can go out easily, while very little of anything can get in. Look at a chicken's leg, or the back of a fish, and you will see what I mean. Now who can tell me how these scales or pieces of outside skin are arranged?"

"I know," volunteered Scott, "the skin is put on just like shingles on a roof, they all lap one way. Is that so the water can't soak in when we get wet?"

"Yes, to keep everything from getting into the body that does not belong there.

"You have all peeled black birch bark off the trees to eat. Here is some now. Look at it carefully and find how many layers it has and how they differ."

"It is in two layers," was announced presently. "The one on the outside is thin and dry. The inner layer is thick and dark green."

"The skin grows in very much the same way," said Miss West. "It is in two layers. The outside layer has done growing and is all the time wearing out and dropping off. Stick a pin through it just at the root of your thumbnail. Does it bleed or hurt? That is because there are no nerves or blood-vessels in this layer. They are all underneath in what is called the true skin, or the skin that is alive."

"The oil glands which keep the skin smooth and soft are down in this layer, and the sweat tubes through which the perspiration and a great deal of the waste matter of the body is all the time passing off. Here, too, is where the hair which grows out of the skin has its roots."

(3)

WHY IT DOES NOT WEAR OUT

"How many of you are wearing the same shoes you wore last year at this time? Why is it that we have to buy new clothes so often, while we keep the same skin? Does the skin ever wear out?"

"I think it does," said Grace. "Mine peeled off in little flakes after I had the measles."

"How is it when you take baths? Did you ever notice tiny white particles in the air after

giving the body a brisk rub? Those are bits of worn-out skin. We are all the time losing this body covering and it is always growing up fresh and new underneath, but we get rid of it so gradually that we hardly know it. You know how quickly you wear holes in your gloves and mittens. You would wear out the tips of your fingers just as quickly, if new skid were not always growing to make up this loss.

"What do we call the white powder which we sometimes brush out of our hair? Perhaps you will be surprised to find that dandruff, too, is nothing but dead skin which is continually being shed to make room for a new head covering."

(4)

WHAT IT NEEDS

"Why is it that people are so particular to wash the dishes after each meal? Why not use them just as they are?"

Laura: "It wouldn't be nice. They are dirty, and our food wouldn't taste good."

"Of course not," said Miss West, "but I have known people who were not particular to bathe every day, and that is quite as important as washing the dishes.

"John; won't you step to the board and hold the palm of your hand against it for a moment. What do you see on the board after taking your hand away?"

John: "The shape of my hand. It looks all moist, but my hand was dry."

Miss West: "It felt dry perhaps, but the dampness on the board shows that your hand is really perspiring all the time whether you know it or not. You would find the same dampness if you were to lay any other part of your body against a cold surface. This means that waste matter is continually passing off through the pores of the skin, and needs to be got rid of. How are we to do it?

"You need not answer that question today. Think about it awhile and remember that the hair, teeth and nails belong to the skin and need the same care. Ask all the questions you like and read everything your physiologies say on the subject. Tomorrow I shall ask you to write full directions about bathing and personal cleanliness."

The results were excellent.

"If you do as well as you write," said Miss West, after looking over the written work, "I shall be proud of you. I am sure you would not fail, as one boy I know of did, to get a position after leaving school, because his bad breath showed that he did not keep his teeth clean.

"Suppose we talk over the papers now and have all the points written on the board. Then I will see that each of you has a copy to paste in the fly leaf of your physiology."

POINTS TO REMEMBER

The entire body needs a bath every day to keep it clean.

The hands need washing before each meal, and after play or work.

Healthy people should take a cold shower or sponge bath every morning.

Once or twice a week, a warm bath with soap is needed.

We should not bathe just before eating, or when heated from play or work.

The head should be well brushed every day to keep the scalp clean.

We should brush the teeth after each meal.

The finger-nails should be kept trimmed.

All clothing worn during the day should be aired at night, and that worn at night should be aired through the day.

A SUGGESTION

In spite of all we read about cleanliness and the necessity of frequent bathing, it is astonishing, says an exchange, how many mothers, careful perhaps in all other particulars, allow their children to be absolutely unclean. The baby is bathed most religiously every day, as it should be; but why should a child in the same family, old enough to be playing all day long and in all kinds of places, be given a bath but once a week, winter and summer?

There are unfortunately some mothers who tumble their little folks into bed with black feet, brown necks, dirty hands, and uncleaned finger-nails. In the care of children, as in everything else there should be system.

When children are in school, their playtime is limited and they should be allowed to take advantage of every minute of it, out-of-doors if possible, until supper-time.

After their supper, which should be light, let them have a little music or reading, or a quiet indoor game. Then have them prepare for bed. Necks, ears, faces, hands, and feet should be given a good soap-and-water bath every night before going to bed; and if possible give a full bath Wednesday as well as Saturday.

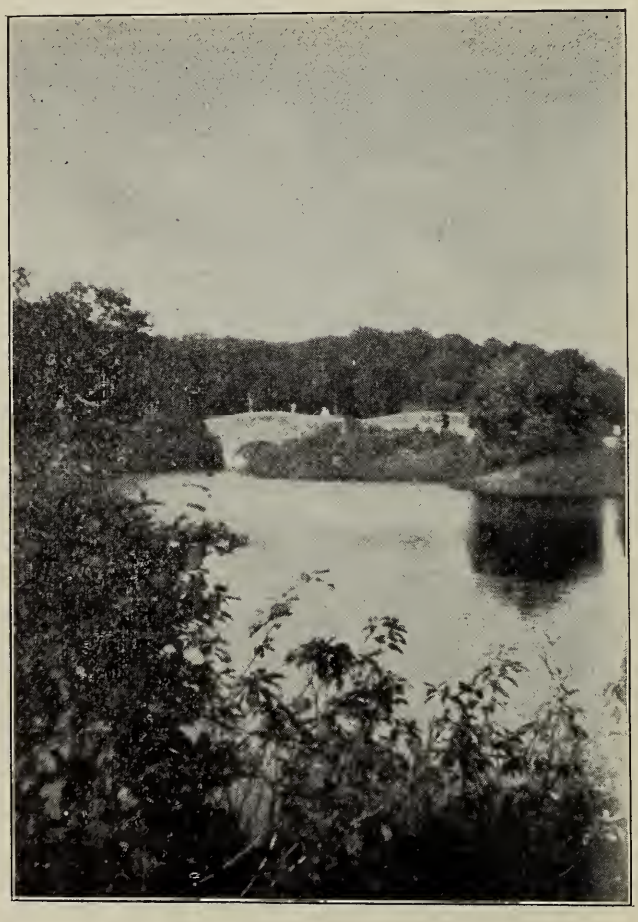
CLEANLINESS AND NEATNESS

The pupil who wishes to be comfortable and healthy, who wishes to have the good opinion of friends, needs to be clean in person, dress and conduct. No one has the right to be offensive or injurious to those who must be with him. One is not only more comfortable and healthy by being clean, than he would otherwise be, but he is mentally in better condition to

study or play. Self-respect enables him to do his best.

The body, hands, face, hair, nails, teeth, should be kept in good condition. The necessity of frequent bathing of the whole body needs to be impressed on all pupils and especially on those whose opportunities for cleanliness are not good. The unpleasant odors of the unclean body are very offensive. Water, soap, towels, combs, should be of easy access at school. The teacher should see that they are used as frequently as necessary. Health requires that the teeth be kept in good condition, and the law of politeness requires that they be kept clean and sound. The use of tooth brushes is imperative, and decaying teeth need the treatment of a dentist.

Clothing and shoes are to be kept neat and clean. Brushes help the appearance and condition of clothing. Benzine may be used to remove grease spots. Many teachers are blamable for the carelessness of pupils respecting the cleaning of their shoes. Dirt should be removed from them before the room is entered. Mud on the floor is not only unsightly and inconvenient, but when dried and crushed its dust is unwholesome. The pupil is more careful to keep out of mud when his shoes have been brushed than when they have received no care.



"Like a rich mirror at the feet.
The broad lake spreads its waveless sheet."

The seats and desks of pupils and the other furniture, the floors, walls and ceilings of the room should be so clean as to encourage pupils to keep them and themselves clean. Pupils should take pride in preserving their school property in the best condition possible, and no carelessness in handling or marking books or other possessions should be tolerated.

Work on the board or paper should be neat. Slovenliness in any school work leads to carelessness in habit and takes enjoyment from life and success from its efforts.

Thought and speech and every act should be pure and clean. Impurity within is worse than filth without. One's way of thinking determines his way of life. If pure, clean thoughts are cherished, the words used to express them must correspond in purity, and the acts of the character will be chaste and virtuous.

CLEANLINESS A DECIDING RECOMMENDATION

"A gentleman advertised for a boy to assist him in his office, and nearly fifty applicants presented themselves. Out of the number he selected one and dismissed the rest.

" 'I should like to know,' said a friend, 'on what ground you selected that boy, who had not a single recommendation?'

" 'You are mistaken said the gentleman, 'he had a great many. He wiped his feet when he came in, and closed the door after him, showing that he was careful. He gave up his seat to that lame, old man, showing he was kind and thoughtful. He took off his cap when he came in, and answered my questions promptly and respectfully, showing he was polite and gentlemanly. He picked up the book which I had purposely laid on the floor, and replaced it on the table, while all the rest stepped over it, or shoved it aside, and he waited quietly for his turn instead of pushing and crowding, showing that he was honest and orderly. His clothes were carefully brushed, his hair was in nice order, and his teeth as white as milk. When he wrote his name I noticed that his finger-nails were clean, instead of being tipped with jet, like that handsome little fellow's in the blue jacket. Don't you call these things letters of recommendation? I do, and I would give more for what I can tell about a boy by using my eyes ten minutes than for all the fine letters he can bring me.' "—*Practical Educator.*

"The hill, though high, I covet to ascend,
The difficulty will not me offend,
For I perceive the way to life lies here.
Come, pluck up heart! let's neither faint nor fear!
Better, though difficult, the right way to go,
Than wrong, though easy, where the end is woe."

School Physiology Journal

COPYRIGHT APPLIED FOR

Single Subscription.....$0.60 a year

CLUB RATES

Clubs from 5 to 50. .....$0.50 each
Clubs of 50 and over..... .40 each

Please remit by post office or express money orders, draft on New York or Boston, or by registered letter.

MARY H. HUNT, EDITOR
HENRIETTA AMELIA MIRICK, Assistant Editor

Published monthly at 23 Trull St., Boston, Mass.
SEPTEMBER TO JUNE, INCLUSIVE

Entered at the Post Office at Boston as Second Class matter

Here and yonder, high and low,
Golden-rod and sunflowers glow;
Here and there a maple flushes,
Sumach reddens, woodbine blushes,
Purple asters bloom and thrive,—
I am glad to be alive.

R. K. WEEKS.

SEPTEMBER GREETINGS

SEPTEMBER has come again. The long summer vacation playtime is over. From the woods and mountains, the country and seashore, the children and teachers are coming back to the school. Does the transition seem at first an unattractive one? Is any one saying that the teacher's work is never done, that although the children taught last year have passed into higher classes, there will be another flock of little ones with the same small undeveloped minds to be taught the same lessons and started on the same road to citizenship; that one's patience will be taxed for another year just as it has been in the past?

This continually repeating round of classes passing on and others coming to take their place is a part of the plan of human life. Furthermore, whoever can help a child to acquire what he should learn in one year and fit him for the advancement of the next year is doing a work in which the angels share, for we are told in Revelation that "their angels (the children's angels) do always behold the Father's face."

You think it would be a great thing to teach a prince, but each of these little ones in your schoolroom has a soul with Godlike possibilities which it is your mission to help develop.

Complaint is often made that the teacher of today is expected to make all instruction enticingly beautiful and as interesting to the child as the most exciting play; that this is an unsupportable tax on the teacher's vitality. All education that is progressive must be somewhat experimental. Of the countless experiments that are in vogue, now this method and now that is on trial. But there are eternal verities which never change, and first among them is the determination to start these little ones aright as they leave the home and enter the larger life of the school. The habits which they will form under your guidance in these earliest years, the notions of right and wrong, of honor and truthfulness and loyalty which they are here and now to acquire will very largely determine their character for all the future. When such a spirit illumines every method we may use, the good features of each will be brought to light, while everything that can not stand this supreme test will shrivel until it disappears.

THE MASSACHUSETTS COMMITTEE OF TWELVE

SINCE our last issue a preliminary report upon a course of study in physiology and hygiene, suggesting the topics to be taught on this subject in the first four years of the public schools of Massachusetts, has been published by the Committee of Twelve.

Inasmuch as a note at the end of the report merely states that three members of the Committee had not affixed their names to the same, but does not include their reasons for withholding their signatures, reasons which should in all justice be known, we give space to the following statement:

At the last meeting of the Committee of Twelve, on May 8th, when the question of the adoption of the report on the course of study for the first four years came up, three members, representing three different temperance societies, stated that they could not sign the report unqualifiedly because it contained a recommendation "that instruction in the fourth year should be without the use of text-books in the hands of pupils." They heartily approve of the recommendation of merely oral instruction for the three primary years. That is what they have always advocated, but they could not agree to withholding books from fourth year pupils, for reasons which they had already stated to the Committee, and which they had formulated and signed in a minority report they were then ready to present.

Just at this point a motion was offered that "the editing committee be instructed to insert the recommendation that in the course of study there should be a supplementary use of books." This motion, the minority understood, took the place of the one previously passed which excluded books from fourth year pupils. With this understanding, the minority voted for the new motion and agreed to the whole report, glad that a seemingly unanimous conclusion had

been reached. But the last galley proof of the report (as now published), presents the matter in a very different light. Its recommendations on this point read as follows:

"(2) The instruction shall be oral, that is *without* the use of text-books in the hands of pupils, during the first *four* grades or years of school.

"(3) There shall be a supplementary use of books."

The kind of books is not specified.

Thus the objectionable recommendation that instruction shall be *without* the use of text-books for pupils in the fourth year was retained in the report, contrary to the understanding of the minority, who had never for a moment imagined that it was the purpose of this Committee to offer two such contradictory recommendations, one of which (2) refuses books in this study to fourth year pupils, while the other (3) calls for their use. It may pertinently be asked, who is to have "this supplementary use of books"? Evidently not fourth year pupils, because of the explicit recommendation that this instruction should be without the use of books by pupils in the fourth year.*

The minority, therefore, could not conscientiously sign the report without qualification. They accordingly withdrew their names, sending in the following

MINORITY REPORT

The undersigned members of the Committee of Twelve, while in accord with much of the report of the Committee, regret that it does not definitely state for the guidance of teachers in each grade what are the "anatomical and physiological facts" necessary to enable pupils to understand the hygienic facts recommended to be taught.

We must also enter an earnest protest against the recommendation that in the fourth year "the instruction shall be oral, that is, without the use of text-books in the hands of pupils "as one source of information, for the following reasons:

First, The law of Massachusetts requires this subject to be taught "as a regular branch to all pupils in all schools." Competent legal opinion has been given to the effect that the phrase, "shall be taught as a regular branch", means that it shall be taught in the same manner as other regular branches, such as geography and arithmetic, which are commonly pursued in the fourth year with text-books for pupils' use as one source of information. No adequate reason has been given why this subject which is so vital to physical and moral welfare should be an exception in this respect.

Second, Competent educators have expressed the opinion that lack of qualification of teachers as a whole in this branch makes the additional helps of properly graded books for pupils' use an imperative need in the fourth year.

Third, The object of this study, as stated, being to guide the formation of right habits, every possible help should be furnished the pupils in the most impressionable, habit-forming years, of which the fourth school year is one. The pupils are then less responsive to mere oral instruction, and being able to glean information from the printed page, should each be supplied with suitable helps. A supplementary reader *in the library* will not take the place of books regularly to be used by pupils in class work under the teacher's guidance.

Fourth, Many children leave school from the lower grammar grades. This is especially true of the vast host of foreign-born children who are coming to us. Entering the schools to learn the language, and to read and write, few stay beyond the fourth year. In order that these children who bring old world drinking customs with them may become good American citizens, they should receive all the information in every phase of hygiene, including total abstinence, which may be gained from a text-book in addition to oral instruction.

(Signed): JESSIE FORSYTH,
International Superintendent of Juvenile Work for Good Templars.

MARY H. HUNT,
World and National Superintendent of the Department of Scientific Temperance Instruction of the Woman's Christian Temperance Union.

ALBERT H. PLUMB,
Vice-President of the Massachusetts Total Abstinence Society.

It is significant that the three who signed the minority report are the only members of the Committee of Twelve whose temperance work has for years led them to a special study of its educational problems.

*See "A Question of Public Good," page 1 of this issue.

A LABOR SAVING DEVICE

"What will you do when you are a man, Tommy?" said Aunt Frances to her nephew one day.

"I'll grow a beard," was the unexpected reply.

"Why?" she asked.

"Because, then I won't have nearly so much face to wash," said Tommy.—*Little Chronicle.*

THE LOCOED HORSE

BERT stood with a cigarette in his hand, looking at the hired man who was sitting on a box in the barn door.

"Chetty," he said, "I want the same horse I had last year,—Babe, wasn't it?"

"Yes," said Chetty, "I should think you would; she admires you."

Now Chetty, whose size and disposition inclined him to be moderate in his motions, was gifted with eyes which saw everything, large and small, within the range of his vision. He had been the chief manager of the stock on the Colorado ranch belonging to Bert's father ever since Bert could remember; and Bert had learned that Chetty's odd remarks had hidden meanings, which it was well for him to find out cautiously if he did not wish to be caught in some practical joke.

"It's mutual, Chetty," he replied, "I admire her. In my whole freshman year at college—a year wherein I gained great wisdom, Chetty—I saw no finer animal than Babe. Has Babe acquired as much wisdom as I, Chetty, during the past year?" and Bert replaced his cigarette in his mouth, and beamed on Chetty with mischievous eyes.

Chetty watched Bert with an inscrutable smile.

"I believe," he said, "that she's about even with you,—may be a little ahead."

Chetty arose slowly, and called one of the cattle-boys who was riding by.

"Dick," he said, "bring up Babe,—will you?"

Dick stopped short.

"Babe?" he asked.

"Yes," said Chetty, shortly, deliberately seating himself with his back to the boy.

It was not long before a handsome bay mare stood in the door. Bert had gone in to put on his riding boots. He came out quicker than was his habit, for he thought he heard a wild clatter of hoofs. Chetty was sitting on the box, however, and Babe was standing, saddled, with her head down. Now Bert had lived on a ranch every summer of his life, and could ride a bucking horse, though he did not know much about the care of the stock.

"Will she buck?" he asked, as he prepared to mount.

"She won't mean to, young man; but her nerves are not so steady as they were last year. Be careful!"

Bert sprang into the saddle. With a nervous quiver, Babe rose on her hind feet straight into the air and fell over backwards. Bert sprang off as she rose, and stood looking at the horse in astonishment.

"What's the matter?" he asked, as the shaking horse scrambled to her feet.

Chetty did not answer, and Bert mounted again. This time he was able to get the horse into the road. Babe went but a little distance, however, before Bert turned and rode back to the barn, the horse staggering from side to side.

"Chetty," he said, "she's crazy. What's got into her?"

Chetty, who had risen while Bert was mounting, now sat down and spoke slowly, with his eyes on the horse:

"It's just as I said, young man. You see a horse hasn't so long to live as a man, so she's hurried her education a little. She seemed to know it when you had to begin to smoke last fall to keep awake for your studying, you remember. Feed got low in the pasture, and she took to gnawing a weed,—seeing she couldn't smoke it. She got into the loco-weed, and got down to the roots. It made her feel rather good, and she hunted for some more. It works on her nerves, like that stuff on yours," pointing to the cigarette. "When we took her up in the fall, I saw she was some locoed, and I reasoned with her. She said I needn't worry,—fact was, she could stop any time, and just did it for a little fun. But the amount of it was, her nerves were about gone then, and when we put her out in the spring, she got some more, and now she can't get along without it."

Chetty had been removing the saddle and bridle as he spoke, and now he led her to the pasture back of the ranch house. Then he let go of her head.

"Go up to her," he said to the boy.

Bert slowly walked toward the poor animal. She seemed to listen as he came up to her. Her ears were pointed towards him, but when he stood before her, and, looking into her glassy eyes, said, "Poor Babe!" she gave one wild snort, and ran from him like a wild horse.

"She can't see much," explained Chetty. "It's affected the nerves of her eyes."

Bert sat on the box by Chetty.

"So that's a 'locoed' horse," he said slowly. "Poor Babe! Is she good for anything?"

"Not one thing," said Chetty.

As Bert got up and walked into the house, he threw away his cigarette.—*Fannie HydeMerrill, in Sunday School Times.*

"I hope they don't give my little boy any naughty nicknames in school?"

"Yes, ma, they call me 'Corns.'"

"Dreadful! And why do they call you that?"

"Cause in our class, you know, I'm always at the foot."

—*Woman's Voice.*

Advanced

THE CONTROLLING SYSTEM OF THE BODY

NOT long ago a telephone girl answered a call, made the required connection, took the record, and closed the line again all in ten seconds. That was quick work, but it is far surpassed by the rapidity with which the brain receives impressions through the senses, registers them, and transmits an answering message to the required part of the body.

Every line of business is making increasing demands upon the people today, and these demands can be met only by a correspondingly well trained nervous system. How to increase the efficiency of this controlling bodily force is a great problem which vitally concerns high school pupils soon to enter the business world for themselves.

The importance of the nervous system will be more plainly seen by comparison. Choose the most important business at hand, which may be a silk or cotton mill, a shoe factory, a creamery, or a meat packing establishment. What is necessary to its success? It must have a capable manager who has every detail of the business at his finger-tips and is constantly in communication with every employe, either in person or through a substitute such as the telephone.

Show that the same need exists in the body. The hand, the foot, the eye, every organ, in fact, must execute a thousand motions during the day. How does each know what to do; when to begin, when to stop? Such knowledge is possessed only by the brain, but this manager is shut up in the skull and never sees one of the servants it is continually directing. How are its orders carried to every part of the body?

The next point to consider is thus

ITS MODES OF ACTION

Notice that although we speak of the brain as one organ, it acts through its various parts rather than as a whole. Find these important centres and the parts of the body which each controls. Which part of the brain, for instance, governs the movements of the body? Where is the centre for sight? for smell?

Find which side of the brain has been injured when the right side of the body is paralyzed, and explain the reason. Why is the right side of the brain better developed than the left in left-handed people?

Have each one in the class write down ten different things he has done during the day, which require thought, and five things which one can do without thinking. Apply the terms voluntary and involuntary to these kinds of action. Why are both necessary? Which is used when we breathe? dodge a blow? wink? learn to skate? Which regulates the heart's action?

From a chart of the brain and principal nerve fibers and cells point out the ganglia which lie in a double row along the spinal column. Each ganglion receives a bundle of fibers from the spinal cord, and sends out a bundle to organs of the chest and abdomen, or to larger ganglia in the middle of the abdomen. Find the reason for these connections?

Show how all the organs in the digestive system are in direct nerve communication with one another. How is this an advantage? How are they connected with the central system. Why are these nerves and ganglia called the sympathetic system? Why does the pancreas begin to secrete pancreatic juice as soon as food enters the stomach? Give other illustrations.

How can a voluntary act, such as typewriting, become automatic? Why is this an advantage? Explain how a person can do two things at once.

ESSENTIALS TO ITS BEST DEVELOPMENT

One of the chief reasons why the American workman is superior to the laborer of other lands is because he thinks for himself and acts intelligently. He has a trained nervous system. How can one train this controlling system of the body to make it increasingly valuable?

In the first place, it must *know* things, and it gets this knowledge through the senses. Each sense must be given practice to make it acute. What has our brain learned through the eyes today? through the ears? through the taste? smell? touch?

The second essential is practice in *doing* things in the best way until each is done as well as possible. What training of this kind are we giving our nervous systems already? How can we improve it? Why are rest, nourishing food, frequent change of work or play, and daily outdoor exercise all necessary to develop the nervous system?

There are other conditions which weaken the nervous system as much as these tend to

strengthen it, which confuse the general manager, mind, enfeeble the will, relax the attention, and send distorted messages to every organ. What are they? How are they to be met?

Discuss these points fully and candidly, taking this opportunity to show the value of that self-control which leads one to refuse to gratify any degrading taste or appetite. Emphasize the fact that "the essential difference between the poor man and the mentally strong man is that while the former allows his impulses and passions to rule him, the latter rules his impulses and is master of himself."

AUTHORITATIVE QUOTATIONS

ALCOHOL ALWAYS A DESTROYER

Alcohol is a poison in the use of which there is no moderation, for it poisons invariably and always; and when we think that it does not poison we merely fail to discover its effects. In the less delicate parts of our physical machinery it works havoc enough, but in the more minute and delicate mechanisms which have to do directly with accuracy of thought and thus with our real life, alcohol, even in minute portions, never appears, save as a destroyer—Wm. P. F. Ferguson, B. D.

The little red school house of a generation ago

NO SAFETY IN MODERATE DOSES OF ALCOHOL

Doses of even 7-10-15 gm. (½-¼ oz.) of alcohol, which correspond to a glass of wine or a pint of German beer (certainly a most moderate dose), are sufficient to paralyze, retard or disturb all the central and centripetal cerebral functions. The number of mistakes in calculation, setting type, memorizing, etc., is increased. —Prof. August Forel, M. D., Ph.D., LL.D.

ALCOHOL PREVENTS SELF-CONTROL

Peculiarly susceptible is the brain to the poisonous and disorganizing action of alcohol. The nobler self is dethroned and the meaner and baser self usurps its place.—F. H. Whalmsley, M. D., Medical Supt. Metropolitan Asylum.

BRAIN CELLS THE FIRST SUFFERERS

Science has established that alcohol destroys first and most those parts which are most delicate and most recently developed. These are those wonderfully delicate brain cells upon whose proper formation the difference between men and beasts chiefly depends.—Dr. Franz Schonenberger, Bremen, Germany.

A HABIT THAT WEAKENS THE BRAIN

That the tobacco habit should be taken up early in youth, with the nervous system in perfect condition, and a disease deliberately invited that makes the highest sense of comfort impossible except drawn through a cigar,—that such a habit should be deliberately formed when there is not the least sense of any want for its soothing effects, is a human anomaly. No tobacco user ever has the supremest use of his brain.—E. H. Dewey, M. D.

CIGARETTES DESTROY NERVE CONTROL

Under no circumstances will I hire a man who smokes cigarettes. He is as dangerous at the front end of a motor as a man that drinks; in fact he is more dangerous. His nerves are bound to give way at a critical moment. A motorman needs his nerve all the time, and a cigarette smoker can not stand the strain.—George Baumhoff, Supt. Lindell Railway.

"Can you spell kitten, my little man?"
I said to Jack, five years old;
And behind his back Jack put both hands,
And tossed his locks of gold.
"Too hard?" I asked; then his face grew grave,
And he said, "It isn't that—
But I'm too old for kitten, you know;
Now just try me on cat!"

"I like the man who faces what he must,
Who fights the daily battle without fear;
Sees his hopes fail, yet keeps unfaltering trust
That God is God; that somehow, true and just,
His plans work out for mortals."

September, 1902 **SUGGESTED TOPICS FOR THE YEAR** June, 1903

	Grade I.*	Grade II.*	Grade III.*	Grade IV.	Grade V.	Grade VI.	Grade VII.	Grade VIII.	High School.
Sept.	Activities of the child. Body as a whole.	Cigarettes. Effects on growth and health.	External parts of the body.	Skin and cleanliness.	Heart and circulation.	Review fifth year work, particularly the special senses.	Fermentation.	Review seventh year work, especially the heart and circulation.	Bodily control.
Oct.	Parts used in work and play: arms, hands, fingers.	Wholesome and unwholesome drinks.	Bones and joints. Teeth.	Lungs and breathing.	Alcoholic drinks.		Alcoholic drinks.		Bodily support.
Nov.	Parts used in running, walking, etc.: legs, feet, toes.	Senses of touch and smell.	Muscles.	Brain and nerves.	Growth and repair.	Skin and cleanliness.	Cell life and growth.	Bones.	Bodily motion.
Dec.	Parts used in finding out things: five senses.	Senses of sight and hearing.	Food: what becomes of it. Alcoholic drinks.	Bones and joints	Secretion.	Organs of excretion.	Organs of the body.	Muscles.	Food and digestion.
Jan.	Parts used in living: head, trunk.	Food. Table manners.	Heart and blood.	Muscles.	Food and digestion.	Respiratory system.	Bodily training.	Nervous system.	Secretion and excretion.
Feb.	Needs of the body externally: shelter, clothing.	Voice: use, care and training. Teeth.	Pure air and breathing.	Food and digestion.	Assimilation.	Brain and nerves.	Food.	Tobacco.	Skin and cleanliness.
Mar.	Needs of the body internally: food, drink. Why not alcoholic drinks and cigarettes?	Skin and sense of touch.	Brain and nerves.	Alcoholic drinks. Tobacco.	Special senses.	Sympathetic system.	Digestion.	Excretion.	Tobacco and physical training.
Apr.	Care of body: cleanliness.	Body as a whole: its needs, care.	Skin and cleanliness. Special senses.	Heart and blood.	Tobacco.	Bones.	Assimilation.	Organs of Respiration.	Fermentation.
May	Care of body: right position.	Review of the senses.	Cigarettes.	Special senses.	Physical exercises.	Muscles.	Secretion.	Skin and cleanliness.	Organs of the body.
June	Review.	Review the body and its needs.	Review.	Review.	Review.	Review.	Review.	Review.	Review.

NEW CENTURY SERIES

of Anatomy, Physiology and Hygiene

The latest series of physiologies published since the recent agitation regarding the systematic study of physiology and hygiene, including scientific temperance instruction, in our public schools. It represents the latest phases of scientific research and study, combined with the best methods of instruction. The books have been arranged in accordance with modern experimental methods and particular attention has been given to the treatment of alcohol and other narcotics and to the subject of right living.

Anatomy, Physiology and Hygiene For High Schools. By Henry F. Hewes, M. D., Instructor in Physiological and Clinical Chemistry, Harvard University Medical School.
Price, $1.00

With experimental work this book gives a connected outline of the processes which accomplish the maintenance of life in the body and of the rules of hygiene which it is necessary to follow in order to facilitate their harmonious action. Chapters are included upon the nature and action of bacteria in connection with infectious diseases, and also upon physical culture and gymnasium exercises.

Elementary Anatomy, Physiology and Hygiene For Higher Grammar Grades. By Winfield S. Hall, Ph.D., M.D., Professor of Physiology, Northwestern University Medical School, ... **Price, 75 cents**

Treated according to the inductive method, beginning with the easily observed facts of plant physiology and leading by comparison up to human physiology and hygiene. Simple illustrations and experiments, but no dissections, are presented in connection with the physiological facts. A particular feature of the book is the lessons on domestic economy which form a noteworthy contribution to one of the most important problems of sociology.

Intermediate Physiology and Hygiene For Fifth and Sixth Year Pupils, or corresponding classes in ungraded schools. By Winfield S. Hall, Ph.D., M. D., and Jeannette Winter Hall, Special Teacher of Physiology, Berwyn, Ill. . . **Price, 40 cents**

The illustrations are a marked feature of this book, including both mechanical diagrams and attractive pictures designed to interest the pupil. Special attention is called to the simple comparisons of the bodies of human beings and of the lower animals. The object of this comparative study is to impress upon the mind of the pupil the unity of nature and to cultivate in him a love and sympathy for the lower animals.

New Century Primer of Hygiene First Book for Pupils' Use. By Jeannette Winter Hall. . . . . **Price, 30 cents**

A simple and attractive presentation of the elementary facts of physiology for pupils of the fourth year grade. The language used is free from technical terms and readily comprehended by the child, while familiar facts are used to emphasize the principles discussed. Brief object lessons in general physiology are given, together with a simple treatment of the most important laws of hygiene. Contains numerous illustrations and useful and practical suggestions.

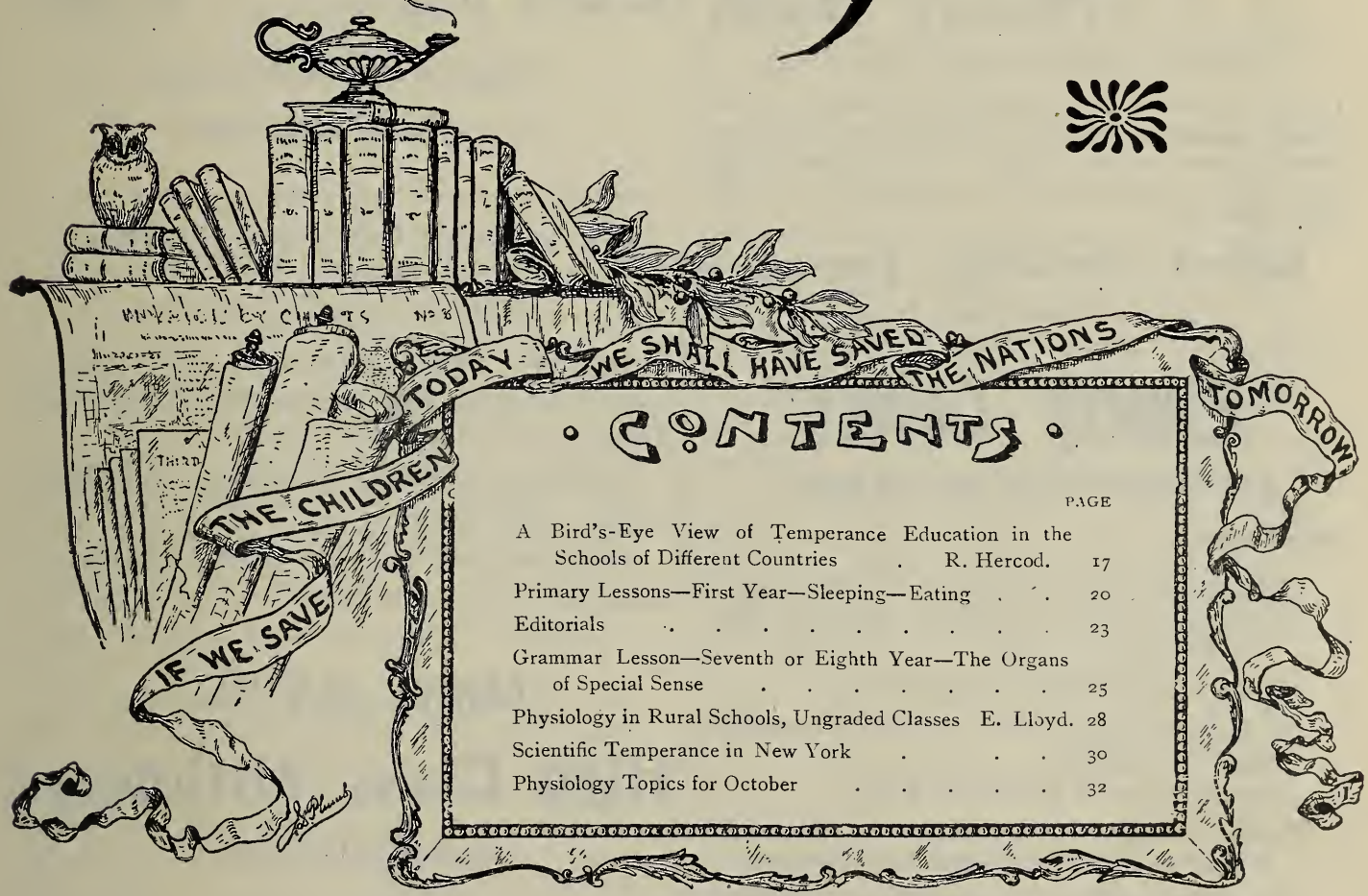
Oral Lesson Book in Hygiene For Primary Teachers. By Henrietta Amelia Mirick, A. B., Assistant Editor School Physiology Journal. . . . **Price, $1.00**

A manual for the teacher, containing suggestive oral lessons on the most elementary facts of anatomy, physiology, and hygiene, for the first three years of school life. At the end of each lesson are brief memory points summarizing the most important features. Each day's work is thoroughly planned and made simple and interesting.

AMERICAN BOOK COMPANY, *Publishers*

New York Cincinnati Chicago Boston Atlanta San Francisco

The School Physiology Journal



Contents

PUBLISHED AT
BOSTON MASS.
MARY H. HUNT, EDITOR

VOL. XII. NO. 2
OCTOBER, 1902

School Physiology Journal

Vol. XII *BOSTON, OCTOBER, 1902* *No. 2*

AUTUMN'S BANNER

'TIS a banner of gold and scarlet
October flings to the breeze,
And none other of all the twelve months
Can boast such colors as these.

For the trees that through all the summer
Have been dressed in the darkest green,
Now hanging with red and yellow
In most gorgeous gowns are seen.

The goldenrod flames by the roadside
And over the fences old,
Till each meadow is fast becoming
The Field of the Cloth of Gold.

And even the sun in his setting,
When he slowly sinks from view
And looks over the world of color,
Has caught the golden hue.

A. S.

A BIRDS-EYE VIEW OF TEMPERANCE EDUCATION IN THE SCHOOLS OF DIFFERENT COUNTRIES

YOU will permit me to lay down the proposition, without delaying to prove the truth of my assertion, that alcoholism is a formidable social evil, and that as such it ought to be combated. It is in any case one of the plagues of civilization. I need only remind you that ten per cent of men above twenty years of age in Switzerland die of alcoholism; the situation in France or Germany is not more encouraging.

It must therefore be combated; but how? To answer that question one must study its causes in the light of the old adage: *Tolle causam, tollitur effectus*. One of the causes is unquestionably the general ignorance of the public concerning the true effects of alcohol. Deceiving by false appearances, alcohol is represented as a panacea, warming, strengthening, an aid to digestion, a necessity to all normal existence, a promoter of sociability. The truth revealed by exact scientific researches of the last thirty years is almost unknown by the people. Old prejudices which flatter and justify indulgence are tenacious. After thirty years of age, one goes his own little way, pursuing the path already begun, a slave of custom and of habit. This incontestible psychological truth explains the small success—comparatively—of temperance societies. They ask the adult to abandon cherished habits the yoke of which is often too heavy to be thrown off.

But could not the children unweighted by previous habits be reached with more success? Shall they be thrown out into life from the school without being told that drink is the cause of many ills and lamentable shipwrecks of life? Certainly not, because the school is not only a workshop where one painfully drives into childish heads the rules of grammar or geographical names; its mission is higher. The school must prepare the child for life, fortify him in advance against the temptations which await him, make him a good citizen with a sound heart, a strong body, and an open intelligence.

Educator of the rising generation, the school will combat alcoholism by showing the child the truth which the dull joys of alcohol mask. Several great nations have grasped this fact, the United States, Canada, Belgium, France and others.

The United States presents the most striking example. As given in all the public schools of the republic, the anti-alcohol instruction is connected with that in physiology and hygiene. In this respect America differs from other countries, notably France, where the anti-alcohol teaching is occasional and is given in connection with arithmetic, reading or composition lessons, as well as in a course of natural sciences or of hygiene. Although the French system, at first glance, seems more natural, since the alcohol question is economic and moral as well as physiological, the American plan has the advantage of requiring the teacher to give regular and easily controlled temperance teaching.

What are the appreciable results of this instruction in the United States? Certainly some years will pass before the teaching bears its full fruit. Let us wait until the children of today have become men. Let us wait also until young teachers trained to estimate alcohol at its just—non-value—replace those of their older colleagues who yet believe, and will always sincerely believe, in the benefits of alcoholic drinks. For anti-alcohol teaching to secure all that it is possible to attain by means of it, it is essential that those entrusted with it perform their work heartily, not separating practice from principle, but giving their pupils the good example of a life of sobriety. Do what I say, do also as I do!

Beside her powerful neighbor, though less strikingly, Canada is doing excellent work in this direction. A legislative act, in 1885, placed

temperance instruction in all public schools in Ontario. The subject must be treated like other regular branches, with the aid of suitable books. Care is taken that the temperance lessons have a strictly scientific character. No sentimental effusions, no descriptions of darkest hue in which the drunkard beats his wife and abuses his children. The teacher is required to teach accurately and soberly certain effects of alcoholic drinks, to show the danger of these drinks even when taken in small quantities, the power of habit, and the natural effects of a paralyzant and a narcotic like alcohol. A special examination on temperance hygiene is required of candidates for the high schools. In the normal schools also, the instruction has an important place.* Moreover, the Canadian people require of the teachers of their young people the strictest sobriety. The teacher who is suspected, not of being a drunkard, but of having too much affection for the bottle would have great difficulty in securing a position.

The condition in England is quite different. In the United States the laws require temperance instruction. This system would be impossible in England where the school organization is still very lax. There, private initiative takes the place of the intervention of the state. The burden of the effort for anti-alcoholic teaching is borne by the United Kingdom Band of Hope. According to the last report of the acting secretary of the Band of Hope Union, 3,500,000 children are connected with that society.

The disadvantage of trying thus to gather children into small groups of abstainers is that only the minority is thus reached. To be effective, the instruction must be given to *all* children in the schools. Our friends in the Band of Hope understand this and, in 1877, commenced regular lectures in the schools of London. Their success warranted the extension of this effort throughout the country. Resources for carrying on the work having increased in proportion to the needs, seventeen lecturers are now in the service of the Band of Hope. They go from school to school, nearly everywhere well received and listened to with attention. By June, 1900, in eleven years, 34,617 lectures have been given before 3,838,525 scholars and 127,027 teachers. The lecturers to encourage their young hearers ask them to make a résumé in writing of what they remember. The authors of the best reports receive prizes or certificates.

I have some fear that the English system is insufficient. One or two occasional lectures by unknown speakers will not create in the minds of the children a lasting conviction. The scheme seems to me a makeshift which ought to make way as soon as possible for regular instruction given by the regular teacher. In the meantime, it goes without saying that the makeshift is useful, and it is a case where may be applied the pretty English proverb: A bird in the hand is worth two in the bush.

Two countries of the Latin race, Belgium and France, have recently introduced anti-alcohol teaching in their public schools. In Belgium, in the first two years, the teacher gives the children familiar talks upon water, aromatic drinks, etc., without touching the subject of alcohol. The two following years they begin the study of fermented and distilled drinks. The teacher exposes and combats the prejudices which prevail on this subject, and describes the real effect of the drinks on the human system. Together with this instruction lessons in hygiene are given, the teacher giving the pupils problems, dictation exercises and reading selections which treat of alcoholism. In the higher grades of primary schools the teacher speaks of alcoholism not alone as affecting the individual but in its social aspects, of its causes, and treatment.

In general, the instruction is really given in the majority of primary public schools. However, the political power of the liquor-sellers who control affairs in certain communities is a damper to the zeal of the teacher. The instruction has also a place in normal schools. But the course of study there is deficient and consequently ineffective. In secondary and higher schools, there is nothing more as yet than timid attempts, although leading Belgian professors are favorable to a moderate anti-alcohol reform.

It is difficult to find out exactly the value of the instruction in Belgium. Let us rather confine our attention to the fundamental difference between the Belgian system and those which we have previously studied. Belgium is opposed to spirits only, especially to gin. Toward the fermented drinks she shows a very friendly neutrality. It appears to us that to pledge the children not to drink gin is a useless endeavor to surmount the obstacle. It must be said in partial defense of Belgium, that gin is the most dangerous drink there, that even the children use it. On the other hand, the only fermented drink which the working people know is a light beer containing about two per cent of alcohol.

Nevertheless, in Belgium even, voices of authority are raised against the use of beer which forms, to say the least, an economic waste even if the Belgian beer is harmless. It appears to us that the school ought to teach the child that beer, so far from being a substance of prime necessity, is an article of luxury, and that he should use for better food the money

*The report of the Canadian Minister of Education for 1901 says, "It is worthy of notice that the number of pupils receiving instruction in temperance and hygiene has increased from 33,926 in 1884, to 199,229 in 1900.

that every household devotes to the purchase of beer.

In France, the program of anti-alcohol teaching is similar to that in Belgium.

As in that country, and possibly even more, the instruction is directed exclusively against distilled and aperient drinks. The fermented drinks enjoy a large degree of tolerance, too large, it seems to the writer. It is contrary to fact absolutely to separate fermented and distilled drinks. Both kinds contain alcohol. The intensity of their effects varies, since alcohol is considerably diluted in wine and especially in beer. I consider it equally dangerous to recommend as agreeable and stimulating wine, either pure or diluted with water. Let us remember that we are teaching children, and that the natural drink of the child—I would gladly add of adults—is water.

As to results, naturally this is not the time to estimate them, but ten or fifteen years hence when the children of today become citizens. However, some teachers notice a change for the better among the parents of their pupils. The child says at home: "Absinthe is a poison," and the father hesitates thereafter to take it. Moreover, official initiative has encouraged many teachers who, in view of the hostility of local authorities, of the mayor, of tena liquor-seller, did not before dare to engage actively in the struggle against alcoholism.

"Where the yellow sunshine sheen
Falls faint on flowers that bloom and fade,
The mighty trees between."

In Denmark, the government recently sent to all teachers a book of temperance readings compiled by the Danish society of abstaining teachers, urging them to use it in their lessons.

In Holland, the Dutch society of abstaining teachers desires to delay the introduction of temperance teaching until, by the progress of public opinion, they can attack with more decision than they now know how to use alcoholic drinks even of the fermented class. The government allows the teacher full liberty of action in this respect.

To sum up the conclusions which the experience of three countries furnishes us:

1. In a general way in all countries where the alcohol question is under consideration, it is believed that the school can and should fight against this evil.

2. The countries are divided upon the mode of procedure. Some put upon the state the care of introducing the instruction into the schools (America, Canada, France, Belgium), others prefer to have recourse to private initiative and ask only the friendly tolerance of the state (England). In other countries, like Holland, the middle classes interested are in favor of official temperance teaching, but they are waiting for its introduction and content themselves with a *laissez faire* policy in order to be sure later of securing the radical instruction which alone appears to them to be suitable for their country.

3. There are radical differences in the nature of the instruction. The United States, Canada and England, where the temperance movement after bitter experience has taken total abstinence as its basis, quite naturally wish the school to present to the child total abstinence as the ideal. In France and Belgium, on the other hand, distilled drinks only are opposed, which, rightly or wrongly, are considered responsible for all the evil.

4. The anti-alcohol instruction being everywhere recently introduced, it is difficult to speak with any precision of its results. It will ever be but one of the forces which will combine in the battle against alcoholism. Hence it will always be impossible to single it out and indicate to what degree it has contributed to the diminution of alcoholism. Nevertheless, it seems evident that wherever serious anti-alcohol teaching is given, the results ought to be excellent and the difficulties none, on condition that the teacher entrusted with this teaching uses tact and knows how to teach without offending.

R. Hercod in *Journal de la Societe vaudoise d'Utilite publique.*

Translated for the School Physiology Journal.

SLEEPING

A CHARGE often brought against our primary and secondary schools is that they seek to develop the child's mind at the expense of his body. In some cases this may be true, but more frequently it is the faulty conditions of the child's home life rather than those of the school which sap his vitality and prevent full physical development.

It ought to go without saying that school children, especially those in the lower grades, should have abundance of sleep in the early part of the night, but the facts too often tell another story. The little ones are allowed to continue their play until so late an hour that they go to bed feverish and excited, in no condition to get the rest they need.

Teachers, as a rule, are quicker than parents to know when such conditions prevail, because they see the results in the child's school work. For this reason, suggestions as to a remedy should also come through the school.

Get the children interested in studying the habits of native birds and animals, letting them find out for themselves when these go to bed and get up, and how their way of resting differs from that of people. Talk with them about the need of rest; why all living things must have plenty of sleep, the best time to get it, and how it is just as necessary as play and work to make everything grow. Set them hunting for flowers which close when it begins to grow dark, to open again at sunrise.

Explain that people have a much more important work to do than any plant or animal, and must take at least as good care as these do to get plenty of sleep. Little people have to grow as well as work, so it is even more necessary for them to go to bed early. Settle on a regular time for the children under your care to go to bed and to get up, and try to get their co-operation in the matter. Ten hours is none too much sleep for children in these grades, and they can be so led to feel the importance of the matter as to be willing to curtail their play to this end.

Tell them how to arrange their windows to have plenty of pure air during the night, and how to air their beds and leave their rooms in the morning. If any of them find a bird's nest next spring, ask them to watch how clean this is kept as long as the birds stay in it.

Nothing is so easy to arouse as the enthusiasm of a little child, and it is in every teacher's power to turn this natural interest in the right direction.

READING LESSON

What a fine flock of sheep!*

All but two of them are lying down.

They have had their supper and are going to sleep.

Old Ned will not sleep. He is wide awake to see that nothing harms them.

He is a fine dog. When he takes the sheep home his master will give him a good breakfast.

Then he will have a long nap.

Night is the best time to sleep, but Ned has to work at night. He sleeps in the daytime.

CLASS TALK

Make it a universal rule to ask of the children only such questions as will stimulate thought and help them to express their own ideas.

What time of day is it in this picture? How do we know? Why do sheep need to rest? What other animals go to sleep? What is the dog doing in this picture? When will he sleep? How many of you have pet dogs at home? Tell some of the things they do to make them tired at night. Where is your dog's bed? How is it different from yours?

OBSERVATION WORK

Let each child choose some form of animal life, a bird, insect, cat, dog, horse, anything within the range of his observation, and find when and where it goes to sleep. Does it sleep standing up, sitting or lying down? What does it do during the day to get tired?

Ask the children to think of and name animals which sleep in the daytime and are wide awake at night. Explain the reason for this, *i. e.* because the food which such animals live on can more easily be found then, or because they can see to hunt better at night, etc.

Have all in the class remember the different things they do during a single day and report on them. What kinds of work and play make the legs tired? the arms? the head? the back? How do these parts get rested again?

ACTION SONG

(1) The lambs are asleep in the fold,
(2) The birds asleep in their nest,
(3) And now comes the call for little ones all
(4) Like them to take a rest.

*See picture on page 29

(5) Birds sleep in the treetops high,
(6) And lambs on the meadows wide,
(7) While fish take a nap on a big white-cap
(8) Far out on the ocean tide.

(9) But when my sleepy time comes—
(10) To rest my tired head—
(11) There is naught to compare, I do declare,
(12) With this, my own little bed.

(1) Close fingers. (2) Fingers interlaced, hands cup-shaped to form a nest. (3) Point to children in turn. (4) Close eyes. (5) Raise arms above the head. (6) Stretch arms out in front to form a circle with fingers interlaced. (7) Sway arms back and forth. (8) Stretch arms out at sides. (9) Point to self. (10) Point to head. (11) Shake head slowly. (12) Fingers interlaced, hands flat.

Give the children a few simple directions about the best way to sleep. We should go to sleep in the dark just as the birds do. We can not be out of doors all night like them, so we must do the next best thing, open the windows to give the pure outdoor air a chance to get to us. The sun shines into the birds' nests all day long. We must let it into our beds and bedrooms to make them also sweet and fresh. Animals go to bed early and get up with the sun. That is a good rule for us.

"Nothing ever tasted quite so good as that first slice"

EATING

ONE of the strongest arguments for giving children their meals by themselves is that they can not then be tempted to eat anything and everything of which their elders may partake.

The child's digestive apparatus is a most delicate and sensitive piece of mechanism. If it is tampered with, the man may reap the results in indigestion and dyspepsia.

Begin in the lowest primary grades to teach the little ones what foods are best for them, and what should be avoided until they are grown up. They probably know already that the farmer does not give his colts the same kind of food as he does his horses, and they can readily understand that it is even more important for children to have foods that can easily be made into bone and muscle.

Tell them some of the best foods for little people—such as whole wheat bread and milk, eggs, fresh ripe fruits and vegetables, well cooked cereals with milk but no sugar. It will not be long before these facts, learned at school, will be repeated in the home to the improvement of faulty conditions.

The question of sweets will come up over and over again. Do not forbid them entirely; the universal craving of the child nature for these things shows that a real need of them exists. Instead, tell them when and how to eat sweets, why not between meals, or all the time, and why only in moderate quantities. Explain what is meant by self-control, and show that here and now is a way for even little people to practice it.

READING LESSON

This mamma has three children. She calls them her little birds.*

It is supper time and they are hungry.

They have been playing and working all day long.

Now they sit in the doorway and mamma feeds them bread and milk.

This will give them rosy cheeks and keep them well.

They do not eat pie or cake or any rich food, because it might make them sick.

What shall we eat if we want to grow tall and large and strong?

CLASS TALK

Ask the children what they had for breakfast this morning; for dinner; for supper last night. Where do our foods come from? What foods grow all ready for us? Name other foods that must be cooked before being eaten.

What food plants have you seen growing?

*See picture on page 27

Name something good to eat that grows on a tree; on a bush; a food plant that has a head; another that has ears.

Tell what a cow likes to eat; a robin; a dog; a mouse; a bee; a squirrel. What do you like best to eat?

Talk about the food of young animals, kittens, calves, lambs, babies, and help the children to see how this differs from that of grown animals and people. The farmer does not make his colt do the work of an old horse because it is not strong enough, neither does he give it the same kind of food. Why not? Why do babies have only milk for their food? Why do children need other things to eat? Why would it not be a good thing for them to eat everything that grown people do?

Name foods that are good for children, that will help them grow and give them strong, healthy bodies. Name foods that would be likely to hurt them and perhaps make them ill.

ACTION STORIES

Such kindergarten games as "How the Corn Grows," "The Mill," and "Making Bread," described in Poulsson's "Finger Plays," will prove equally fascinating to children in the first grade, especially to those who have not had kindergarten training. In addition, let them act out the story of

THE LITTLE WHITE BANTAMS

Two little children lived out in the country on a farm. Harry was so tall (arm stretched out at side), and Alice was a little shorter (lower hand a few inches). One day Papa brought home two little bantams (hands closed, thumbs and little fingers raised), one for each of them (raise forefingers).

Papa built a little house for them (fingertips together like slanting roof), and a yard outside for them to play in (arms stretched out, hands clasped). Harry and Alice brought soft straw and made a nest in the little house (hands cup-shaped).

Every morning and night they carried the bantams something to eat and fresh water to drink. Soon the bantams were so tame that they would eat out of the children's hands. (Tap palm of left hand with forefinger of the right).

One day there was a little white egg in the nest. (Thumb and finger of left hand together in circle.) The next day there was another, (circle with right thumb and finger), and Harry and Alice each had a nice fresh egg for breakfast.

CLASS TALK

Children are extremely likely to overeat if they are particularly fond of any article of food, and to refuse everything else in order to gratify this appetite.

Draw on the board a picture of the stomach, or make a bag of the proper size and show how little it really holds. If this is crowded with food, it can not take care of it properly, or get it ready to make good bone and muscle.

Emphasize also the fact that eating too much of any food often makes people so sick of it that it never tastes good to them again. A story will help to fasten this idea, and put them on their guard.

TOO MUCH QUINCE PRESERVE

Ruth and Ray were very fond of preserved quinces, always begging for more with their luncheon.

"It is too rich," Mamma used to tell them, "it would make you sick."

"Oh, no, it wouldn't," they pleaded. "We could eat all there is in the big jar, and then want more."

One morning Mamma was ill. "You will have to put up your own lunch today," she told the children. "You know where everything is."

Away they ran in high glee. It would be such fun to get just what they liked.

"For once we'll have enough quince," they said. They made four large sandwiches apiece, spreading each thickly with preserves, and nearly filled a teacup besides.

They could hardly wait till recess, but at last the time came and they sat down under the bushes to enjoy the feast.

Nothing ever tasted quite so good as that first slice. The second was good too, but somehow they weren't quite so eager for it.

They began on the third, but it was getting hard work, and there was still another slice apiece, besides the cupful.

"I don't believe we got the right jar," said Ray after awhile. It doesn't taste a bit like what we had yesterday. Let's throw the rest away. It might make us sick."

"Who wants to bring me the quince jar?" said Mamma the next morning.

Ray and Ruth sat very still. "I don't believe we want any quince today," they said, after a long while, and when Mamma looked into the jar she knew the reason why.

Ruth and Ray are grown up now, but neither of them can bear the taste or smell of preserved quinces. Who knows the reason?

"The common problem—your's, mine, every-one's—
Is not to fancy what were fair in life,
Provided it could be, but find first
What may be, then find how to make it fair
Up to our means."

School Physiology Journal

COPYRIGHT APPLIED FOR

Single Subscription.....$0.60 a year

CLUB RATES

Clubs from 5 to 50. .....$0.50 each
Clubs of 50 and over..... .40 each

Please remit by post office or express money orders, draft on New York or Boston, or by registered letter.

MARY H. HUNT, EDITOR
HENRIETTA AMELIA MIRICK, Assistant Editor

Published monthly at 23 Trull St., Boston, Mass.
SEPTEMBER TO JUNE, INCLUSIVE

Entered at the Post Office at Boston as Second Class matter

OCTOBER

The month of carnival of all the year,
When nature lets the wild earth go its way
And spend whole seasons on a single day.
The spring-time holds her white and purple dear;
October, lavish, flaunts them far and near.
—HELEN HUNT JACKSON.

AN INTERESTING REPORT

IN 1895, the temperance committees of the churches and representatives of various philanthropic organizations and other influential citizens of New York united with the State Woman's Christian Temperance Union under the name of the New York State Central Committee for Scientific Temperance Instruction in the Public Schools, their object being to secure the present law requiring instruction in temperance physiology in the schools of that state. This committee never disbanded and has recently reorganized to protect the law it secured.

This year, the Committee has been making an extended study of the practical workings and results of this law throughout the state, as well as of the criticisms made by the State Science Teachers' Association at its annual meeting in Syracuse last December. From this study the Committee has prepared and published in pamphlet form a very interesting report.

It calls attention to the fact that the Science Teachers' Association, in charging that the indorsed text-books used in the public schools are out of harmony with the instruction in medical colleges in teaching that alcohol is a poison, did not produce a single authority showing that alcohol is *not* a poison. The report of the State Central Committee, on the contrary, cites the authority of medical university teachers and medical journals in support of the teaching of the school text-books on that point.

The Science Teachers' Association implied in its report that alcoholic drinks may be used in safety with meals and after the day's work is done, by people over twenty-one years of age. "This," says the State Central Committee, "is a specious plea for moderate drinking, with the qualification that youths abstain before they are twenty-one. Such an argument is dangerous, fallacious, and unsustained by science and experience." It ignores the fact that alcohol, like other narcotics, when taken in any degree of continuity even in moderate amounts or in the form of diluted spirits, has the power to create the uncontrollable and destructive appetite for more, thus proving conclusively that there is no limit of safety even in the moderate use of alcoholic drinks.

The Science Teachers' Association based its conclusions as to the results of this teaching in the public schools of New York upon information sought from a comparatively limited number of superintendents and principals of schools and normal school pupils in New York, and from high school teachers, college and medical school professors in New England as well as New York. Naturally, the question is asked, "Why the Science Teachers' Association felt it necessary to consult *New England* educators as to the practical working of a law concerning New York public schools."

The Science Teachers' Association concluded that the study is producing few or no marked results. Even if this conclusion were true, it would be no reason for making more lax the legal requirements for its pursuit, because, as Professor Hercod points out in his article elsewhere in this number, time is necessary for the teaching to bear its full fruit, and the temperance education laws have been in force for comparatively few years. The State Central Committee, however, sought information on this point from those nearest the children and therefore those best qualified to judge of the effects of the teaching; namely, their parents, and the replies received from every county of the state, except Hamilton, extracts from which are given in the published report and are reproduced in part on page 30 of this issue, afford overwhelming proof that this instruction is producing marked results in the lives and homes of the young people of the Empire State for total abstinence and in the better observance of all hygienic laws. It may be noted in passing that the State Science Teachers' Association in its report made no reference to the fact that, by the provisions of the New York temperance education law, four-fifths of the instruction is to be on the subject of physiology and general hygiene and only one-fifth temperance matter, but criticised the law and its workings as if the temperance teachings were all that was included.

The reports received by the State Central Committee also show that all praise is due for the excellent work already done in this subject

by the great majority of teachers in that state, in spite of the opposition from sources from which help should have been received.

The State Central Committee vigorously opposes any suggestions of change in the present New York temperance education law. It says of the recently modified law of Connecticut, which the Science Teachers' Association "regards with favor," that no such law would be tolerated by the people of New York, because it makes no adequate legal provision for this study in the lower grades where alone a majority of the pupils in the public schools can be reached, and because it does not require the necessary help of books for pupils, or make such provision for the study of physiology as is necessary to an intelligent understanding of hygiene, while its enforcement by penalty remains optional with the State Comptroller.

In its turn, the State Central Committee recommends:

1. Cessation of *destructive* criticism of the law and the instruction it requires, by school authorities whose duty it is to enforce the law.

2. A sincere, conscientious and earnest endeavor on the part of normal school principals, institute instructors and teachers to carry out the provisions of the law in a *constructive* spirit, to fit themselves to make the subject interesting, and to present it, properly graded, in such a way as to inculcate the principles of hygiene in the lives of the youth of the state and make them intelligent total abstainers.

3. The appointment of institute instructors who have made a study of physiology and hygiene, as required by law, and who will apply to this subject up-to-date methods of teaching.

4. Preparation by superintendents of schools and school officials of suitable courses of study which shall name text-books and supplementary helps adapted to each grade.

OCTOBER'S GIFTS

October is the month that seems
All woven with midsummer dreams;
She brings for us the golden days
That fill the air with smoky haze;
She brings for us the lisping breeze
And wakes the gossip in the trees,
Who whisper near the vacant nest
Forsaken by its feathered guest.
Now half the birds forget to sing,
And half of them have taken wing,
Before their pathway shall be lost
Beneath the gossamer of frost;
Now one by one the gay leaves fly
Zig-zag across the yellow sky;
They rustle here and flutter there,
Until the bough hangs chill and bare.
What joy for us—what happiness!

—Frank Dempster Sherman.

AUTUMN

When Jack Frost with brush in hand
Wanders gaily o'er the land,
Scattering colors here and there and everywhere,
When the maples overhead
Glow with russet, gold and red,
It is autumn.

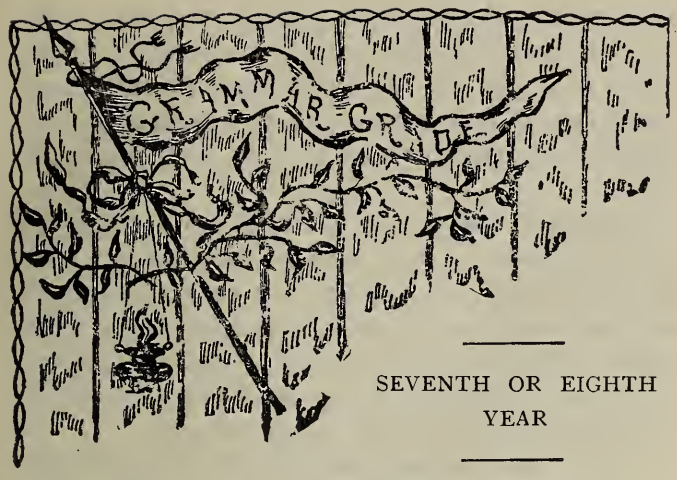
When the orchard's weighted down,
With the apples red and brown,
And the purple clusters hang upon the vine;
When the yellow, tasseled corn,
To the granary is borne,
It is autumn.

When from out the beech trees tall,
Wealth of ripened beechnuts fall,
And the chestnut opens wide his prickly burr;
When the woodbines blush and glow,
And the sunset's splendors show,
It is autumn.

—Fanny Fernald Painter.

The analysis by Professor Hercod, in another column, of the systems and progress of temperance education in the schools of different countries will be of special interest to our readers. In view of his expressed regret that no definite estimate can yet be made of the results of this study over any extended section, either in the United States or in any other country, the evidence of definite results quoted from the report of the New York State Central Committee on pages 30-31 is particularly timely. New York with its area of 53,000 square miles and its population of more than seven millions of people may fairly be called an extended section of the United States over which to search for results.

Just now when the question of the necessity of this study in the lower grades and of the use of books on this subject by pupils using books in other branches is before the public, this testimony from New York is very opportune, and we commend it, as well as the entire report, to the careful consideration of all our readers.



SEVENTH OR EIGHTH YEAR

THE ORGANS OF SPECIAL SENSE

So keen were the senses of our savage ancestors that they could follow the trail by the scent, match the bird's power of vision, or hear sounds inaudible to the civilized ear.

Men might have been able to do the same today had they continued to lead a similar life, but the telescope was invented with which they could see farther than with the sharpest eyes, and the telephone by which more remote sounds could be heard than by the quickest ears. Other inventions did their part, and in proportion as man ceased to depend upon his senses their acuteness left him.

By sense-training nowadays we do not mean efforts to regain all that has been lost. The savage had only a few things to see and he saw them with a minuteness which will never again be equaled. We move among a multiplicity of interests all of which it is an impossibility to examine or know thoroughly. Three things are necessary in consequence. First, to decide which are the important things for each of us to know; second, to train the mind through the senses to perceive these central facts clearly, no matter how buried they may be in unimportant details; third, to translate into useful action what has been thus perceived. Such is the modern idea of sense-training, and the following scheme for a development lesson on this topic is presented with these ends in view.

WORK TO BE DONE BY THE SENSES

Imagine a prisoner shut up in a dark dungeon in which he could neither see nor hear nor use any of his other senses. How much could he know of what was going on in the world outside?

How is the brain such a prisoner? In what ways does it gets all its knowledge of the outer world?

Begin the study of the special senses with pupils of these grades by briefly considering how many things there are in the neighborhood of all of us of which the brain has little or no knowledge. Starting with the schoolroom itself, call attention to the materials used in its making. What kinds of wood were needed? Where did each come from? Why were these particular kinds selected instead of others? How were the nails made which fasten the boards together? Where is iron produced?

Similar questions regarding the glass of which the windows are made, the plaster, paint, varnish, pictures and furniture will show that there is far more in this one room than can be taken in by the senses in several days, hence a selection must be made of the important things.

To decide this point wisely, one must think why he is in school, and use his senses to accord with that end. In class, for instance, one's business is to hear what is being said. He will fail to do this if he is listening to the birds singing outside, or waiting for the bell to ring for dismissal. At his seat, the pupil's business is to study his lessons, not to watch what others are doing.

Draw similar illustrations from different lines of business, and also from play. What special senses is a watchmaker called on to use? a farmer? a cook? a bookkeeper? a ball-player? How are the senses to be used in each case? How are they not to be used?

Let the class try to do any two things at once, then the same two things separately. Time them in both instances in order to show which way is quicker and better. Finally, see that all get the important thought that since there are more things around us than any one can possibly take in through his senses at any one time, each must decide what is most important and put all his attention for the time being on that particular thing.

ADAPTATION TO THEIR WORK

No one can get the best results from a machine unless he knows something of its structure, how the different parts are put together, and how to use it. This is true of a bicycle or a watch, and it is just as true of the special senses. To get the most good out of these organs, one must know how each works and the kind of care it needs to keep it in prime condition.

Take up each of the senses with this thought in mind, beginning, let us say, with touch. Where is this sense? How do you know it is not in the outer layer of the skin? Where else in the body is it not found? Give reasons for its absence in those parts.

Draw on the board a vertical section of skin, showing the nerve cells. Explain why these are so close together, and how every sensation felt by them gets to the brain. Have the class reproduce this diagram from memory, and give a similar explanation of this function of the skin.

Consider which of the other senses are forms of touch. How is taste more specialized than touch? Give a reason. Find what is necessary in order that any substance may be tasted. Have the class examine the tongue in the looking-glass and then get from their books an explanation of everything they see on its surface.

Find whether salt, sugar, and other substances of decided flavor can be tasted equally well by all parts of the tongue. What substances have no taste? Why? Trace the course of the nerves of taste from the tongue to the brain.

When we touch or taste anything it comes into actual contact with the senses, but we can smell a rose when it is some distance away from us. How is this possible? Let the class exhaust their own ingenuity over the question, then, if necessary, explain that odors are due to very tiny particles of matter which are given off by objects. These are carried through the air to the nose.

The eye and ear are still more highly developed, because nothing that is seen or heard touches these organs themselves. In the first case, a picture of every object looked at is formed on the retina. In the second case, the air is thrown into vibrations by sound just as water is when a stone is thrown into it. When any of these vibrations strike the ear, we hear the sound.

Have the class study the mechanism of the ear and eye enough to familiarize themselves with the practical working of these organs. They should know the different kinds of material of which each is made, and why more than one kind is needed; the function of each part, and how it is able to fulfil this function; and also be able to show by diagram how the impression of everything seen or heard is carried from the eye or ear to the brain.

IMPORTANCE OF THEIR CARE

Tell the story of the Cumaean Sibyl and her visits to Tarquin the Proud. The first time she came, she brought nine mysterious volumes and offered them to the king at an enormous price. He refused and the Sibyl went away.

Presently she returned with six volumes which she offered at the same price as before. Again the king refused. A third time she came, with only three volumes now, but the price was still the same. By this time, the king was convinced of their value and was glad to pay the original price for even a third of what he might have had at first.

We see very old people occasionally who have kept almost the perfect use of their senses. They paid the price of good care of these precious organs at the very beginning. Other people neglect their senses or abuse them, and in a few years find their sight failing, or their hearing impaired, or their taste or smell nearly gone. They must pay the same price now to keep these fragments of their senses as they would have had to pay for perfect organs if they had begun in time.

Ask each one in the class to note down all the directions he can find on the proper care of each sense. A comparison of these papers should bring out the most important facts to be remembered, and these after thorough discussion may be written in the pupils' notebooks or on a blank page in their physiologies.

Find the special temptations which beset your pupils in regard to the care of the senses, and delicately but firmly combat them. One which is almost sure to exist will be the use of cigarettes. Have the class find which of the senses are injured by cigarettes and how seriously. Make it clear to them that the entire abandonment of this habit is a part of the price they must pay for perfect sight, and if they do not pay it now they may have to later to keep even part of this sense.

Study with the class the effects of alcohol on the senses as found in their books, in the quotations in this JOURNAL, and elsewhere, making it clear why cider and beer may produce just as bad effects as stronger liquors, if taken often enough.

AUTHORITATIVE QUOTATIONS

EFFECTS OF ALCOHOL ON STRUCTURE OF THE SPECIAL SENSES

Without doubt the protoplasmic nerve cells of the organs of special sense are as sensibly affected by alcohol as the cells of any other tissues of the body. Consequently the effect of minute quantities of alcohol on both vegetable and animal cells is a strong argument that it injures the constructive protoplasm and favors the destructive protoplasm of the organs of special sense.—J. W. GROSVENOR, M. D., Buffalo.

Alcoholic liquors, long continued, may cause a congestion of the internal ear and by producing a similar pathologic condition in the throat, set up diseases in the middle ear through the Eustachian tube. Some aurists declare snuff-dipping, tobacco-chewing and smoking may each accomplish the same result through a similar process. Certainly, by exerting a depressing effect upon the nervous system they may increase nerve deafness.—FAYETTE C. EWING, M. D.

EFFECTS OF ALCOHOL ON FUNCTIONS OF THE SPECIAL SENSES

Careful observers have noted, before and after the use of alcohol, the condition of the

senses, and in all cases a diminution in acuteness and activity was observed. While a man may believe that his senses are keener and his powers of endurance greater, careful experiments with instruments of precision have shown that his hearing is reduced, his acuity of vision is lowered, his taste obtunded, his sense of smell blunted, and his sense of strength, as shown by the dynomometer, materially reduced. The combination of ideas is much slower, the pain, heat and touch senses are diminished and weakened by even small doses, as from one to four drams. —A. D. McConachie, M. D., Asst. Surgeon to the Charity Hospital, Baltimore, Md.

Alcohol, tobacco or whatever other drug may be regarded as a toxic agent, or else the toxin that it liberates in the system, may sometimes and, probably, usually affects primarily the fibers of the optic nerve.—*Quarterly Journal of Inebriety.*

Alcohol reduces the power and functional activity of the special senses. The activity of vision is lowered, the power of hearing reduced, the sense of smell blunted, and the taste so obtunded that fiery and even caustic liquids can be swallowed without wincing. —E. Stuver, M. D., Ph. D., Colo.

"Feeding Her Birds"*

DEFECTIVE VISION DUE TO ALCOHOL AND TOBACCO

Whilst it is contended by many observers that the use of alcoholic drinks alone rarely produces amblyopia,—defective vision—it must be conceded that there are undoubted cases in every man's practice which can only be ascribed to alcoholic effects. Usually such patients give a history of the use of tobacco and alcohol jointly, and whilst the real cause of the diminution rests with the excessive use of tobacco, the alcohol, by impairing nutrition, has made the tissues less resistant and hence an easy prey for the baneful poisonous effects of the nicotine on the optic nerve. Alcoholic amblyopia manifests itself by a gradual diminution in vision in both eyes, with impairment of central color vision—red and green being less distinctly seen or even not at all, white also being not detected.—A. D. McConachie, M. D.

ALCOHOL A PARALYZER

The paralyzing action of alcohol has been tested on special nerves and functions. I have found that very small doses of alcohol, such as one or two fluid drachms and upward, diminish the sensibility of touch, of hearing and of sight. —J. J. Ridge, M. D., London.

TOBACCO AND COLOR BLINDNESS

Habitual cigarette smokers are barred from positions in the operating department of the New York, New Haven and Hartford Railroad. H. A. Ives, who has charge of making the examinations, says:

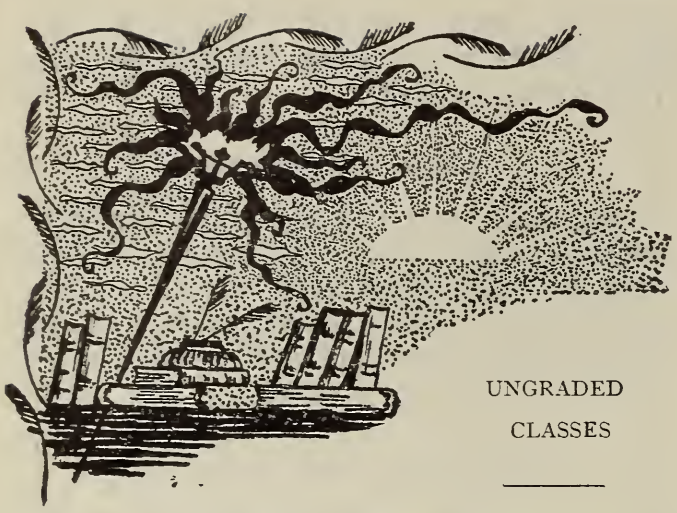
"In signals, the green stands for safety and the red for danger and confusion of these colors has caused many accidents. This test is also a sure indication of whether a man is a cigarette smoker or not. If an applicant is an habitual smoker, he is almost sure to be more or less color blind. The excessive use of liquor is also indicated in this way.

How far the habitual use of tobacco has blunted the sense of smell in the male civilized being is an interesting subject for speculation. It is at any rate a matter of common observation that women have a more acute sense of smell than men.—*Dietetic and Hygienic Gazette.*

JAMAICA GINGER A CAUSE OF BLINDNESS

Cases of Jamaica ginger blindness have been reported. Harlan reports two in which an analysis of the ginger essence was made. It seems that blindness is not only caused by Jamaica ginger essence, but by others, as lemon and peppermint, which are made up with methyl alcohol.—*Journal American Medical Association.*

*See "Eating," page 21



UNGRADED CLASSES

PHYSIOLOGY IN RURAL SCHOOLS

THE teacher of the rural school, with pupils of all grades, has more need than any other to use her time to the best possible advantage, but as a knowledge of the laws of health is of practical value to every pupil throughout his whole life, no matter what his vocation may be, it is clear that hygiene should be well taught, whatever else is omitted.

Before she asks the school authorities to give her more or better books or apparatus, the teacher should use to the best advantage the means that are furnished her, and endeavor to arouse an interest in the school and in her work.

If you are so unfortunate as to have physiologies of but one grade, divide all the pupils who can possibly use this book with profit into two classes, and let one of these classes (composed probably of fifth and sixth year pupils) use the book as a supplementary reader until they have read and discussed one half of it. Then let the advanced class, including the big boys who come only in the winter months, take the books and study the same half thoroughly, reciting three times a week until they have finished it.

In order to make the lessons interesting, you must bring in matter that is not in the text-book, and perform experiments occasionally. Have the heart and lungs brought to school and thoroughly studied at "pig-killing time."

Thenext year, the advanced pupils can finish the book, and the directors by this time will probably be sufficiently interested to put in an intermediate book for the younger pupils. If there is a primary book for fourth year pupils, it may be used as a supplementary reader at the beginning of the school year, then laid aside for a time, and studied as a text-book toward the close of the term. Encourage the pupils in all grades to take the physiologies home, in the hope that the parents will become interested in them.

All the pupils who are too young to use a text-book may be put in one class for oral lessons, at least thirty of which should be given during the year. These little folks should have an oral lesson of some kind every day, and hygiene can alternate with elementary geography and forms of nature study.

The oral lessons will not be a success unless you plan your work carefully. They should consist of practical talks, illustrated by pictures and stories, concerning ventilation, bathing, care of the teeth, hair and nails, wholesome food and regular times for eating, how to cool off when hot, etc. As the teacher and most of the pupils bring their lunch with them, the teacher should institute the custom of having all sit down in the schoolroom, or in the shade of the trees, and take time to chew the food well. Games should not be allowed to begin for at least ten minutes after the school is dismissed for the noon intermission.

What shall be taught the little children concerning alcohol? Is it not a mistake to allow their minds to dwell upon such an unpleasant subject? If all the pupils came from homes where total abstinence was the rule, and if we could be sure that they would not be tempted outside, it would perhaps be a mistake to teach primary pupils anything about alcohol; but there are few country neighborhoods where some parent is not a victim of intemperance, or where some little children are not tempted by beer, wine or hard cider.

When you take the children to the woods for a spring ramble, you tell them that certain vines and berries are poisonous and must be avoided. For a similar reason you will teach them that alcohol is dangerous, because a little creates an appetite for more, and you will teach them the names of the drinks that contain alcohol, so that they may not taste them.

At least once a year you should bring a jar of apple juice (or some other fruit juice) to the schoolroom and let the children watch the process of fermentation, telling them about the ferments in the air, and how they turn part of the juice to alcohol.

Even in the country schools there are boys who become victims of the cigarette habit. What lessons can you give them concerning tobacco that will counteract this? Strive to create in the boys a desire to become large, strong men. Tell them that when base-ball and foot-ball players are in training they use no tobacco or alcohol. Tell them that business men are looking for boys who do not smoke cigarettes. Tell them their nerves will be steadier, their eyes keener, their breath sweeter, if they do not use tobacco.

When you tell them stories to illustrate this topic let them be about men and boys who have had the courage to abstain from alcohol, or to-

bacco, or both, not pointing the moral too plainly, but allowing them to see that you admire that kind of a man or boy.

If possible, create an anti-tobacco public sentiment in the school. Tell your pupils that you would like to be able to say that not a single boy in your school uses tobacco, and ask how many of them will help you to bring this to pass.

Throw the emphasis upon the blessings of abstinence. Above all, do not reflect upon the habits of parents. If a pupil says that his father drinks or smokes, tell him in reply that when his father was a schoolboy he probably did not learn about the evil effects of these things; that the world is growing wiser, and that when the boys of today get to be men we expect them to be total abstainers.

—Elizabeth Lloyd.

SELECTION OF FOODS

Children grow pale and sickly from loss of phosphates or lack of phosphates in their foods. The following foods are rich in phosphates: salmon, 6.5 per cent; lobster, 5.5; prunes, 4.5; trout, 4.3; barley, 4.2; corn (southern), 4.1; figs, 3.4; beans, 3.5; oats, 3.0; sweet potatoes, 2.9; chicken, 2.8; white of egg, 2.8; peas, 2.5; veal, 2.3; lamb, 2.2; beef, 2.0; yolk of egg, 2.0 per cent. Beef produces more energy than mutton or lamb; the tenderloin gives less strength than the sirloin, the sirloin less than the rump, and the rump less than the round.

The white meat of chicken and turkey is like white bread, while the dark meats are rich in phosphates and muscle making food. Potatoes have less than 1 per cent of phosphates.—*Baltimore Health Journal.*

A little four-year-old miss was overheard talking to her favorite doll that had accidently lost an arm, thereby exposing the sawdust. "Oh, you dear, good, obedient dolly! I know I told you to chew your food fine, but I had no idea you would chew it so fine as that."

"The sheep are in the fauld, and a' the kye at hame"*

Some say that the age of chivalry is past. The age of chivalry is never past so long as there is a wrong unredressed on earth and a man or woman an left to say, "I will redress that wrong or spend my life in the attempt." The age of chivalry is never past so long as men have faith enough in God to say, "God will help me to redress that wrong, or if not me, surely He will help those that come after me. For his eternal will is to overcome evil with good."

—Charles Kingsley.

LUNCHES FOR SCHOOL CHILDREN

1. Small chicken sandwiches, a piece of cake, an apple.
2. Biscuit sandwiches, a bunch of grapes, one cream-cake.
3. Egg sandwiches, a banana, a slice of gingerbread.
4. Tongue sandwiches, an orange, three or four cookies.
5. Buttered brown and white bread, one boiled egg, a piece of cake, an apple.
6. Nut sandwiches, a piece of raisin bread, one banana.
7. Cheese and egg sandwich, fruit crackers. one orange.

—Mrs. Lemcke.

The autumn time has come;
On woods that dream of bloom,
And over purpling vines
The low sun fainter shines.

The aster flower is failing,
The hazel's gold is paling;
Yet overhead more near
The eternal stars appear.

—Whittier.

*See "Sleeping," page 29

SCIENTIFIC TEMPERANCE IN NEW YORK

THE New York State Central Committee* sought for specific information concerning the results of the whole subject of temperance physiology, from those best qualified to judge of its effects upon the children of the state, namely, the parents of the children and the patrons of the schools. Some parents receiving the questions sought additional information from teachers. Thus much testimony was obtained incidentally from those engaged in the actual work of instruction through the various grades. Through the courtesy of the Committee we are permitted to reproduce some of the replies which were printed in their report.

RESULTS OF TEACHING GENERAL HYGIENE

In response to the questions,

"Do the children in your public schools report at home facts of general hygiene learned at school?" and

"Is the teaching influencing the hygienic habits of the children?", parents testify that as a result of this study the children do practice and bring home the truths thus learned. They insist upon proper ventilation of sleeping and living-rooms and tell how to get it. They comment on the danger of drains or pools of stagnant water in cellars, door yards or near wells, and urge the necessity of pure water. The importance of eating slowly and at regular intervals, the proper selection and cooking of food, its adaptation to season, suitable dress, the harmfulness of corsets, the danger of draughts are facts learned at school and put to practical use by the children. They ask for toothbrushes and individual towels, and object to public drinking-cups. They become little rebels against dirt and disorder in the home and help to secure better conditions, are more careful of the eyesight, assume better positions in standing, walking and studying. Teachers comment on the improvement in personal appearance resulting from this study. Mothers say, "Take any other study out of the schools, *but leave this.*"

One mother says: "I have been surprised and delighted with the information the children in my large family have gained in hygiene as well as in temperance in the schools. The work is thorough and real and is influencing the homes." (Cattaraugus Co.)

"I have six children in the public schools who have profited by their instruction in physiology and hygiene. Even if the temperance part was left out, the rest would be absolutely essential. With the temperance instruction it becomes the most important study pursued in the common schools." (Columbia.)

"This teaching is helping some children to observe certain laws of health which their parents do not know about and can not teach them." (Sullivan.)

EFFECTS OF TEMPERANCE TEACHING ON PUPILS

"Not so many boys are learning to smoke and drink as formerly." (Essex.)

"A boy whose father smokes said he 'had intended to smoke when he was a little older, but if tobacco was so injurious he guessed he would let it alone.'" (Suffolk.)

"Several boys were overheard talking. One boy said, 'I want to be a big man who knows something, and if we smoke we won't grow so well, and smoking makes the brain dull. Our teacher said so.'" (Orleans.)

"Some boys who had already formed the cigarette habit have given it up as a result of the teaching." (Chenango.)

"One high school teacher says she certainly thinks this instruction is influencing the children, for there are not so many of the boys who have graduated in the last five years who drink as there were before that time." (Putnam.)

"I asked the teachers whether in their opinion the children are stronger against alcohol and tobacco than they would have been without the teaching, and they all say 'Yes' very decidedly. I have also had much testimony from parents to the same effect." (Franklin.)

"I am almost if not quite an enthusiast in this line of work. During my period of teaching which covers several years (ten or more), only two parents, mothers, have objected to their children receiving such instruction. These were ignorant, and representative of the lowest of the social classes. Parents, if they do not uphold, at least tolerate the teaching, but it is my belief that thoughtful, intelligent parents do believe in it thoroughly. I am expecting much of the mothers of the next generation who are the little girls of today." (Madison.)

"The boys do not now consider it smart to smoke as they did." (Columbia.)

"The children are known to refuse fruit cake and candies containing alcohol." (Onondaga.

"The formation of the tobacco habit is prevented until children have arrived at an age when they will never form it." (Westchester.)

"During a period of extremely cold weather last winter, D. S. took his fifteen-year old son with him into a box car to care for a horse which was being shipped. His mother, thinking they would suffer from the cold, wished them to take some whiskey with them, but the son positively refused, giving facts concerning the erroneous impression that liquor helps one to withstand cold." (Otsego.)

Cases are given where, as a result of this in-

*See "An Interesting Report," page 23

struction, the habit of cider drinking is noticeably on the decline.

"In one locality where it is plentiful, none of the children in the schools will touch cider." (Wyoming.)

"The habit of cider drinking is being largely done away with." (Schoharie.)

"It is causing many children to give up drinking cider." (Clinton.)

"Whiskey sellers have tried to hire three or four school boys to drink, offering them money, but they steadily refused." (Monroe.)

"Athough we have a saloon in our town it has not got one of our boys for some years past, and every method has been resorted to to tempt them." (Saratoga.)

INFLUENCE OF TEMPERANCE TEACHING ON PARENTS

"A visitor among the city poor found a German mother whose children had learned so much about beer at school that they would not drink it. After this had gone on for some time, the father said, 'If our children will not drink beer, we will not have it on the table,' and since that time it has been banished." (New York.)

A brook that sparkles into song,
And fills the woods with light.

"A boy of eight years of age convinced his father of the evil effects of tobacco and persuaded him to discontinue its use." (Wayne.)

"V. D. said that since he had learned about the effects of alcoholic drinks, his father had stopped drinking and had not drunk now for four years." (Suffolk.)

"I know of four families who have been saved from drunkenness through the influence of the teachings received in school." (Kings.)

"A little girl became so interested in the study of the evils resulting from alcoholism that night after night she faithfully related to her father the information she had gained in school. Early one morning one of the clergymen was aroused by the door bell. He found the father and the little girl at the door, both asking to sign the pledge. The father for a number of years has been a sober Christian citizen." (Queens.)

INFLUENCE OF TEMPERANCE TEACHING ON THE COMMUNITY

"The parents are being reached for health and temperance through the children as they could not be in any other way." (Tompkins.)

"Our boys understand more about the evil effects of moderate and occasional indulgence in smoking and drinking, and eventually we shall have a generation of parents who will find it harder to sin against light and knowledge than those who being ignorant have accustomed themselves to beer and tobacco." (Ulster.)

"It has raised the moral tone of the place." (Genesee.)

"It is making narcotics something to be feared and the selling of beverage liquors despised." (Steuben.)

"There is a better temperance sentiment among the boys of our village than ten years ago. Many influences have helped to secure it, but this counts one." (Lewis.)

"It is teaching boys and girls correct ways of living, especially those who have no good home-training." (Orleans.)

"It is helping fathers and mothers to bring up their children fortified against the temptation to drink." (Suffolk.)

The examples quoted constitute but a mere fraction of the testimony received by this committee from those best qualified to judge, showing that this instruction, contrary to the opinion of the Science Teachers' Association, is producing marked results for total abstinence in the lives and homes of our young people, and that the teaching of physiology and hygiene not only ought to be but is of "great help in the every-day life of the pupil." These results are destined to increase in number and influence as the years go by.

Even if nothing more had been accomplished than is told in the reports in the hands of this committee, which give but a faint idea of the good actually being done throughout the state, the people of New York would have abundant

reason for gratitude to the law-abiding teachers in our public schools for the faithful, not perfunctory work, most of them have done in teaching this branch, in spite of opposition and hindrances encountered where they should have help.

THE STORY OF ABSTINENCE IN VIENNA

[The recent visit of Dr. Richard Froehlich of Vienna to the International Headquarters of the Scientific Department of the Woman's Christian Temperance Union has renewed interest in the following story of the awakening of Vienna in the matter of abstinence. Dr. Froehlich is assistant professor in the Eye and Ear Clinic of Vienna University. He is also an ardent student of sociology, and to him, together with Dr. Wlassak and Dr. Poech, is due the new school of total abstinence which has arisen in Austria.]

Since July of 1899, Vienna has had an abstinence society. For a much longer time, a small circle of abstaining physicians had striven to establish such a society, but their efforts had met with passive approval at the best and not until the winter of 1899 was there an opportunity to step out energetically before the public gaze. This opportunity came in a novel form, namely, through the sudden and great popularity which overtook a young abstaining physician, Dr. Rudolf Poech, during the days of plague that Vienna lived through in the autumn of 1898.

Most readers will recall the origin of this plague. A servant of the pathological institute, while helping in their experiments the physicians of the Austrian plague expedition recently returned from India, became infected and died. In caring for this man, the physician in charge, Dr. Hermann Mueller, and a man nurse were stricken down also. When these two and a second nurse who was suspected of being infected were placed in an isolated apartment of the epidemic hospital, Dr. Poech of his own accord asked to be given the case, although he was under no obligation to do so. As the youngest member of the plague expedition, he had learned to know the disease in Bombay.

For fifteen days Dr. Poech lived in the isolated apartment, separated from his friends by a grating through which they passed him medicine and food, connected with the world outside by telephone alone. The sick physician and the nurse soon died and he had to bury them himself within the pest quarters. The hospital directors did not omit to lighten the severe, self-imposed task of the heroic physician by offering him succor in the form of that strongest of liquors, champagne. But to their astonishment, he sent the champagne back to them, stating that he preferred to place his confidence in mineral water and tea. We can not dwell on the consternation which this radical act caused among the hospital authorities.

On being released from quarantine, Dr. Poech found himself the most prominent physician in Vienna, and he at once took advantage of this situation to open a campaign against alcohol. When he announced that he would lecture, his name drew hundreds of hearers who would hardly have come for the subject itself. There are popular educational societies in Vienna which have established the custom of Sunday addresses in the various districts of the city. Through these, Dr. Poech and his friends, Dr. Froehlich and Dr. Wlassak, gained their first public hearing. Soon Dr. Poech was asked to deliver lectures on the question of alcohol before various labor unions, and before long his engagements were more than he could fill. From that time, hardly a week passed when Dr. Poech, Dr. Froehlich and Dr. Wlassak did not receive invitations to speak in some social union.

Finally, the long desired abstinence society of about one hundred and forty members was formed, the "*Verein der Abstinenten*," for frank discussion and debate and the attacking of such social evils as the keeping open of brandy-shops on Sunday. This society has now made its influence felt throughout all the land, and although in Austria "Straw fire enthusiasms" are not uncommon, there is great hope that it will continue to accomplish great results in the spreading of abstinence among the laboring classes.—Translated from the *Internationale Monatsschrift zur Bekampfung der Trinksitten.*

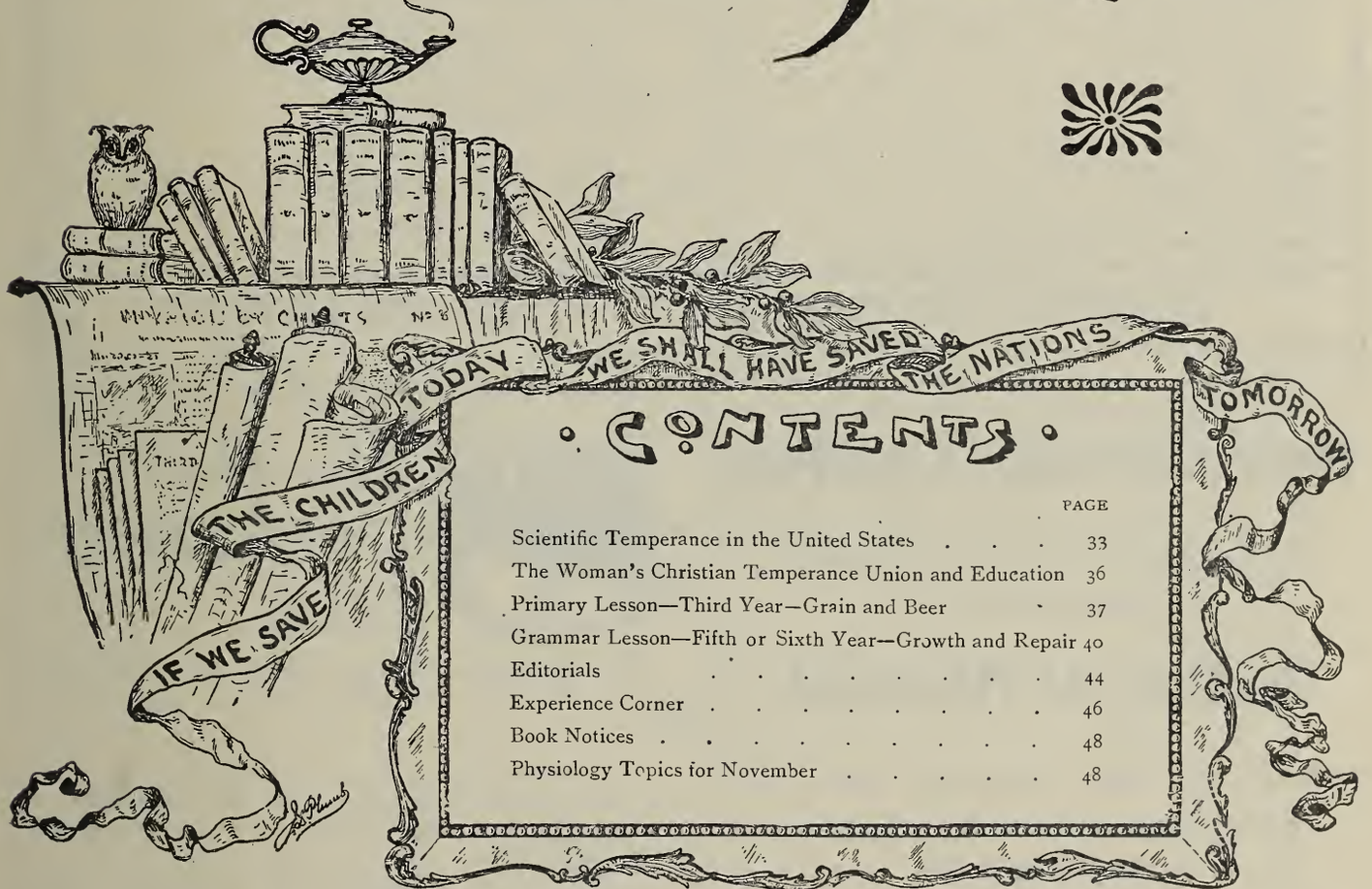
The footsteps of the summer fade
Far through the meadow and the glade,
And Autumn, laughing, brown, and gay,
Comes dancing down the woodland way.
Her russet wand she waves, and lo!
Forest and field and thicket glow
With treasure wondrous and untold,
A flooding tide of fairy gold.

—Priscilla Leonard.

"My son, did you eat the whole of this doughnut?"

Son—"No, sir. I ate what was around the hole."—*Ex.*

The School Physiology Journal



Contents

PUBLISHED AT
BOSTON MASS.
MARY H. HUNT, EDITOR

VOL. XII. NO. 3
NOVEMBER, 1902

School Physiology Journal

Vol. XII *BOSTON, NOVEMBER, 1902* *No. 3*

A FAIRY DRAUGHTSMAN

JACK Frost has wings of rainbow
And of skates a dainty pair;
He skims on the ice-bound waters,
He speeds through the frosty air;
He carries a magic pencil,
And he sketches every night
Millions and millions of pictures
Before the morning light.

He draws for us the vision
Of his home at the Northern Pole,
The crystal sweep of the ice fields,
The frozen waves that roll
In hummock, and berg, and snowdrift
Across the Arctic sea,
And he smiles to think that no other
Can draw it so well as he.

—PRISCILLA LEONARD.

SCIENTIFIC TEMPERANCE IN THE UNITED STATES

RUSKIN says, "Know what you have to do and then do it."

The concern of the national superintendent of scientific temperance has ever been that every child in the public schools of this land be taught progressively the physiological reasons for obeying the laws of health, including those which teach total abstinence from alcoholic drinks and other narcotics. In no spirit of controversy or desire for priority in this climacteric hour, but as a matter of history, the origin of my interest and labors for this cause is here given.

BEGINNING OF THE WORK

Experience as a teacher in science combined with special study of the scientific aspects of the alcohol question, beginning in 1872, led me to the conviction that universal education as to the scientific facts in the case would mean prevention of the alcohol curse. Action quickly followed conviction. Efforts to get these truths into existing school literature began, and this study with such material as was then available was first introduced into the schools of what was then my own town, Hyde Park, Massachusetts.

The Woman's Christian Temperance Union came into existence in 1874. It was characteristic of Miss Willard's mental grasp that she, too, saw that universal scientific temperance instruction is the key to the situation, and recommended efforts to secure it. In 1879, the resolution committing this organization to work for temperance text-books in all public schools was passed, and the writer was made chairman of a standing committee to translate that resolution into action.

The difficulty of working with a widely separated committee led the chairman to urge upon Miss Willard and others that this committee be abolished and a department created with one head. At the National Woman's Christian Temperance Union Convention, held in Boston, Oct. 28, 1880, it was so voted. The department of scientific temperance instruction thus came into being, and I was elected its superintendent, with Mrs. Alford of Brooklyn as department secretary.

In our room that night in Boston, bending over the map of the country, we said, "Now we have before us the gigantic work of planning to engraft the study of temperance physiology on the public school system of the United States." Mrs. Alford replied, "You plan and I will push." And push she did.

Abraham Lincoln said, "Whoever would write the laws of this republic on any subject must first write them in the hearts of the people." Following President Lincoln's philosophy, our work for the first two years consisted chiefly of a study of the causes that lead to the drink habit, and of widely extended public addresses concerning the compulsory scientific temperance education of all pupils in all our public schools. The cordial reception given the new movement in nearly every state in the Union showed that the country was ready for such legislation.

LEGAL PROVISION FOR THE STUDY

Twenty years ago this month I went to Vermont, and with the aid of the Woman's Christian Temperance Union of that state the passage was secured of the first temperance education law ever enacted in the world. Today every state in the United States, every territory and new possession under our territorial laws, the District of Columbia, our military and naval academies, our Indian and colored schools, all are under laws which require the study of temperance physiology in the public schools. Michigan, the second state to pass such a law, was the first to require the study for all pupils in all schools. Very many states now

make the same requirement. Pennsylvania was the first state to add a penalty for non-compliance, and to require the study pursued "as a regular branch." The National Congress was the first to specify that the study shall be pursued with text-books in the hands of pupils who have text-books in other subjects. A host of other states has followed this example.

Our temperance education map is white today. No black cap indicates that any portion of our broad domain is without a temperance education law. The enactment of such a law in Georgia last December brought to the last child under our flag the legal right to a physiological temperance education.

DIVINE AND HUMAN INSTRUMENTALITY

For these great victories we render our reverent thanks first to the God of nations. Our white map is an earnest of his purposes of mercy for our race, our nation, and the world. It foreshadows the rapidly coming day when the children now in our schools having reached their majority will close the last saloon, making this country in truth the land of the free from the alcohol bondage, and the home of the brave who have abolished this destroyer from human habits and traffics.

One evening when the Civil War was over, and the first troops were passing north through Washington, President Lincoln caused a large transparency to be hung before the White House bearing these words, "*It is the Lord's doing, and it is marvellous in our sight.*" While we say of our temperance education victories, "It is the Lord's doing," and to Him be all the praise, memory recalls the instruments he has used, the valiant workers in all this land who have not faltered in the long hard battles with hostile forces that have faced us in legislative halls and elsewhere. If these had quailed before the enemy, asking compromise, this map would never have been whitened. Napoleon said, "What France most needs is mothers." Our republic is safer for such mothers as constitute the noble host of Woman's Christian Temperance Union workers for scientific temperance education, strong of heart and clear of head. This host has not been intimidated either by subterfuges or opposition. It has been and is my constitutional duty to "originate, to advise, and to direct plans of work," but I should have been helpless without the great army ready to carry out those plans. And this support has not been the blind loyalty of "following your leader," but of intelligent adoption of what the judgment approved.

TRUTH STANDS

Next to the legislative victories to be grateful for, are those for the scientific accuracy of the indorsed school physiologies. The charges of inaccuracy, when probed, have been unsustained. God's truth against alcohol and other narcotics stands, and millions of children are being taught that truth in the public schools.

ENFORCEMENT

The census of 1890 shows that more than 22,000,000 children and youths of school age now under our flag are also under our temperance education laws. These millions will be the nation of tomorrow. The overwhelming majority of them is in the lower grades of our public schools. The report of the United States Commissioner of Education shows that the average length of school attendance for the whole United States is a little less than five years of 200 days each. While in the North Atlantic states the average is higher, because more attend the high school, those pupils whose attendance is less than the average come from classes that especially need this instruction, because they are foreign born or children of foreign parentage with old world drinking habits. Therefore, the importance can not be overestimated of this study being faithfully pursued in the lower grades, with the help of text-books in the hands of pupils who use text-books in other subjects. In three of the New England states, Massachusetts, Connecticut, and Rhode Island, and in some of the western states, like Wisconsin, more than a majority of the present population, the law-making power of these states, is foreign born or children of foreign parentage.

Says Rev. A. H. Schauffler in an able paper on "Foreign Elements in American Civilization:"

"Never has the experiment been tried of admitting such multitudes of immigrants to the rights of citizenship so soon after their arrival, and giving them the right to help make laws, govern the country, and work out its destiny.

It is really a question of life or death to these old New England states, and even to our country as a whole, whether these vast hosts can be transformed into good American citizens. But believing in the recoverableness of human nature, we say, Yes they can be made good citizens if alcohol is taken out of the problem. Can this be? Yes, if we use the right method. The children of these people in the lower grades of our public schools are very responsive to the new world ideas they get from their teachers and their school books. When properly taught, they carry the temperance physiology lessons home to their parents, who thus get the American idea of the relation of abstinence to getting on in the world. The children, indeed, are a

most effective missionary force for taking alcohol out of this problem of the assimilation of the many races that make up this American nation. But they so early leave school to become bread-winners that all the school can do for them must ordinarily be done the first four or five years, or in grades below the sixth. Hence, by all your love of God, home, and country, stand unflinchingly by this study in the lower grades, with good books in the hands of pupils who have books in other subjects.

GAIN

The gain in this as well as in all phases of the enforcement of our scientific temperance instruction laws this year is most encouraging. Kansas is rejoicing in having secured the adoption of the entire New Century Series of indorsed temperance physiologies for all pupils in all schools of that state, and Louisiana a similar adoption of the Blaisdell books. Constant watchfulness that ensures that every child in these states shall get the good teachings of these books will bury Mrs. Nation's hatchet. If Texas and Tennessee, both of which have state adoptions of temperance physiologies this year, follow Kansas or Louisiana's example in adopting indorsed books, the more northern states will need to look well to their future temperance laurels.

"Monarch of mountains they crowned him long ago,
On a throne of rocks, in a robe of clouds, with a diadem of snow."

New York has furnished this year the unique example of a committee of distinguished citizens working with the Woman's Christian Temperance Union in a careful canvass of that state for evidence of the practical results of their strong temperance education law. This committee has published in a sixteen-page pamphlet its findings which present the strongest evidence of the good this study is doing, in training all pupils in all schools to better hygienic habits and to intelligent abstinence from alcohol and other narcotics.

TEACHERS

There are 300,000 teachers in the United States whose duty it is to teach this subject. You can help them by sending them the *School Physiology Journal* and the literature that meets their needs. At the national scientific temperance headquarters you can get the answers to every objection made to this study. Find out what the objections are and send for light on the question for your teachers. The way to arouse interest is not to lower our standards but to show their reasonableness. Look out for the grading of the study. Temperance physiology is a progressive branch. Simple books should be put into the hands of pupils as soon as they are ready to use them, to be succeeded by more advanced texts as the pupil progresses. Much of the complaint that this study is a wearisome repetition is due to the fact that the same book is used for several successive grades of pupils. This is as absurd as it would be to use the same reader in primary, intermediate and advanced classes.

RESULTS

The temperance cause in the United States is over one hundred years old, but the only new feature universally introduced within the last ten years is the scientific temperance education method in the public schools. Therefore, results that have appeared within these years may justly be attributed, in part at least, to this education.

Among such results reported last year, was the increased length of life of four and one-tenth years shown by the census of 1900, due in part to the better knowledge gained in school of the laws of health, also the increased sobriety and consequent greater productive ability of the American workman, due again in part to the schools' teaching that alcohol injures working ability. It is something over ten years that these temperance education laws have been universally in force with the indorsed textbooks in the hands of pupils. Dr. Floyd Crandall, in an article in the *World's Work* shows that during these ten years there has been a decline in the consumption of distilled liquors in our country of over one gallon per

capita, and a consequent decline in the diseases due to the use of such drinks. The consumption of beer and the resulting diseases have increased, though we now consume less than one half the beer that either Germany or England does.

This increasing consumption of beer points to the alarming figures of foreign immigration, more than 600,000 immigrants, most of them beer-drinkers, coming this year. If all would only realize this peril and work for the best enforcement of our temperance education laws, especially in the lower grades where alone the schools can reach and teach these children of other lands that real freedom means no beer, both they and our land of whose government they are soon to be a part may be saved.

God's commands are God's enablings.

MARY H. HUNT.

National and International Supt. of the Department of Scientific Temperance Instruction in the Woman's Christian Temperance Union.

From an address delivered before the National W. C. T. U. Convention, Portland, Maine, Oct. 22, 1902.

THE WOMAN'S CHRISTIAN TEMPERANCE UNION AND EDUCATION.

THE National Woman's Christian Temperance Union, the largest organization of women in the world, has just closed its twenty-ninth annual convention in Portland, Maine, with delegates from every state and territory in the United States and with many foreign visitors.

The various activities of this society are divided into departments each of which conducts its own special mission under the auspices of the general organization. From year to year the department of scientific temperance instruction in the public schools has exhibited a large map of the country, with the states in white that have enacted laws requiring the study by the pupils in the public schools of physiology, which includes, as a part of hygiene, special instruction as to the nature and effects of alcoholic drinks and other narcotics, and with states without such laws in black.

This was a jubilee year of this department in the national convention, as for the first time its great temperance education map is entirely white, signifying that temperance physiology is a mandatory public school study in every state, territory and new possession under our territorial laws.

TWO IMPORTANT RESOLUTIONS

The people are mistaken who imagine that the projectors and defenders of this study are "well meaning but misguided" enthusiasts, who know nothing either of science or of the philosophy and practice of the best modern educational methods. At one time in the convention, when the delegates were all in their seats, every one was asked to rise who had been or is now a teacher, connected in any way with public or private education. Almost the entire body came to their feet. A further canvass showed that every phase of education was represented, from primary public school teachers to college and normal school instructors, school principals, supervisors, members of school committees and of boards of education. Hence, the delegates knew whereof they affirmed when, on motion of Miss Marie C. Brehm, President of Illinois, they passed unanimously the following preamble and resolution:

Whereas, President Charles W. Eliot of Harvard University, in his recent New Haven speech, has presented no evidence to prove that total abstinence is not supported by the exact experimentation of modern science, therefore,

Resolved, That we respectfully differ from his statement that "the effort to inculcate total abstinence in the public schools has been to the injury of science, because the manuals of instruction used for that purpose are inaccurate."

We remind the public that the teaching on this subject in the public schools which is approved by the advocates of this cause has the approval of men of acknowledged eminence in science, and *has never been proved false*. We, the National Woman's Christian Temperance Union, representing mothers and teachers who come into closest contact with the children of this country, testify to the great educational, hygienic, and moral value of this study. We therefore believe that its removal from our schools would be a national calamity which we pledge ourselves to do everything in our power to avert.

The following resolution was also adopted by the convention:

Resolved, That we stand committed to the principles and practice of compulsory scientific temperance instruction for all pupils in all public schools of this country.

We rejoice that this study is now universally mandatory in the United States, and urge our organization everywhere to resist every effort to weaken the laws that require it; to work for good, well graded text-books on this subject in the hands of pupils who use books on other subjects; and to oppose books that fail to teach total abstinence as revealed by modern science.

Primary Lesson

THIRD YEAR

GRAIN AND BEER

IT is cause of rejoicing that every state in the Union and every organized territory has established by law a system of universal public school education for its children. But the character of this education is of equal moment. Education is good, if it tends to make the child a better individual and a more efficient citizen; it is bad, if it tends in the opposite direction.

One indication that the people as a whole are alive to this issue is the unanimity with which they have likewise secured legislation throughout the country providing for the instruction of every child in the public schools in the laws of health and in the nature and effects of narcotics.

Over against these efforts to educate in the direction of right living must be set the work of those who would destroy health, mental power and character for the sake of their own ill-gotten profits. The liquor dealers, according to their own statement, are also seeking to "educate" the rising generation, but to far different ends. Their kindergarten lessons aim to form a taste for beer or cider, and the instruction is steadily progressive until the gutter is reached.

If we believe that the school and not the saloon is the proper educator of our children, it is our business to make its work effective and to see that it is done in time. No negative measures will avail. The child can be kept from bad habits only by helping him to form good ones. He will be saved from wrong notions regarding drink only by giving him correct ideas before he has learned to touch or taste it.

Where there is one boy in the primary who has never been offered a glass of cider or home-made beer, or a cigarette, there are many who have thus early been tempted. This is the overwhelming argument for the introduction of temperance lessons into the very earliest grades, and it is always in force.

In most cases when a lesson on beer is to be given, it will be found better to begin with its origin—grains, emphasizing the useful qualities of these food plants, and then showing how these are perverted and lost when grain is made into beer, rather than to begin with what is to many pupils a more familiar sight, the beer itself.

GRAIN AS A FOOD

Find what the children already know about grain; what kinds they have seen and in what form, whether growing in a field, on sale in the grocery or market, or as prepared for the table. It will be a genuine discovery to some children to find that not only bread and biscuit, but johnny-cake, oatmeal in all its forms, shredded wheat, grapenuts, cake, pastry, tapioca, rice pudding, macaroni, are all made in part from grain such as we see growing out in the fields.

A hint in this direction will be enough to set them finding other foods made from grain. Each child may write on the board the name of some food which he had for breakfast this morning. When this has been done, let the class decide which of the foods named come from grain of some kind. Then have them write the name of this grain opposite that of the food made from it.

Talk about the use of grain as a food for birds and animals. Let the children tell what grains are fed to chickens. Which ones does the farmer give his cattle? What grains does a canary like best?

Who can think of another good use for grain? What does the farmer do with it in the spring, and sometimes in the fall? Tell how the ground is ploughed and harrowed and rolled until fine enough for the little seeds to be sowed or planted in it, then these are left to grow and produce more grain. Act out these various operations in pantomime with the children, until the scene is real even to those who never saw grain sowed or growing.

Country classes may tell what grains are grown in their vicinity and bring a stalk of each to school. In city classes, where trips to grain fields are not always feasible, outline on the board the stalk, roots, leaves, and blossoms or fruit of familiar grains for the children to copy, until they are thoroughly familiar with the general appearance of each.

Find how many know how an oatfield looks when the young shoots first appear. How can we know that such a field is oats instead of grass?

Show pictures of growing grain and of harvesting scenes. If any in the room have seen grain cut and carted to the barns or threshing-machines, let them tell the others about it, and how the grain changes in size and color as it grows and ripens. How does the farmer know when his grain is ready to cut? What does he do with what he raises?

Tell about the steam-threshers which separate the grain from the stalk and husk, of the mills which grind the grain into flour and meal, and then of the long trains which carry it to every part of the country to be made into different kinds of food for people and animals. Illustrate each step by pictures as far as these are obtainable. Papers and magazines are full of such material and large use should be made of it.

The class talk has now reached its starting point. Beginning with the familiar grains of their own locality, the children have traced their growth from planting to harvest time and have found some of the most important of the good uses to which they are put.

GRAIN AS A DRINK

Many children have also seen beer-wagons driven through the street, and through the open doors of saloons they have watched the rows of men which throng the counter, each with a glass of beer in his hand. Beer is often found on their home table, and they are allowed to drink it with the others because "it is made only from roots or from the same grain which they have just learned is an important food."

Why beer is not good to drink, and why the child should not even taste it are thus vital questions which the schools should help every young person answer.

Before the first question can be answered, we must explain very simply, perhaps in story form,

HOW BEER IS MADE

"Oh, mother, what does make that horrid smell?" asked Ralph Coe.

It was a sunshiny October day and they were out walking.

"It comes from this brewery," said Mrs. Coe, pointing to a tall brick building nearly opposite. "The men are making beer."

"Can't we see how they do it?" asked Ralph. "Frank Emerson says beer is made out of barley, but I don't see how that can be, because barley is good to eat, and you always tell me that beer is not fit to drink."

They stopped at the office to get permission. Just then they saw a large wagon drive up filled with sacks which the men began to unload.

"I think we shall find barley in those sacks," said Mrs. Coe, and sure enough that is what it was.

As soon as it was unloaded, the men emptied it into a stone cistern and turned on water enough to cover it.

"It will be left there until the grains are soft and nearly twice as large as they are now," said the guide. "Then it will be shovelled out and put in a warm room until it sprouts, like this."

He showed them some barley that had begun to grow. Each grain had a tiny sprout and several rootlets hanging from it.

"This is ready for the kiln," he told them, a dry warm chamber where it is kept until the moisture is dried out of it, and all the sprouts are killed.

"Then we grind it, add more water and yeast, and keep it warm until it ferments.

"By this time most of the solid parts of the grain are dissolved and our barley is changed into beer, ready to be drawn off into kegs or barrels and sold."

WHY BEER IS NOT GOOD TO DRINK

"It has a horrid smell," said Ralph, as he watched the men fill the huge casks, "but I don't see why it isn't good to drink if it is made out of good grain."

"Come back to the room where we saw the sprouting barley and I'll tell you," said his mother.

"Chew some of these grains and tell me how they taste."

"They are sweet. Is there sugar in them?"

"Yes, that is the food the baby plant lives on until it is large enough to get its own from the air and earth.

"But when people want to make grain into beer, they heat the grain until all these new little plants are dead. Then they add water to soak the sugar that would have been the plant's food out of the grain. This makes the water sweet.

"After the yeast has been added, another change takes place, and part of the sugar becomes alcohol. In this way the good part of the grain is lost and other things take its place which are not good at all."

"What makes all those bubbles?" asked Ralph, pointing to a huge tank filled with foaming liquor.

"That is a gas which is also made from the sugar. Most of it passes off into the air, but the alcohol stays behind, and it is this which makes beer such a bad drink, because alcohol is a poison.

"If beer were all alcohol, nobody could drink it. It would burn the throat and stomach and soon kill one. Beer has only a little alcohol in it; it is mostly water, but even this little alcohol is bad for people.

HOW BEER HURTS PEOPLE

"Do you drink beer?" asked Ralph of their guide.

"No, indeed," was his answer. "I should be likely to lose my place if I did. I could not do my work well enough, nor so much of it. Then, too, I should be more likely to make mis-

takes. Nobody in this brewery is allowed to drink beer."

"What makes anybody drink it then?"

"I don't know, I'm sure. Perhaps most people do not know it will hurt them when they begin, but they get to like the taste of it so well that they can't let it alone."

"If that is so, I'll never begin to drink it," said Ralph. "I'll take my grain in oatmeal the way mother cooks it. It smells better than beer, and tastes as good as it smells."

AUTHORITATIVE QUOTATIONS

BEER DOES NOT STRENGTHEN

It has become the pernicious custom to allow children the use of beer and wine, of alcohol in a variety of forms. People imagine that this imparts strength to the growing organism. But the very opposite is the result, for every organ is weakened. —J. KOLLMANN, M. D., University of Basle.

"I'll never begin to drink it," said Ralph.

ALCOHOL IN BEER A POISON

There is absolutely no doubt that alcohol in any form, even in light beer, is a poison for the healthy child. The older children develop prematurely when they use alcoholic drinks; they make unsatisfactory progress in their studies, and become anæmic. Not seldom, their disposition is also spoiled; previously gentle and manageable, the use of alcoholics makes them excitable, irritable and unmanageable.—L. THOMAS, M. D., University of Freiburg.

BEER INJURES CHILD'S BODY AND MIND

It is inexcusable to let healthy children drink beer or wine; alcoholic drinks exert an injurious effect upon the body and mind of a child and they create bad habits.—DR. FIEDLER, Privy Medical Counsellor and Head Physician in the City Hospital, Dresden.

Beer is brutalizing. With sedentary habits, alcoholic drinks produce unhappy flesh sponges. —DR. BOCK, Leipsic.

ALCOHOL PREVENTS CHILD'S DEVELOPMENT

Alcoholic drinks produce incalculable injury upon children. Alcohol destroys the natural development of both mind and body.—A. BAER, M. D., Royal Sanitary Commissioner, Berlin.

BEER DRINKERS CONSUME MUCH ALCOHOL

Beer-drinkers, though not so often intoxicated, actually consume more alcohol than do those who use stronger drinks, because of the great amount of beer consumed and the more continuous imbibition of it, keeping up a constant supply of alcohol in the blood.—D. H. MANN, M. D.

ALCOHOL IN GINGER BEER

Out of 262 samples of herb and ginger beers, in 63 the proof-spirit exceeded 3 per cent, and ranged as high as 13. 7 per cent, or more than 6 per cent pure alcohol. — JAMES EDMUNDS, M. D., M. R. C. P., London Medical Health Officer.

A SHEAF OF GRAIN*

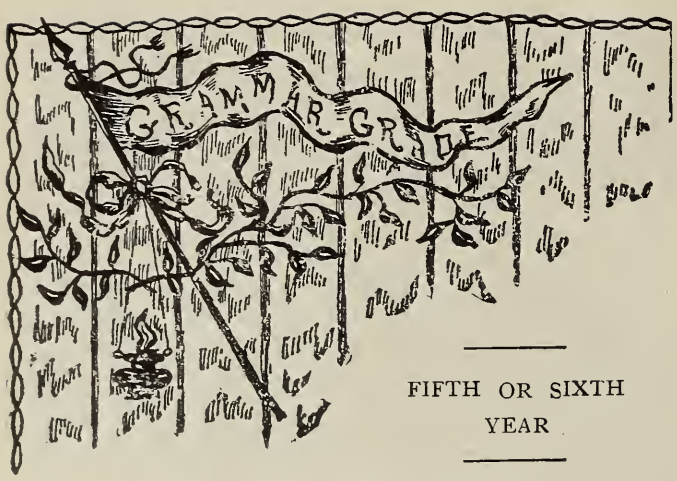
This beautiful sheaf to us is given,
Watered by rain and dew from heaven.
Its life like ours a mystery holds.
A blessing or curse its husk unfolds.

A blessing I find and bring to view,
Designed for us our strength to renew.
We see man's wisdom and God's combined
In this bread of rye to feed mankind.

A curse did I say, lies in this sheaf?
Yes, here it is, a symbol of grief.
This beautiful grain in Satan's employ
Has ruined many and many a boy.

O may the day be near at hand
When liquor is banished from our land,
And may the harvests so freely given
Be used to honor our Father in Heaven.

*A sheaf of rye should be placed upright near the speaker. Hidden in the top of the sheaf is a loaf of rye bread and an empty whiskey bottle to be displayed when mentioned.



FIFTH OR SIXTH YEAR

GROWTH AND REPAIR

NEAR the western boundary of Russia is a granite shaft, on opposite sides of which two inscriptions have been carved. The one which faces the west reads,

Napoleon Bonaparte passed this way in 1812 with 410,000 men. The other which faces the east reads,

Napoleon Bonaparte passed this way in 1812 with 9,000 men.

These few words tell the story of the most fatal expedition ever undertaken. Not one man in forty-five of that splendid army ever returned to home or friends.

If a similar tablet were set up before the schoolhouses of this land it would mark the yearly coming of a far larger army, one reckoned in millions instead of thousands, the flower of American life, as Napoleon's army was the flower of France.

What should be recorded on the reverse of such a tablet? Diminished ranks, broken constitutions, enfeebled powers? Happily, the history of our modern public schools has no such disastrous story to chronicle. The warfare of this great army is peaceful and its work constructive. In addition to educating the mental powers, it aims to lay the foundation of a physical development so perfect as to fit every youth for the strain and exactions of life's maturer years.

To do this, it must teach the child from the very first the right care of his body, and as much of its structure and functions as is necessary to secure this end. In connection with the topic chosen this month for development in fifth and sixth grades, let the first point taken up be

CONDITIONS ON WHICH GROWTH DEPENDS

The pupil's interest is assured, for there was never a boy or girl who did not have seasons of longing to be grown up and who did not take the liveliest interest in the rapid growth of pets or flowers. Write on the board the question, Does everything grow? Then ask the class to write down the names of all the growing things they can think of, taking two or three minutes for this exercise.

Place a white bean and a piece of candy of the same size and shape side by side, and bring out the reason why one will grow and the other will not. Ask if stones will grow; if coal, chalk, glass, or iron will. What is the reason? Write the word *Life*, on the board as the first essential to all growth.

Call attention to the fact that although both plants and animals are alive and thus have the power of growth, their growth does not depend on exactly the same conditions. What is needed to make a plant grow? an animal? Arrange the different answers in two columns on the board under the heading

ESSENTIALS TO GROWTH IN

PLANTS		ANIMALS	
Life	Water	Life	Water
Air	Warmth	Air	Food
Sunshine	Earth	Warmth	Sunshine
Quiet		Clothing	Shelter
		Exercise	Rest

Which requires more helps to its growth, an animal or a plant? Why? Give a reason why each of the helps mentioned above is necessary to the growth of plants or animals.

THE BODY'S NEED OF REPAIR

Of equal importance with growth is the need of repair in every living thing. Why is it that we have to have new clothes every little while? Why does the horse get a new coat of hair every winter, and the bird new feathers? When do the trees and bushes put on new clothes? Give other instances of worn-out parts which must be replaced by new.

Many children in the country have husked corn, and every boy plays ball. Why does one have to wear gloves in such work or play, to keep his hands from getting sore? How are these worn parts of the skin made good?

Almost every one feels tired at night. What is the reason? Name different occupations, walking, rowing, swimming, golf, horseback riding, reading, sewing, dishwashing, etc., and ask the pupils to tell which parts of the body are made tired by each, and why? How does a change of occupation sometimes rest one?

Increase these illustrations, if necessary, to show that every part of the body, inside and outside, has work to do, and hence is constantly wearing out and needing to be repaired. Write on the board the amount of waste which leaves the body daily through the lungs, skin, kidneys and bowels, about one twenty-fourth of its weight, and ask the pupils to find how many pounds this would amount to for each of them.

This waste must all be made good or we lose in weight. How do we make up for that which

is given off by the lungs? the skin? the other organs of excretion? Bring out the thought that the body, unlike any other machine, has the power to repair itself, but to do this it must have enough of the right kind of material to work with, and it is our business to see that such material is supplied.

GOOD BUILDING MATERIALS FOR THE BODY

Mention some building which is going up in your town or vicinity, and ask the class to name the materials used in its construction. Why could not wood or brick or glass be used to build all parts of it? Name the different materials of which the body is made up. Why would not muscle alone answer every purpose, or bone or nerve?

Show also that the body has more than one kind of work to do. It has to keep every part of itself in repair, it has to furnish enough heat to keep us alive, and enough strength for all our work and play. In all young people, too, it must provide something extra for growth. How do all these reasons make it necessary for us to eat more than one kind of food?

Have the class find from their books what kinds of food give most heat to the body, which kinds give strength and energy, and which aid growth and repair. Bring out the names of as many familiar foods as you have time, and help the class to decide in which of these lists each belongs. Ask why rice and potatoes are not needed at the same meal; why oatmeal is better eaten without sugar; why whole wheat bread is more wholesome than that made from fine white flour, why fatty foods are especially needed in winter and should be eaten sparingly in summer.

When good food materials have been selected for the body, why is their preparation almost equally important? Call for reasons why grains, meat and most vegetables need cooking before being eaten, and also suggest the best ways of cooking each. Put on the board such practical questions as the following and ask the pupils to look up answers:

Why are boiled meats more tender if allowed to simmer gently for a long time than if cooked rapidly?

Why are boiled meats more digestible than fried?

Why is bread a day old more wholesome than that just from the oven?

Why should potatoes be pared thinner than cucumbers?

Help the class to decide which fatty foods are most wholesome, and why. Cut open a grain of corn to show the starch. Show the same in a thin slice of potato under the microscope. Give each pupil dry grains of wheat to chew, and then others which have been soaked until they have begun to sprout.

Explain that the sweet taste in the sprouted grain is due to the fact that its starch has changed to sugar, and that the young plant can live on sugar and can not live on starch. The same is true of people, hence we cook all starchy foods, because cooking also changes starch to sugar.

Call attention to the fact that starchy foods and sweet foods furnish heat and force to the body, hence should be used less in hot weather than in cold, and should never be made one's only food.

POOR BUILDING MATERIALS FOR THE BODY

Young people who have been brought up with pets know that in a litter of kittens or pigs there is usually one much smaller than the rest. This is generally because it has failed to get enough to eat. Sometimes one child may be smaller than others of his age for the same reason, but oftener it is because he has not been giving his body the right kind of food, or because he has taken into it substances like beer or tobacco which are not foods at all.

If an architect were to find one of his workmen putting poor bricks into one of his houses, even where it would never show, he would probably dismiss him at once. He could not afford to risk his reputation for the sake of a few bricks. Still less can anybody afford to risk becoming a puny, undersized man or woman, or of losing his health by putting poor materials into the building of his body.

Dwell again and again on the tests which decide whether any substance is a food or not, until every one in the class knows them by heart.

Does any substance tend, when taken into the body, to build it up and strengthen it, or to give it warmth or energy, and does it do this without harming it? If not, it should be ruled out of the diet of every girl and boy.

Apply these tests to all doubtful or suspicious substances. What is true, for instance, when these are applied to unripe or overripe fruit? to tea and coffee? to very rich food or large quantities of sweets? Show that while these things may have some food value, this is more than offset by the harm they do the digestive organs, especially in the case of young people in whom these organs have not yet reached their full size and strength.

What do the same tests show in the case of tobacco and all liquors which contain alcohol? Bring out the fact very clearly that these substances are not even poor building material for the body. Instead of aiding growth and giving strength they actually stunt the body and weaken it, making it unfit for effort in play, work or study.

Go over with the class the quotations which follow this lesson, having each read aloud in turn. Explain the meaning of all unfamiliar terms, then call upon different ones to give the substance of each quotation in his own words.

Show Raphael's picture of St. Michael overcoming Satan, and tell the story as given by Milton in Paradise Lost. In the same connection, write on the board President Roosevelt's saying, "Aggressive fighting for the right is the greatest sport the world ever saw."

Find how many know what this means. Nobody believes in dragons and fiends as Milton described them, and fortunately very few people are called upon to go to battle and fight live enemies. But we all have bad habits to fight against and temptations to overcome, and every one who wins in this battle is not only giving his body a chance to grow tall and strong but is also developing the clear brain and pure heart which are even more essential to the modern hero.

AUTHORITATIVE QUOTATIONS

ALCOHOL RETARDS GROWTH

Alcohol in almost incredibly small quantities will promote the growth and multiplication of microbes whose function is antagonistic to the protoplasm of organized beings. In the minutest quantities it is injurious to constructive protoplasm, and favorable to destructive protoplasm.—J. W. Grosvenor, M. D., Buffalo, N. Y.

ALCOHOL PREVENTS MENTAL AND PHYSICAL DEVELOPMENT

Alcoholic drinks certainly do incalculable damage to children. Alcohol interferes with the normal development of body and mind.—Dr. Baer, Counsellor to the Board of Health, and District Physician, Berlin.

Alcoholic drink is especially harmful to children, retarding their growth and development. —Dr. Vacher, Medical Officer of Health, Cheshire, England.

INFLUENCE OF LIQUOR ON HEIGHT

In addition to its effects in producing criminals, idiots, and insane, alcohol arrests the growth. Children of alcoholic parents, trained to the early use of liquor, are stunted in their growth, and a French physician is inclined to ascribe to this fact the decrease in the standard of normal height shown by statistics in France. —*Bulletin de L'Academie de Medicine.*

The pernicious habit of supplying wine and beer to boys and girls is as much self-condemnatory as the issue of tobacco and opium.—Captain P. H. O'Gorman, D. Ph.

ALCOHOL INTERFERES WITH NUTRITION

It is now generally recognized that children should never take alcohol, which, according to the highest authorities, exerts an exceedingly deleterious action on rapidly growing tissues, interfering with their nutrition, and preventing the development of their proper functions.—G. Sims Woodhead, M. D., University of Cambridge, England.

ALCOHOL HINDERS ASSIMILATION

All the cells and tissues of the body are surrounded by membranes, on the integrity of which the silent work of building up the body depends. Alcohol, by its power to coagulate albumin, condenses, thickens and clogs these membranes, thereby hindering the assimilation of nutrient materials and the excretion of broken-down, retrograde products and toxins from the body.—E. Stuver, M. S., Ph. D., M. D.

ALCOHOLIC LIQUORS TEND TO FORM AN ALCOHOLIC APPETITE

There is no better way of interfering with the growth and development of body and mind in lads and lasses than by giving them alcoholic liquors. Boys and girls never want these things if they never begin them, but, if begun, a craving is speedily developed which may ruin them in after life.—*Medical Pioneer.*

TOBACCO STUNTS GROWTH

Tobacco in any form is a great injury to a growing boy, and the fashion of inhaling the smoke and then forcing it through the nose is deadly in its effect. It causes catarrh in the air-passages, throat, and nose and makes the smoker puny and stunted.—Dr. Bartholomew, *in Journal of Inebriety.*

TOBACCO DULLS THE BRAIN

A tabulation of the records of the students who entered Yale in nine years, when all of the young men were examined and measured, shows that the smokers averaged fifteen months older than the non-smokers, but that they were inferior in height and lung capacity.—J. W. Seaver, A. M., M. D., Yale.

TOBACCO WEAKENS THE SYSTEM

Children who use tobacco before reaching maturity have their growth interrupted. The excessive users are crippled in their general equipment and are in no form to wrestle successfully with any disease.—I. N. Love, M. D., St. Louis, Mo.

TOBACCO INJURES THE HEALTH

It is high time that something was done to put a stop to the cigarette smoking which is stunting the growth and ruining the health of thousands of boys. The prodigious increase of this evil during the last few years will tend to the deterioration of the race if it is not checked. —Laban Dennis, M. D., State Board of Health, of New Jersey.

TOBACCO LOWERS THE PHYSIQUE

In Germany, the mischief done to growing boys by tobacco has been found to be so great that the government has ordered the police to forbid lads under sixteen from smoking on the street. The German government is anxious about the physique of the soldiers of the future.—M. L. Holbrook, M. D., New York.

SMOKING LESSENS NUTRITION

Smoking prevents the healthy nutrition of the body. Hence comes, especially in young persons, an arrest of growth, low stature, a pallid and sallow complexion, and unhealthy supply of blood and weak bodily powers.—Dr. Copeland, F. R. S., England.

Little Tommy when told he was growing fast, answered:

"Yes, too fast; I think they water me too much. Why, I have to take a bath every morning."—*Journal of Education.*

"Aggressive fighting for the right is the greatest sport the world ever saw."

THE LITTLE SCHOLAR'S CHOICE

"Though I were sleepy as a cat,"
The little scholar said,
"I would not care to take a nap
In any river's bed.

"And though I were so starved I scarce
Had strength to stand,
I'd beg through all the valley ere
I sought a table land.

"But, O! what jolly times I'd have!
I'd play and never stop,
If I could only take a string
And spin a mountain-top."

—*The Independent.*

DOWN TO SLEEP

November woods are bare and still;
November days are clear and bright;
Each noon burns up the morning's chill;
The morning's snow is gone by night.
Each day my steps grow slow, grow light,
As through the woods I reverent creep,
Watching all things lie down to sleep.

I never knew before what beds,
Fragrant to smell, and soft to touch,
The forest sifts and shapes and spreads;
I never knew before how much
Of human sound there is in such
Low tones as through the forest sweep,
When all wild things lie down to sleep.

—Helen Hunt Jackson.

WHERE HE BELONGED

A Philadelphia mother recently went calling, accompanied by her five-year old boy. Being a pretty child of the Fauntleroy type, more than one of the women she visited said complimentary things concerning him, all of which he took with due modesty. Before the afternoon ended, however, he revealed his ideas of maternal pride. One of the women said jokingly, but with a serious face:

"My little man, I think I'll just keep you here with me. I have no little boy of my own. Do you think your mother will sell you to me?"

"No, ma'am," he replied, promptly.

"You don't?" she asked in affected surprise. "Why, don't you think I have money enough to buy you?"

"It isn't that," he answered politely, "but there are five of us, you see, and she would not care to break the set.—*New York Tribune.*

"All the tree tops lie asleep,
Like green waves on the sea,
As still as in the silent deep,
The ocean-woods may be."

School Physiology Journal

COPYRIGHT APPLIED FOR

Single Subscription.....$0.60 a year

CLUB RATES

Clubs from 5 to 50. .....$0.50 each
Clubs of 50 and over..... .40 each

Please remit by post office or express money orders, draft on New York or Boston, or by registered letter.

MARY H. HUNT, EDITOR

HENRIETTA AMELIA MIRICK, Assistant Editor

Published monthly at 23 Trull St., Boston, Mass.
SEPTEMBER TO JUNE, INCLUSIVE

Entered at the Post Office at Boston as Second Class matter

"Who said November's face was grim?
Who said her voice was harsh and sad?
I heard her sing in wood-paths dim,
I met her on the shore so glad,
So smiling I could kiss her feet!
There never was a month so sweet."

A GLIMPSE OF THE SCIENTIFIC TEMPERANCE HEADQUARTERS

THE National Department of Scientific Temperance Instruction was "at home" to all delegates and guests returning from the Portland Woman's Christian Temperance Union Convention, at its headquarters, 23 Trull street, Boston, on Thursday and Friday, October twenty-third and twenty-fourth. From early morning until evening a constant stream of visitors from all parts of the country availed themselves of this opportunity to inspect the home which for years has been almost wholly devoted to the several varied activities which constitute this work.

The study of the editor-in-chief of the JOURNAL claimed first attention, with its walls lined from floor to ceiling with scientific works of every description and constituting with other reference books an exceedingly valuable library. Conspicuous also in this room is what is doubtless the most exhaustive collection in the world of classified quotations on the scientific aspects of the alcohol question.

From the study guests passed to the Scientific Temperance Instruction Museum. Here are displayed the flags of the score or more nations in which steps have already been taken to provide some form of temperance education for their children. Here also are the pens with which many of the temperance education laws of this country were signed, including that with which President Cleveland signed the national bill in 1886, and the one with which the Governor of Georgia signed the bill which brought the last state in the Union under such a law in December of last year. Underneath these pens are grouped translations of the indorsed physiologies into Japanese, Chinese, Hawaiian, Finnish and other languages.

On the second floor is found the Correspondence Room, lined with file cases, letter-books, and samples of the many leaflets issued by this department. Here a large part of the work is done, three typewriters making it possible to send out annually to all parts of the world from 5,000 to 10,000 letters and more than 1,000,000 pages of printed matter. Visitors found also on this floor the editorial rooms of the JOURNAL, furnished with all the paraphernalia necessary to the editing of a monthly magazine.

Up still another flight, literary assistants are busy translating into English the many scientific treatises on physiology, hygiene, and every phase of the alcohol question which thus far are published only in foreign languages.

Savants of many nations turn to these headquarters for information and assistance in advancing in their own countries the educational method of solving the alcohol problem, a method which is rapidly attracting attention throughout the civilized world. Dr. Richard Frœhlich, of Vienna, whose recent visit to this department was noted last month, was here on such an errand, and still more recently Dr. Dupré La Tour, of Paris, who is the accredited representative of the French government as a student of the economic phases of American methods of dealing with the alcohol question, brought letters of introduction to the editor as the world leader of temperance education. Not finding Mrs. Hunt in Boston, he presented these letters in Portland where he was made the guest of the National Woman's Christian Temperance Union Convention. He was also an interested visitor at the scientific temperance conferences with teachers in that city. No small part of the work done at these scientific temperance headquarters consists in correspondence on this subject with temperance workers and official educators in all parts of the world, who, as well as Americans, are always glad to get a glimpse of the practical workings of this department.

H. A. M.

NOVEMBER

November days are stealing,
All swiftly on their way;
The squirrels now are working,
The leaves are out at play;
The busy, busy children
Are gathering nuts so brown,
And birds are gaily planning
A winter out of town.

—CLARA L. STRONG.

A DREAM WHICH COMES TRUE

I READ of a boy who had a remarkable dream. He thought that the richest man in town came to him and said: "I am tired of my house and grounds; come and take care of them and I will give them to you." Then came an honored judge and said: "I want you to take my place; I am weary of going to court day after day; I will give you my seat on the bench if you will do my work." Then the doctor proposed that the boy take his extensive practice, and let him rest, and so on. At last, up shambled old Tommy, and said: "I'm wanted to fill a drunkard's grave. I have come to see if you will take my place in these public houses and on the streets."

This is a dream which is not all a dream. For every boy in this land to-day, who lives to grow up, some position is waiting, as surely as if rich man, judge, doctor, or drunkard stood ready to hand over his place at once. Which will you choose, boys? There are pulpits to be filled by God-fearing ministers, and thousands of other honorable places; but there are also prison cells and drunkard's graves. Which do you choose?—*National Advocate.*

Harvest Time. L'Hermitte.

THE ROSE GARDEN

The earth is cold with rain; the leaves lie sere
Where petals lately flung their scent and glow;
The scarlet hips alone are left to show
What lavish wealth of color once was here.

—JEANNIE PENDLETON EWING, in the *November Delineator.*

The state hires teachers to tell the boy about the physiological effects of alcohol, and licenses saloons to show him those effects.—*New Herald.*

Right thinking is the foundation of right living. To live the highest life of which we, as human beings, are capable, we must firmly believe and live up to our belief that we can, should, and must resolutely master our thoughts as well as our actions; and that we must control the mental pictures in which we indulge as much as the words which issue from our lips. — *Success.*

INDIAN SUMMER

The grain is gathered in;
The season's work is done.
No more the hurrying din
Of the stress of noon-time sun.
But beautiful and calm,
And full of healing balm,
The autumn rest is won.

The tired world stands still
In a trance of peace and praise;
And the light on field and hill
Is the light of bygone days;
And long-forgotten rhymes
And songs of the dear old times
Come back in the brooding haze.

—EUDORA S. BUMSTEAD.

Strange month of moods! when even Nature feels
How sad a thing it is, the turning gray!
Yet over her the joy of April steals,
When some late bird sings from a leafless spray.
With spring-like skies come back spring memories:
She half forgets how near her winter is!

—CHARLOTTE FISKE BATES.

THE MAPLE TREE.

Where the low wind of autumn grieves,
A light shines from the maple leaves,
Whose gold and crimson tints must be
The soul of sunset in a tree.

—WILLIAM HAMILTON HAYNE.

EXPERIENCE CORNER

THERE are many practical devices which the wide-awake teacher will use to illumine her lessons in temperance physiology. A few are indicated below. These are by no means designed to take the place of regular, systematic study of the necessary facts of this subject, but merely to suggest side-lights by which truths learned may be illustrated and thus be impressed upon the minds and hearts of the pupils. The editors will welcome for these columns outlines for other devices which our readers have tried and found helpful.

PROBLEMS

1. A glass of beer costs five cents. If a man drinks two glasses a day, how much will he spend for beer in a week? in a year?

2. Mr. Anderson always gives a certain number of families a Thanksgiving dinner. For each family he spends for turkey $2.00, for potatoes $.20, for squash $.10, for turnips $.10, for onions $.10, for celery $.15, for crackers $.10, for sugar $.10, for cranberries $.10, for oranges $.30, for raisins $.10, for nuts $.15, for grapes $.15. How much does the dinner for each family cost? If he spends instead $36.50 a year for beer (see previous problem), how many families would lose their Thanksgiving dinner?

3. A man earns $600 a year. He spends 1-6 of it for rent, 5-12 for food, 1-8 for fuel, 1-6 for clothing, 1-20 for books, papers and amusements, and puts the remainder in the savings bank. How much does he save?

4. If this man drinks three glasses of beer at five cents a glass every day in the year, how much less will he have to spend for each of these purposes? How much less can he save?

5. How much will two cigars a day at five cents each cost in six months' time? If instead of spending this sum for cigars, it should be put into the savings-bank, how much would it amount to in ten years at four per cent simple interest?

6. Instead of spending five cents a week for cigarettes a boy saved it and spent it for books. At the end of ten years he had bought a bookcase for $3.50 and had spent the remainder of the sum for books. How many books at $.75 each did he buy?

7. At the birth of his son, a man decided to place at interest every year for the education of the boy when grown the amount he had previously spent for cigars and alcoholic drinks. He had smoked two cigars a day at ten cents each, and had drunk wine or beer costing fifteen cents a day. How much money had he for the boy's education when the boy was twelve years old, interest being four per cent?

8. $900,000,000 are said to be spent in the United States each year for alcoholic liquors, and $197,000,000 for boots and shoes. How much more is spent for intoxicating drinks than for boots and shoes? How many pairs of shoes at two dollars a pair could be bought with this balance?

9. At wages of $50 per month how many men could be given work all the year round from the $900,000,000 now spent for drink?

10. If we allow $20 for a suit of clothes, $15 for an overcoat, $3 for a pair of shoes, $3 for a hat and $10 for other clothing, how many full outfits like this could be bought every year with the money spent in the United States for alcoholic liquors?

11. A dollar bill is 7 1-4 inches long. If the $900,000,000 spent for intoxicating drinks in the United States in one year were laid in a line of one dollar bills placed end to end, how many miles long would the line be?

12. 1,040,564,000 gallons of intoxicating liquors are said to be used in the United States each year. How many miles long would a reservoir 100 feet wide and 30 feet deep have to be to hold this amount?

AN OBJECT LESSON

The following table of national expenditures in certain directions given in *New York Education* is impressive, and may be placed on a chart or on the blackboard:

During one year the United States spends for

Intoxicating Liquors	$900,000,000
Bread	505,000,000
Cotton and Woolen Goods	452,000,000
Meat	303,000,000
Iron and Steel	296,000,000
Boots and Shoes	197,000,000
Sugar and Molasses	155,000,000
Tea, Coffee, Cocoa, Chocolate	145,000,000
Public Schools	96,000,000
Clergymen's Salaries	25,000,000
Foreign and Home Missions	5,500,000

This may be made more striking if placed on a chart with black perpendicular columns which show by their comparative height the moneys spent for the various objects. Have some of the pupils help make the chart. It will be a good exercise in proportion for them to ascertain the necessary relative height of the different columns.

MEMORY GEMS

A wineglass is never right side up until it is upside down.

The abuse of alcohol begins with its use.—Dr. R. Koppe.

The only safe way of drinking is to leave off before you begin.—Canon Farrar.

Only a clear brain can think God's thoughts

after Him. Only a steady hand can glorify the Divine Carpenter.—FRANCES E. WILLARD.

He who would keep himself to himself should imitate dumb animals and drink water.—BULWER-LYTTON.

There is no place on the railroad for the young man who drinks; in fact, I may say there is no place for him anywhere in the business world—ANDREW CARNEGIE.

Temperance puts wood on the fire, meat in the barrel, flour in the tub, money in the purse, credit in the country, clothes on the children, contentment in the house, and vigor in the body.—BENJAMIN FRANKLIN.

Temperance brings blessings in both hands, —blessings for time and blessings for eternity. —FATHER MATTHEW.

The convictions of the boy are represented in the ballot of the man. —MARY H. HUNT.

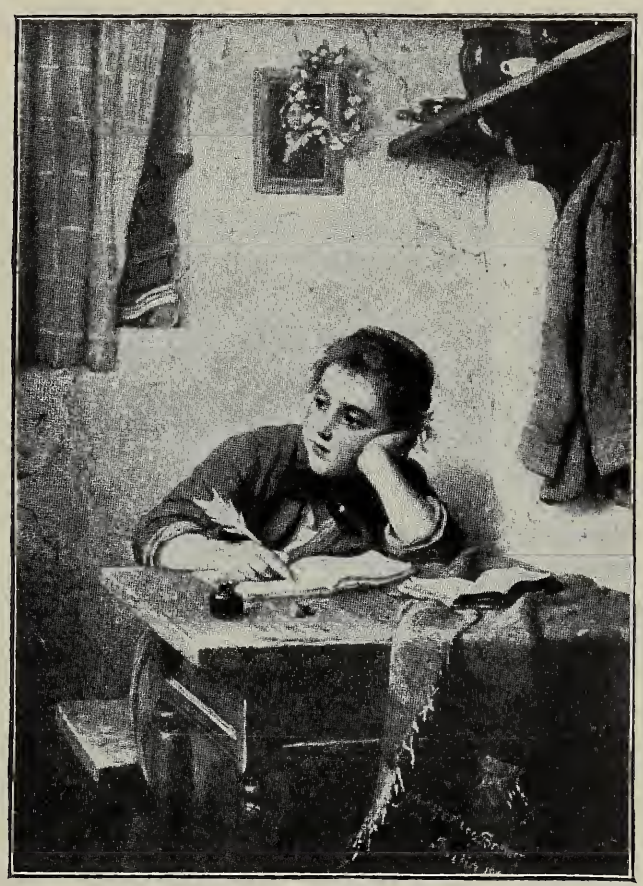
DICTATION EXERCISES

1. A lord chief justice of England said: "Judges are weary of calling attention to drink as the principal cause of crime, but I can not refrain from saying that if they could make England sober, they would shut up nine-tenths of the prisons."

2. I have said a hundred times, and I am willing to say it again, that if anybody will take care of all the poverty and crime which results from drunkenness, the church of which I have the honor to be minister will alone take charge of all the rest of the poverty which needs outside relief in the city of Boston.—EDWARD EVERETT HALE.

3. It has been a study with me to mark boys who started in every grade of life with myself to see what has become of them. Some of them became clerks, merchants, manufacturers, lawyers, doctors. It is noteworthy that every one of those who drank is dead; not one of my age is living. Barring a few who were taken off by sickness, every one who proved a wreck and wrecked his family did it from drink and no other cause. Of those who were steady, industrious and hard-working men, who were frugal and thrifty, every one, without exception, owns the house in which he lives, and has something laid by, the interest on which, with his home, would carry him through many a rainy day.—CHAUNCEY M. DEPEW.

4. A school boy in Australia recently put the matter briefly thus: "I abstain from liquor because, if I wish to excel as a cricketer, Grace says, 'Abstain'; as a walker, Weston says, 'Abstain'; as an oarsman, Hanlon says, 'Abstain'; as a swimmer, Webb says, 'Abstain'; as a missionary, Livingston says, 'Abstain'; as a doctor, Clark says 'Abstain'; as a preacher, Farrar says, 'Abstain.'"—*Youth's Companion.*



"Who climbs the grammar-tree, distinctly knows
Where noun, and verb, and participle grows."

5. Under no circumstances will I hire a man who smokes cigarettes. He is as dangerous at the front end of a motor as a man who drinks; in fact, he is more dangerous. His nerves are bound to give way at a critical moment. A motorman needs his nerve all the time, and a cigarette-smoker cannot stand the strain.—GEORGE BAUMHOFF, Superintendent Lindell Railway, St. Louis, Mo.

6. Laziness, nervousness, loss of power, inattention, lack of animation, and inability to work are the general symptoms of the disastrous tobacco habit, which, in my opinion, has driven more boys from the public schools than any other one thing, and has been the ruin of hundreds of boys.—J. B. MILLARD, Supt. of Schools, Los Angeles, Cal.

YOUTHFUL AMBITION.—The Hostess (in reply to Willie's whisper)—"No, dear, you can't have any more cake. You've had enough."

The Guest—"What a good little boy. And what are you going to do when you're a man, my son?"

"Willie—"First of all I'm going to buy myself too much of everything I like to eat."—*Philadelphia Press.*

BOOK NOTICES

STANDARD FIRST READER, Edited by Isaac K. Funk, LL. D., Editor in-Chief of the Standard Dictionary, and Montrose J. Moses, B. S. Funk & Wagnalls Co., New York and London.

In certain lines this book is a radical departure from others of its kind. Really good ideas are presented, yet in such words as are easily within the reach of children from five to seven years of age. The illustrations are numerous and attractive and the songs are an excellent feature. Ample exercises in phonetics are provided, with directions for the correct use of tongue, teeth, lips, breath and vocal cords. The scientific alphabet, supplied with diacritic markings which have been indorsed by all leading English philologists, is used as an aid to pronunciation, printed in red for easy recognition. A complete vocabulary is given at the end of the book. Special help in the use of this book is given the teacher in a companion volume, the Teachers' Manual, which is published separately.

QUALITATIVE ANALYSIS, by L. M. Dennis, Professor of Analytical and Inorganic Chemistry, and Theodore Whittelsey, Instructor in Analytical Chemistry, Cornell University. 8 vo. Cloth. $1.10. Ginn & Co., Boston.

Although designed for use in high schools, academies, and normal schools, as well as colleges, this manual, as its title indicates, deals only with qualitative analysis, and is not to be used without previous elemental knowledge of chemistry. The method of analysis suggested seems particularly happy. According to it, the student first examines solutions of the compounds of the metals and studies the action of various reagents upon these solutions. His next work is to arrange the elements into groups, using his previous experiments as a basis for the arrangement. Definite directions for performing each operation are given in detail, together with a full discussion of underlying reasons. Necessary precautions are also suggested. The use of black-faced type for essential parts of the text makes it easily possible to condense the work greatly where time is limited. An interesting and valuable feature is the frequent references to articles in chemical journals which discuss new methods or doubtful reactions.

THE STORY OF A LIVING TEMPLE, by Frederick M. Rossiter, B. S., M. D., and Mary Henry Rossiter, A. M. Fleming H. Revell Co., New York.

In scheme and general development this book is not unlike several others already on the market in which the human body is likened to a house, a temple, or a workshop, but the method of treatment is fresh and interesting, as well as thoroughly up to date. The fact that the manuscript has been carefully read by Dr. Hall of the Northwestern University Medical School is sufficient guarantee of its scientific accuracy. The chapters on alcohol and other narcotics are emphatically on the side of total abstinence. The style is clear and easily understood. Teachers will find the book well adapted for supplementary reading in connection with work in physiology, for which fresh material is always in demand.

IN THE BRIGHT WORLD

Why to a care or a cross are we clinging?
The rivers are singing!

Making the music for sweet human words
Are all of the birds!

In fields where the blooms of the harvest begin
Flowers toil not, nor spin.

And though by the strength of the thunder-cloud riven,
The hills smile to heaven!

Why to a care or a cross are we clinging,
With earth and skies singing?

—F. L. STANTON.

We have on hand a limited number of JOURNALS for the year 1901-1902, including all months except April and May. Files of the remaining eight copies will be sent postpaid to any address for $.25 a set, or single copies by the hundred at $.02 a copy as long as the supply holds out. This affords an excellent opportunity for teachers who did not have the JOURNAL last year to secure the lesson suggestions and other helps which these numbers contain.

PHYSIOLOGY TOPICS FOR NOVEMBER

PRIMARY—Parts of the Body used in Running, Walking, etc.: Legs, Feet, Toes. Senses of Touch and Smell. Muscles. Beer.

INTERMEDIATE—Brain and Nerves. Growth and Repair.. Skin and Cleanliness.

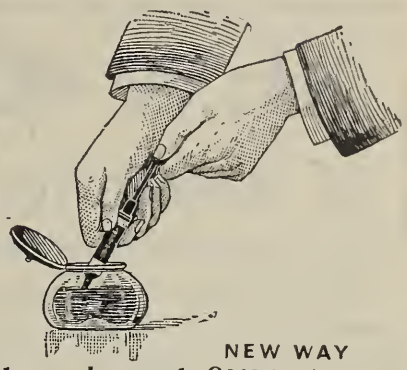
ADVANCED—Cell Life and Growth. Bones. Bodily Motion and its Organs.

THE POST SELF FILLING FOUNTAIN PEN

OLD WAY

FREE

FOR TEN NEW SUBSCRIPTIONS AT 60 CENTS EACH.



NEW WAY

SPECIAL HOLIDAY OFFER

One Post Fountain Pen and one year's subscription to the **School Physiology Journal ONLY $2.50**

Regular price of Post Fountain Pen, $3.00, School Physiology Journal, .60—Total, $3.60.

MORNING EXERCISES

BY SUPT. C. W. MICKENS.

The best work of its kind. 267 pages. 200 opening exercises. 50 Friday afternoon recreations. Something inspiring and instructive for every day. . . . . .

Ethics, History, Science, Geography, Literature, Patriotism, Biography, Fun, Sentiment, Manners, Morals, Puzzles, Etc., Etc. The Stories, the Poems, the Selections, the Facts are given. . . . . .

FLEXIBLE CLOTH, 50C. STIFF CLOTH, 75C.

ADDRESS H. R. PATTENGILL, PUB., LANSING, MICH.

SOMEBODY--SOONER OR LATER--SOMEBODY.

—some progressive teacher—will ask you if you have ever seen THE LITTLE CHRONICLE. If you are not aware of the fact that THE LITTLE CHRONICLE marks an epoch in education, you should send for free sample copies and the "two-cent-a-week plan" as soon as you read this. THE LITTLE CHRONICLE is one of those phases of modern educational progress which it is

EMBARRASSING NOT TO KNOW.

ADDRESS DEPT. Q,

THE LITTLE CHRONICLE,

CHICAGO.

P. S.—We Buy Bright Children's Sayings.

THE SUFFOLK

ENGRAVING AND ELECTROTYPING CO.

Illustrators, Engravers, Electrotypers,

234 CONGRESS ST. and 275 WASHINGTON ST.

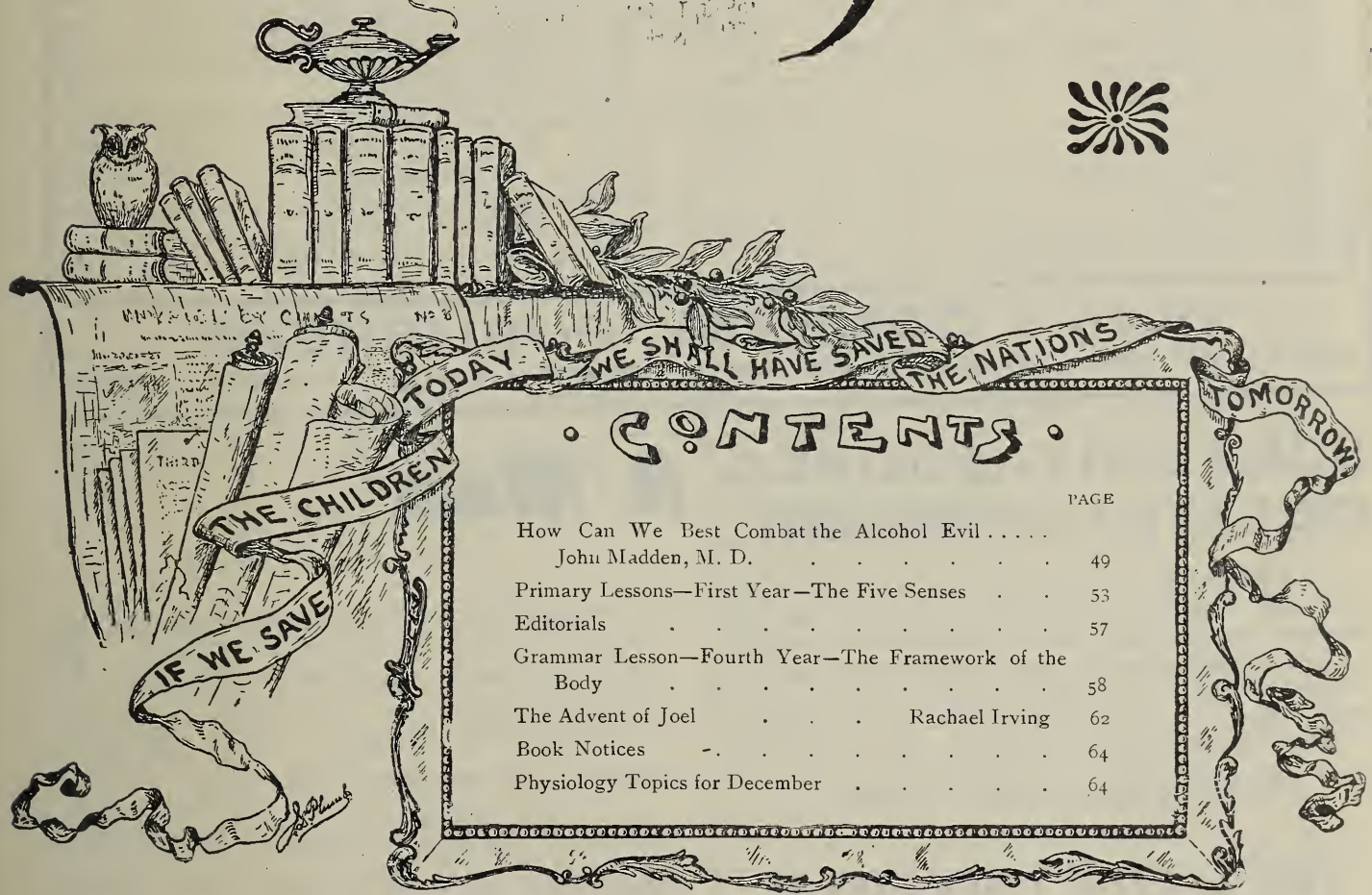
BOSTON, MASS.

A Man

WANTED—A trustworthy person in each county to manage the business for an old established house of solid financial standing. A straight, bona fide, weekly cash salary of $18.00 paid by check each Wednesday with all expenses direct from headquarters. Money advanced for expenses. Address BUSINESS MANAGER, THIRD FLOOR, CAXTON BUILDING, CHICAGO.

And A Job.

The School Physiology Journal



CONTENTS

PUBLISHED AT
BOSTON MASS.
MARY H. HUNT, EDITOR

VOL. XII. NO. 4
DECEMBER, 1902

School Physiology Journal

Vol. XII *BOSTON, DECEMBER, 1902* *No. 4*

THE WAITS

AT the break of Christmas Day,
Through the frosty starlight ringing,
Faint and sweet and far away,
Comes the sound of children singing,
Chanting, singing,
"Cease to mourn,
For Christ is born,
Peace and joy to all men bringing!"

Careless that the chill winds blow,
Growing stronger, sweeter, clearer,
Noiseless footfalls in the snow
Bring the happy voices nearer;
Hear them singing,
"Winter's drear;
But Christ is here,
Mirth and gladness with him bringing!"

"Merry Christmas!" hear them say,
As the East is growing lighter;
"May the joy of Christmas Day
Make your whole year gladder, brighter!"
Join their singing,
"To each home
Our Christ has come,
All Love's treasures with Him bringing!"

—MARGARET DELAND.

HOW CAN WE BEST COMBAT THE ALCOHOL EVIL

BY JOHN MADDEN, M. D.

AT present, the abolition of beverages the essential constituent of which is alcohol, which are now prized universal drinks, seems very remote, but to those who have watched the signs, the situation is pregnant with great things. Most important of all is the fact that science has repudiated alcohol. A knowledge based upon exact methods of experimentation has shown that it is neither a producer nor a conservator of vital force, that it destroys but does not build up, and this knowledge is fixed, incontrovertible. From a remedy of almost universal use as a stimulant, a food, a "tonic," a nerve sedative, the therapeutic use of alcohol is rapidly narrowing. With thoughtful medical men it is already limited to a few and unimportant conditions, such as require a hypnotic, anesthetic, or an analgesic, and even in this exclusively nerve deadening domain its limitations as a medical measure are very great, because other hypnotics, analgesics, sedatives, are less uncertain in their action, less irritating, less dangerous in forming drug habits.

In the hands of the medical profession the alcohol question is safe. Investigators have demonstrated its physiologic effects and physicians the world over have accepted the verdict. Where the evidence has been equivocal, where there is reason to entertain doubt, different opinions are held and doubtful points are warmly contested by able and honorable men holding them; but the profession as a whole has exhibited a singular unanimity in casting alcohol from the therapeutic temple where for centuries it ruled as chief of all therapeutic measures. And these differing opinions are upon minor points only. Never again will it attain a tenth of its past predominance as an agent for the cure of disease. It has taken its place as a remedy of secondary and constantly decreasing importance.

The public learns slowly. Generations grow up and accept the existing order of things without a question as to their value, their morality, or, indeed, their expediency. Even in the most progressive of societies the inertia of conservatism is difficult to overcome. The Chinese do not possess all the reverence for the institutions of the fathers that there is in the world. We are slow to root out, to overturn, to destroy those institutions which have been a part of our civilization for generations or centuries. And this conservatism is valuable. It is the thing which makes society, which makes stable government possible. A people who are always ready to destroy the accepted order of things, always ready for a revolution, always ready to cast away the old and adopt the new, are an unprogressive people, and a dangerous element in a stable government. A stable society will tolerate abuses, will tolerate evils a long time rather than run any risks to itself in rooting them out. A stable society prefers to bear those ills it has, rather than to risk a harm to any considerable number of its new members by new conditions resulting from their abolition. Slavery was such an evil. Man conquered his weaker fellows, seized them, propagated them in chains, and made them minister unto his wants, made them feed and clothe him, build him palaces, wear out their lives in washing the earth that he might decorate himself with precious stones and have piles of precious metals.

Little by little, as the generations of men came and went, the hideousness of slavery became more and more evident, the public con-

science became quickened, until one day there came the crash and shock of battle, an ocean of blood and tears, and society saw through the lifted smoke the slavery monster dead.

Commerce in alcoholic beverages, their making and distribution, is as time-honored as was the institution of slavery and as influential. Let one stop for a moment and consider the matter. There never was a time when a large percentage of human effort was not absorbed in the business. At present, tens of thousands of acres are covered with rye, barley, Indian corn, potatoes, and grape vines, the product of which will ultimately be dispensed over the bar of the saloon. On every hand millions in capital are engaging the entire effort of thousands of laborers to produce a material which destroys more life than wars destroy, produces more crime, more pauperism, more degeneracy of offspring than all other causes combined. Still society looks upon this destruction of its members with an astounding complaisance and makes no organized effort to stay alcohol's ravages.

In Europe, during the past thirty years, alcohol has directly destroyed 7,500,000 human lives, more than were destroyed by all the wars of the whole nineteenth century (*Thesis of Matti Helenius for degree of Ph. D., University of Copenhagen*, 1902). In America it has been not greatly less destructive.

But these appalling facts have not the power to move us, as a whole, to remedy the evil. Our people continue to sing the praises of wine and ale and beer and "stimulating brandy," our doctors quibble over the question as to whether a few drachms of the poison may not be regarded as a food, and our influential lay journals go mad with joy when a chemist, by a process of scientific sophistry, demonstrates that this fearfully destructive thing is "a food when taken in small doses."

No one undertakes to disprove this evidence. It is open, plain, palpable. We tremble at the thought of war, we read of a battle's slaughter with aching hearts and streaming eyes, we can not look upon an empty sleeve without feeling the emotion of pity, and we cheerfully pour out our millions to support the wives and children of those who fell in battle. But slaughter wrought by alcohol we heed not. We read of its threefold greater harm to life than that of war without a tremor or a tear, we see evidences of a destroyed liver, a crippled brain or heart, the result of alcoholic poisoning, and we scarcely give it a second thought, nor have we any pension money to give to the countless widows and orphans of the dead drunkard.

More than this, our nation uses the utmost effort to prevent war, it employs the keenest of diplomatic ability, grants, concedes, arbitrates, does everything that may be done in honor to avoid war; it spends hundreds of millions for a great navy and for land defence, to make war more impossible, to protect the lives of its people against war; but it is spending not a single cent to protect society against the threefold greater enemy to man, alcohol.

The abolition of slavery was wrought by a bloody war. The populace was stirred to its depths by stories of the slavery crime long before slavery was abolished. That slavery was wrong, that it was an injury to country and humanity was acknowledged by all but those who profited by the institution; but for generations society refused to right the wrong; and finally, when the institution of slavery was forever overthrown by the Emancipation Proclamation, it was not done because slavery was seen to be wrong, but as a measure to weaken an enemy in time of war.

Society, indeed, learns slowly, and is still slower in acting when the existence of a powerful institution, centuries old, is involved. Society recognizes the alcohol evil as it did the slavery evil. It imposes certain hardships on those who engage in the traffic, requires that they pay fines in advance for the evil which it will do; but these fines, called license money, bind society in a certain measure to protect the traffic. It is a sort of agreement between the representatives of society and alcohol, that those engaged in the traffic shall be protected in an illegitimate business if they are willing to pay the penalty imposed, a sort of bribery of society, acting through its executive, to permit wrong-doing. The penalty paid by the dealer, the vast majority of society are content to let him carry on his life-destroying business undisturbed.

Lay society has two chief reasons for refusing to abolish all traffic in alcoholic beverages: The first is that they are intrinsically valuable; that good wine, good ale and beer, and good spirits contribute to the health and happiness of humanity. The second is that only those who drink alcoholic beverages "in excess" are injured thereby.

Of all the opinions ever entertained by intelligent men these are probably the most absurd. Let us analyze them: The reason why alcoholic beverages are drunk is because they contain alcohol. Take away this essential constituent and who would drink them? Besides alcohol, wines contain a minute quantity of volatile substances called ethers, chiefly ethylic ether, water, sugar, and inorganic salts; and sometimes carbon dioxide, but who would drink wine for these constituents alone? Who would drink beer solely for its lupulin, carbon dioxide, maltose and extractive matter from the barley

of which it generally is made? What would be left of whiskey or brandy if the alcohol were taken from it? A solution of burnt sugar, with a minute quantity of fusel oil and ethylic ether.

Now, of all these constituents, only the insignificant quantity of sugar found in the wines and malt liquors has a food value or is a true food. Even the most ardent advocate of alcohol as a food will tell you that it is a food only in certain small quantities and under certain conditions, quantities which are totally disregarded by the ordinary drinker, and conditions which do not exist with a man outside of his bed. "A little wine for the stomach's sake" has, indeed, much to answer for.

Alcoholic beverages are, therefore, not nutritious, not valuable, not necessary to the organism of one who is not ill, and the first reason why the average layman drinks falls to the ground unsupported.

That alcohol is injurious only when taken in excess, that he who drinks in moderation is not injured thereby, as a reason for drinking, is the most marvelous piece of sophistry ever entertained by humanity. It is equivalent to saying that it is not the exposure to smallpox which kills, but the taking of the disease; not the drinking of the typhoid bacillus in contaminated water, but the growth of the bacillus in the intestinal canal; not the breathing of the tuberculous dust, but the growth of the bacillus after it is inhaled; not the aiming of the weapon and the pulling of the trigger, but the crash of the bullet through the brain, that kills.

Of all those who begin to drink in moderation, and that is almost every one who begins to drink at all, a greater or less percentage will drink to excess, become drunkards, die of acute or chronic alcohol poisoning, or beget degenerate children. It is just as inexorable that of those who drink some will die by alcohol as it is that of all unprotected persons exposed to smallpox some will contract and die with the disease.

Has not this evidence been accumulating a thousand years? Is it not piled as high as the pyramids? Is it not accumulating every minute and every hour? Were not seven and one-half million human beings sent to their graves in the last thirty years in Europe alone, enough to populate more than twenty cities like the great city of Milwaukee, and was not every one of these, so untimely cut off, a victim to the sophistry that alcohol injures only when taken in excess. You can not change human nature. Man is so constituted that if he drinks at all he will drink to excess. Then if you can not change human nature, you must direct your efforts to the poison itself.

"That happy star
Which marked the spot where Christ was born
Long years ago one Christmas morn."

It is, too, perfectly proper for us to ask whether society drinks alcoholic beverages because it believes that they are wholesome, and injure only when taken in excess. The average man will tell you that he drinks because of the social element involved; he drinks because he is asked to join a friend in a social glass, but this is at best only a half truth. Let him analyze his feelings and he will find that it is not true. He will admit, if he is honest and sincere with himself, that he drinks because he likes the intoxicating effects of alcohol. He likes the sense of well-being it brings, that subtle sense of contentment, satisfaction, and physical sense of warmth and freedom, for the time being, from all the petty aches and pains, all the trifling annoyances of life.

A few years ago some young scientific men of this city formed a "Hasheesh Club." They met every Sunday evening in the apartments of one of their number, and each took a measured portion of Indian hemp. For a few hours each was in a heaven of physical and mental bliss. Care was banished and pain, regret, sorrow, misfortune, disappointment they knew not. While the drug's effects lasted they were supremely happy.

The same is true of the man who goes to the "opium joint" to smoke and dream away unmeasured hours in narcotic bliss.

Let some one write a psychology of alcohol drinking, let him get his evidence at first hand, and he will be told that the seductive charm of alcohol's narcotizing influence is at the bottom of its consumption; and it is this very charm that makes its "moderate use" by all but a small percentage of individuals an impossibility.

Let us try to make society understand these things. Let us try to abolish this terrible, disastrous sophistry. Let us be unceasing in our efforts to teach that alcohol is a fearfully seductive poison, that it has no place in the human dietary, that if it is used at all it must be used in treatment of the sick and given by the physician as are given all other poisons which are used as medicines.

There are three important methods by which the public may be educated to abolish all traffic in alcoholic beverages:

1. In the public schools.
2. By the medical profession.
3. Through the columns of the great and influential lay press.

The first method of educating the public is thoroughly organized and well under way. It would be wise to make provision in every city for a course of lectures on the effects of alcohol, by members in the medical profession; not, of course, to substitute these lectures for text-book instruction, but to make them supplementary to the use of the text-book. Perhaps a better plan would be for the physicians to give lectures with demonstrations to teachers, say at teachers' institutes, thus preparing the teachers to give instruction in this as in every other subject taught to the pupils.

Most important of all the influences which could be enlisted in the cause of the anti-alcohol propaganda is that of the lay press. Let those great journals which have for their object the public good freely discuss the alcohol question in their columns. Let economists tell how many hundreds of millions are annually wasted by those who give their time to the making of the universal poison and those who are rendered incompetent to work for days, weeks, and years because they imbibe it; let phrenologists tell the people how light would be the burden of our penal institutions, and philanthropists how light would be the burden of our charity, could we but rid ourselves of the curse of alcoholic beverages; let alienists tell how great would be the decrease in insanity and imbecility, and sociologists tell how great would be the improvement in morality if alcohol as a beverage could be rooted out forever. When this is done through the columns of the journals which millions of people read, and if it is done in a dispassionate (if such terrible things can be freed from passion), judicial way, every statement founded upon facts, we shall educate the people to that point which will make traffic in alcoholic beverages a thing of the past.

At the present time, the average journal is an alcohol apologist. It seeks rather to find an excuse for drinking than to tell the naked truth about drink.—*Quarterly Journal of Inebriety.*

The executive committee of the Swiss Society of Abstaining Teachers met at Berne, October 12, and decided to unite with the abstaining physicians of Switzerland in requesting the cantons to introduce into the normal schools regular, hygienic, anti-alcohol lessons. The committee has organized for its members an anti-alcohol circulating library. The society now numbers about two hundred members.

Make instruction obligatory up to fourteen years of age. Develop adult courses, advanced classes for those who have left school. Teach the children of the people by the best methods the elements of sciences, hygiene being the science in which anti-alcohol instruction must be embodied. Establish school libraries for developing the taste for reading; such are, in short, the direct and indirect measures to apply constantly for remedying the situation. When all the children leave the elementary schools so thoroughly taught that they will have solid anti-alcohol convictions, which the adult course swill further reinforce, one can seriously hope that this generation will form an electoral body resolved on demanding from the deputies no longer palliatives but a serious anti-alcohol law vigorously applied. In a country with universal suffrage, the mass of people must be enlightened as to its true moral and material interests, because they are the source of the law-making body.

—From an address by M. A. Sluys, Director of Normal Schools, Brussels, on Combating Alcoholism by the School, delivered before the Patriotic League Against Alcoholism, April 27, 1902.

WHY

Why do bells for Christmas ring?
Why do little children sing?
Once a lovely, shining star
Seen by shepherds from afar,
Gently moved until its light
Made a manger-cradle bright.
There a darling Baby lay,
Pillowed soft upon the hay;
And its mother sang and smiled,
"This is Christ, the holy Child."
Therefore, bells for Christmas ring,
Therefore, little children, sing!

—Eugene Field.

Primary Lessons

FIRST YEAR

THE FIVE SENSES

AS far as possible, all work of the month in these grades should center in the Christmas idea, as well as breathe the Christmas spirit. This is especially true of lessons on the human body, and rightly, for whether taken up as a whole, or whether certain parts and their functions are to be considered, the one perfect model comes first to mind this month when all Christendom celebrates the birth of Him who was altogether lovely.

Select pictures of the Madonna and Christ Child which will especially appeal to little children, as a basis for lesson talks and reading exercises on the special senses, and plan for each child to have one of these pictures to carry home at the close of the work.

(1)

SIGHT

Character is largely determined by what one habitually looks at and thinks about. For this reason, if for no other, the child should early become familiar with the best pictures, songs and stories, until his tastes are formed and it is impossible for him to prefer the commonplace or the vulgar.

Next in importance to being able to choose wisely what to look at, is the ability to describe what one sees exactly as it is without drawing on the imagination. Both of these thoughts should be kept in mind in developing this topic.

Tell the ever new Christmas story as simply and vividly as you can, making it later the basis of the following

READING LESSON

One night, a great many years ago, there was a new star in the sky.

The shepherds saw it as they sat on the hills watching their sheep.

They left their flocks and followed the star.

It led them to the little town of Bethlehem.

There they found the Christ Child lying in a manger, in the stable.

His mother had made a soft nest of straw for her little one, because there was no room for them in the inn.

Wise men from the east came a long way to see the baby Jesus and bring him presents.

This was the first Christmas day.

CLASS TALK

Talk over the Christmas story with the children, emphasizing all that appeals to the sense of sight; the sheep on those far away hillsides, the shepherds keeping watch against wolves and other wild animals, the bright new star that suddenly appeared, the angels, the journey by night to Bethlehem, the humble stable, the cattle, the manger, and above all the little new baby with his mother and Joseph bending over him.

Suppose the shepherds had been blind or had refused to look up that night. How much they would have missed!

Get the children's ideas on each point in the story. Ask what hills they have seen. Where were they? How many have seen sheep or cattle grazing on the hills?

What is a shepherd? What does he do?

Tell how the shepherds in those eastern countries always go ahead of their sheep and call them, instead of driving them as men do here.

How many have been in a stable? Tell what a stable is for. Why did Joseph and Mary spend the night in one?

Find how many know what an inn is. What is our word for houses in which people can stay when they are travelling?

Mary and Joseph had a beautiful Christmas present that night, the first that anybody ever had and the very best in the world. What was it? How many have a baby brother or sister at home? When Jesus was a baby he had just such tiny hands and feet, soft hair and bright eyes. Can you think how he looked?

What kind of a bed did Jesus have to sleep in? How was it different from yours? We may be sure it was warm and cozy because his mother loved him just as your mother loves you, and she would be sure to make it soft and comfortable for her little one.

OBSERVATION WORK

Show Schœnherr's picture of the Nativity, reproduced on page 51. After the children have looked at it carefully, lay it aside while each tells all he can about it.

Who are the people we see here? What animals are in the picture? How many doves are there?

What is the stable made of? Where does the light come from that falls on the baby Jesus? What is his mother doing? Where are the shepherds? How are they dressed?

Let the children look at other pictures of the Nativity, and tell about them in a similar way, being very careful that they describe only what they actually see and remember.

Ask the class to point to the parts of the body with which they see. What is the name of these parts? How many eyes has each one of us? What have we seen today that we shall want to remember?

(2)

HEARING

Open the lesson on this sense with a Christmas song, Little Children can you Tell, The Little Sheep were Fast Asleep, Ring, Merry Christmas Bells, and Carol, oh, Carol are all favorites with the children, and easily understood by them. First repeat the words line by line, letting the children act out the suggestions in each, then sing the song as a whole.

'Twas the Night before Christmas is another favorite action poem. It may be recited by one child and acted by the rest, or repeated and acted by all in unison.

CLASS TALK

Ask the children to shut their eyes. While they keep them closed, repeat aloud one stanza of a familiar Christmas carol. Have them open their eyes and tell what you did.

How do we know when people speak? What do we hear with? Where are our ears? Tell some of the sounds we can hear. What kinds of sound do we like best? How can we make our voices so sweet and clear that others will like to listen to us?

Name some of the sounds people like especially to hear on Christmas day. At the same time, sketch on the board a chime of bells, a sleigh dashing over the snow, a chickadee singing on a bush, or whatever is mentioned by the children that lends itself to pictorial representation.

What were some of the sounds that Joseph and Mary heard on the first Christmas? With the picture just studied in mind, the children should think of the bleating of the sheep, the angel's song, the cooing of doves, the greeting of the shepherds. Be sure also that they mention the sound of the baby's voice, the sweetest music of all.

CHRISTMAS STORIES

Many stories as well as songs will suggest themselves as appropriate to the Christmas season, and while excellent new ones are written every year, such old favorites as Dickens' Christmas Carol, and the Fir Tree in Anderson's Fairy Tales should not be omitted.

Stories of Christmas celebrations in other countries and in other days, as well as the different ways in which the day was observed or neglected in our land by the early settlers, appeal warmly to children and are educative as well.

Beginning with the first Christmas in far off Bethlehem, tell the little ones how the custom of celebrating this day has spread all over the Christian world. Boys and girls who can not speak a word of English know all about Christmas and keep the day in their own fashion.

Probably every pupil in our public schools has had a share in the festivities of a Christmas tree. Then they will like to hear about the German children in whose home land this tree originated, with its lighted candles and gay ornaments. Perhaps they will think Germany a good country to live in, because there every child, no matter how many there are in the family or how poor they may be, always has his own little tree all to himself, hung with some kind of presents.

Be sure to tell them also of the big Yule log about which the little English children used to gather for their merry making, in houses trimmed with holly and mistletoe, and of the little waits outside who gathered under the windows to sing Christmas carols.

Make each story short enough so it can easily be retold by the child in his own words. It will thus serve as an exercise to train and develop both his sense of hearing and his powers of attention and expression in language.

Find how many know why people like to give presents on Christmas day, and tell of the greatest gift of all which came to every body in the world so many years ago. Write on the board for all to learn this little couplet,

The thought of Christmas is *giving*,
The heart of Christmas is *love*;

and help the children to think what they can give to others and do to make others happy at this Christmas season.

(3)

TASTE

Whatever helps the child to acquire self-control is of supreme importance. For this reason, if for no other, he should early be taught why he has been given the sense of taste, and how to use it in order that it may be his helpful servant rather than a dangerous master. The story is one means of gaining this end.

A LITTLE VICTOR

It was the day before Christmas and three

year old Victor was all alone. His mother was practising carols at the church, and nurse was lying down with a headache. For awhile the little fellow played happily by himself. He had on his regimentals, as Uncle Rufus called the striped sweater and long blue denim overalls that covered him all up, so he did not have to think about keeping his clothes clean.

By and by he grew hungry. It seemed a long time since dinner, so he went to the dining-room and looked in. Papa and Mamma were to have company that evening and the table was already set.

On the sideboard was a bon bon dish filled with chocolates, Victor's favorite kind of candy. His eyes sparkled as he picked out the very nicest piece. How good it would taste!

It would have disappeared down his little throat in another second, but just then he thought of something Mamma had said:

"If you are ever hungry when I am not here, eat just a piece of bread and butter."

Did that mean no chocolates? Somehow Victor was afraid it did, and he wanted them so much.

But he had promised Mamma, and good soldiers always kept a promise, Uncle Rufus said, and obeyed their general whether they wanted to or not. Uncle Rufus knew, for he had been in a real army, and had ridden a prancing steed and worn a sword.

A Little Victor

When Victor remembered all this, it didn't take long to decide. The biggest chocolate went back in the dish with the rest, and when Mamma came home fifteen minutes afterward, she found her little son eating a slice of bread and butter.

CLASS TALK

Ask the children what the name Victor means. How was this little boy like his name?

What did he conquer?

How can we make the sense of taste our servant? What does it do for us? Why do we need this sense?

Have the children name foods they like best, and which they would choose for their Christmas dinner. Explain that it is largely due to our sense of taste that we can enjoy these things so much. Without it we could not tell sugar from salt, or be able to distinguish between other foods that look alike.

Tell why it is that nothing tastes good when we have overeaten. Our sense of taste has had too much work to do and has grown dull, just as a knife does after it has been used a long time. How can we keep the sense of taste always sharp and keen, ready to do the best work for us?

(4)

SMELL

Tell about this sense without naming it, until the children guess what it is. The description may take the form of a story, or the following

READING LESSON

I am one of your little helpers.

I know when the Christmas dinner is ready and just what you are going to have to eat.

As soon as you come into the house I tell you what Mamma has been baking.

I can tell what flowers are in blossom even when you have your eyes shut.

I can tell apples from oranges, and grapes from cherries without looking at them.

I can tell bad odors as well as good ones.

When the air in a room gets close and stuffy, I tell you to open the windows.

I help the sense of taste.

What is my name?

CLASS TALK

Get the children to recall as many odors as they can and tell what they are. Separate these into odors that we like and those that we dislike.

Sweet odors make us take long deep breaths and these make us feel good all over. What shall we do when we are in a place where the odor is bad?

Explain why we notice a bad smell more quickly on entering a room than after we have been in it some time. Why is this a reason for

airing a room thoroughly as soon as we notice any bad odor?

Where is the home of this little servant of ours? Point to it. When we have a cold in the head this little house sometimes swells so much that we have a hard time trying to smell. Then we can not enjoy our food, and one thing tastes very much like another. The best way is to take good care of this little servant and not get colds.

THINGS TO REMEMBER

Smell is meant to give us pleasure.

It helps taste tell us what things are good to eat.

Smell is a good little watchman.

When it brings a bad odor it is telling us to go away.

Smell gets tired just as the rest of our bodies do.

Then we must let it rest so that it will always tell us the truth.

(5).

TOUCH

An acute sense of touch is one of the results to be aimed at in all training of this sense. Beginning in the primary classes, children should be taught to recognize objects by feeling their size, shape and the character of their surfaces as readily as by sight. Such work makes the hands and fingers increasingly deft and sensitive, and helps to lay the foundation for all kinds of skilful hand work in later years.

Introduce exercises of this kind through the medium of games as often as possible, teaching the children in this way to tell one another by the sense of touch alone, and also to distinguish familiar objects in the same way.

GAMES

An enjoyable variation from the ordinary game of blind man's buff is to have all the children in the odd rows close their eyes. Those in the even rows then change places, each occupying a different seat from his usual one. All in the room now rise and stand in the aisles, those with eyes open alternating with those with eyes shut. The latter find who their neighbors are by passing their hands over their faces, hair, hands and clothes. Repeat, having the even rows close their eyes.

Fill a table with kindergarten blocks and bring up the children blindfolded one by one to identify one or more of the blocks by touch.

Blindfold each child in turn and have another child lead him to some part of the room. The one blindfolded tells where he is and names the articles of furniture within his reach.

Half the children in the room may close their eyes, while the others pass their pencils, books, paper, or any familiar object from their desks, to be recognized by touch alone.

LESSON TALK

Show Schœnherr's picture of the Nativity again, and help the children to decide which of the objects shown in it could be known by the touch; which by sight; which by each of the other senses.

Tell the story of the blind men who tried to find out what an elephant was by the sense of feeling. One felt of his broad side and said it was a wall, another felt of his tail and said it was a rope, and a third felt of one of his legs and declared it was a post.

Which of the other senses work with the sense of touch to help us know about things? Why do we need more than one sense?

Where is our sense of touch? Why do we need it all over the surface of our bodies? How many of you have ever burned the ends of your fingers? Could you feel things with them as you could before? We must take care not to hurt these good little helpers, because we can not get along at all without them.

Bring into class as large a picture as possible of the baby Christ. Point out his bright eyes and show how perfect all his senses seem to be. All babies are meant to have acute senses and just as strong healthy bodies as he had.

What can we do to keep our own in just as good condition as they were given to us, only growing stronger and better as we grow?

HOW WE INJURE OUR SIGHT

We injure our eyesight by the use of tobacco, also by the use of wine, spirits or beer. The wearing of tight neckwear, such as collars which are too small, or shirtbands or neckties tightly drawn should be avoided, as they prevent the downward column of blood returning to the heart, and injure the eyes from a slow or dammed up circulation of the blood. Reading in a bad light, or reading too long and tiring the eyes is a real cause of injury.—*Journal of Hygiene.*

OUT OF REACH

When his mother had reproved little Bob for some small offense, he looked at her reproachfully, saying:

"You hurt my feelings,"

"Well," said his mother, "come here and I will kiss them."

"You can't," he replied, "they're inside."

—*Little Chronicle.*

School Physiology Journal

COPYRIGHT APPLIED FOR

Single Subscription.....$0.60 a year

CLUB RATES

Clubs from 5 to 50. .....$0.50 each
Clubs of 50 and over..... .40 each

Please remit by post office or express money orders, draft on New York or Boston, or by registered letter.

MARY H. HUNT, EDITOR
HENRIETTA AMELIA MIRICK, Assistant Editor

Published monthly at 23 Trull St., Boston, Mass.
SEPTEMBER TO JUNE, INCLUSIVE

Entered at the Post Office at Boston as Second Class matter

THE REAL ISSUE

TWO years ago, critics of the study of temperance physiology in the public schools were devoting themselves to attacks upon the teaching that alcohol is a poison and not a food. That such criticisms have fallen to the ground before the march of truth is plainly shown by Dr. Madden's article in this JOURNAL. But, as we have said before, the critics still survive. Their new points of attack are essentially the same in different parts of the country, and are not unlike those of the brewers. The brewers have a financial interest in the people using beer. Hence, they are opposed to the schools teaching, with text-books in the hands of pupils, the physiological reasons against drinking beer and other alcoholic liquors. The brewers' opposition is especially directed against this study by children in the lower grades. And no wonder, for in those grades it will warn against beer the largest numbers, the majorities of the future on whose votes the coming fate of the liquor interest will depend.

Of course, they characterize as "biased" and "false" the truth that describes the ultimate demoralization resulting from the use of beer and the danger of beginning its use. The *Brewer's Journal* of Nov. 1, says (The italics are ours.):

"What the *Brewer's Journal* and every thinking member opposes is not the teaching of true temperance, which, in common with the inculcation of other virtues, should find its proper place in the curriculum of public schools, but the efforts made by the bigoted element to compel teachers to fill the minds of *children of tender years* with false information on that subject; *to place in their hands text-books* compiled for the sole purpose of conveying biased and deliberately falsified information regarding the moral and physical effects of beverages which many of them are familiar with and are taught from infancy to regard as an article of food."

It is unfortunate that those who are sensitive at being classed as wanting what the brewers do should in reality ask for the same thing.

Here is a case in point. The Massachusetts Committtee of Twelve recommend:

First, No text-books in temperance physiology in the hands of pupils until the sixth year,* which would be after a large class of pupils has left school, who would thus be deprived of "the written word" on this subject which is too important and its neglect freighted with too serious consequences to be thus trifled with. Oral instruction only, without the use of books by pupils until the sixth year, is not adequate for geography or arithmetic, neither is it for physiology above the third year. All that the friends of this study ask concerning books is for their use by pupils who have books in other studies.

Second, This subject, as a formal (classroom) study, omitted in the fifth and seventh years and put into the ninth year instead. A majority of the pupils have left school before the ninth year, and on this plan the numbers who leave school at the end of the fifth year to become bread-winners would thereby be deprived of needed progressive instruction on this subject adapted to their development. Thus there would be individual loss to this class of children, many of whom are foreign born and all of whom especially need all the instruction the school can give them on this subject, while future intelligent public opinion so much needed on the alcohol, cigarette, and other hygienic questions would be diminished.

The proposition to put the study into the ninth year where it would reach only a fraction of children compared with the fifth year, while omitting it as a regular study in the fifth year and later in the seventh year, is practically to provide for the continuance of present conditions, namely, a future minority of temperance people voted down by a majority of alcohol and narcotic sympathizers.

It is said in objection, that if the study is omitted in the fifth year the child will resume it in the sixth with fresh interest. This might answer for the child who remains in school, if his physical habits meanwhile would remain stationary, and he were in no danger of coming into the sixth year with the cigarette and often the alcohol habit already partially formed. But this probability is very great, especially in the case of the children who are foreign born or of foreign parentage, who are rapidly making up the majority of future citizens in many states. It is the testimony of all teach-

*The positive recommendation of the Committee that the instruction be without the use of text-books in the first four years nullifies their next recommendation that there be a supplementary use of books.

(*Continued on third page of cover*)

Grammar Lessons

FOURTH YEAR

THE FRAMEWORK OF THE BODY

WHEN the late President McKinley was on one of his journeys through the United States, he saw from the car window a bareheaded, barefooted boy, ten or twelve years old.

"I used to be just such a country boy as that little fellow," he said to the statesmen who were with him, and presently it was found that every man in the party, including governors, senators and cabinet officers, had also begun life on a farm and amid humble surroundings.

The same virile qualities which have brought so many poor boys to eminence are also characteristic of such men as President Roosevelt and Cornelius Vanderbilt, who were born in luxurious surroundings but refused to be enervated by them. Poverty is not essential to the highest development of mind and body any more than wealth is. What is necessary is the keen eye, the quick brain, the well developed body which comes from simple hearty living in the open air, and a persistent reaching out after the best whether in work or play or study.

Every boy and girl needs the encouragement of such types of success, as they study their own bodies and learn how to take care of them. They need also to know that it is equally important to get rid of anything and everything which makes life so easy as to prevent effort. "When the fight begins within himself, a man's worth something."

The topic chosen for development this month in fourth grade work is fundamental. Without a skeleton the human being would be cut off from the possibility of achievement, with it he does the world's work. Bring out this point at the start, making every lesson objective and using all illustrative material within reach.

OBJECT OF THE BODY FRAMEWORK

Bring a kite into class and ask some boy what is the first thing to do if he were going to make one. Have some one else tell why a kite needs a stiff framework, then call for other things which need a support of some kind to keep them in place. Show a wire hat frame and ask a girl what it is for. Hold a maple leaf up to the light and point out the ribs which run from the base to each point. Why are these harder and firmer than the rest of the leaf? Ask what it is that keeps tall buildings and trees firm and upright when strong winds blow against them.

Call upon each one in the class to name an animal which has a framework to support its body. Who can name one whose body is soft all the way through? Which kind would you rather have?

Perhaps some of the children have been clamming, and all will have seen oysters or clams in the shell. How is the framework of shell-fish different from our own? Name other animals which have an outside framework. Give a reason for this. Do such animals move slowly or quickly. What can you do that they can not? Show pictures of knights as they appeared in the Middle Ages, almost entirely covered with armour. These will explain better than words why it is much more convenient for people to have their skeleton on the inside of their bodies, where it will not prevent them from moving quickly and easily and doing whatever they like.

Sum up on the board the points brought out under this topic, calling for illustrations of each:

The body is built on a framework just as a house or tree is.

The framework holds it in shape and gives it form.

For this reason it must be firm and hard.

Animals like the snail and turtle have an outside framework to protect them from harm.

People need an inside framework to support the body without hindering its movements.

DIFFERENT KINDS OF BONES NEEDED

If the human body were round like a ball or cubical like a box, all its framework might be in one piece, or it could be made of several pieces all of the same size and shape. But very few parts of the body are alike, so we find few bones that are alike.

Have one pupil stand where all the class can see him. Then have them name the different parts of his body, head, neck, trunk, arms and legs, and tell what kind of bones is needed to give each part its proper shape, or what each part is like if we could see the framework just as it is.

Show the largest chart available of the skeleton, and let the class find and correct any mistakes they may have made in their previous descriptions. Have them point out all the long

bones in the body; those that are short and round; those that are thin and flat; giving a reason for the use of each shape.

Ask some one to find bones fitted together to form an arch, another to point out bones enclosing cavities, a third to find bones which fit into sockets. Call upon others to explain why all of these different shaped bones are necessary. Take one part of the skeleton at a time, and study the different kinds of bones found in each. Have the class make drawings of the most important bones. This will give a correct idea of their shape, size and fitness for the work they must do.

A very helpful exercise is to collect a number of bones, clean them thoroughly, and let the pupils decide as far as they can from the size and shape of each in what part of the animal it belonged. At the same time, have them note how each differs from the corresponding bone in the human body.

Summarize the facts brought out under this topic:

The framework of the body is made up of many parts.

These parts differ in size, shape and appearance.

The reason for these differences is that each part has a different kind of work to do.

"There a darling baby lay, pillowed soft upon the hay;
While the mother sang and smiled, "This is Christ, the holy Child."

METHODS OF JOINING BONES

After finding that the framework of the body is made up of a large number of bones of all shapes and sizes, the next thing to learn is how all these pieces are fastened together. Use articles of furniture or tools in illustration, a door, a jack knife, a swinging blackboard, the sides and ends of a desk drawer.

Explain the advantages of these different kinds of joinings, one allowing free motion in several directions, another, motion in two directions, and a third, little or no motion but binding the parts together very firmly. Then ask the pupils to find joints in their bodies which work in each of these ways.

Remove all the meat from a chicken's wing and leg and bring these bones into class to show how the ball and socket and hinge joints work. Show also the stout cords which pass from one bone to another, fastened tightly to each to hold them together.

Call attention to the difference in size between the middle of a long bone and its two ends, and help the class to think of the reason for this.

Let each one move first one part of his body and then another until he knows which bones are movable and which are not. Take breathing exercises in this connection, letting the pupils try to see which one of them can most expand his chest.

Help the class to put into the form of complete statements the facts considered under this topic:

The many different bones which form the skeleton need to be fastened together.

The places where the bones are fastened are called joints.

Strong cords hold the bones together.

A hinge joint, like that at the knee or elbow, lets the bones move in two directions, up and down.

A mixed joint, like that at the wrist, lets the bones move up and down and part way around each other.

A ball and socket joint, like that at the shoulder or hip, lets the bone move in all directions.

A fixed joint, like that of the bones of the skull, allows no motion, but holds the bones tightly together.

ESSENTIALS TO GROWTH

Get a fresh bone from the market and saw it through lengthwise. Then let all the class look at the inside through a good magnifying glass. Find how many know the reason for all the tiny holes which pass from the outside of the bone into the part next the marrow. If the reddish tinge of these parts does not suggest their use, tell the pupils that the holes are to allow the blood-vessels to pass into the bones to carry to them the food they need.

Ask what kind of a framework is necessary for a strong healthy body, and let the class suggest some of the things that will be required. The right kind of food will be one, and to know what this is we must know what the bones are

made of and what foods contain the materials the bones require.

Let the pupils look up these points for themselves in their books, and make a note of the fact that such foods as cereals, graham bread and milk contain what the bones need to make them grow and give them strength.

Appoint delegates from the class to visit some grocery and make a list of all cereals they find there on sale. Then have the rest make out a number of breakfast menus using a different cereal for each. Explain to them how cereal foods are changed in the process of cooking, and why it is important to cook them slowly a long time.

Points to be remembered may be summarized thus:

There are many very tiny holes in the bones so that the blood-vessels can pass through to carry food to every part of them.

The hard part of bones is made largely of lime, so our food must contain lime to make the bones grow.

There is lime for the bones in such foods as milk, cereals and graham bread.

Cereals should be cooked slowly a long time.

THINGS TO AVOID

Modern surgery together with hygiene is rapidly making deformity unnecessary if not unknown, but children should early be taught that much depends on them. Ask what will happen to a young tree if it is kept bent to one side. What will happen to a boy or girl who always carries everything in the right hand, who stands often on one foot with all the weight of the body on that side, or who slides down in a chair and sits on the end of the spine.

Carry to school the breast bone of a chicken and let the class feel how soft it is, the upper part being only gristle instead of bone. Suppose we should tie a piece of stout cloth fastened together with whalebone around a chicken's body and make him wear it, what difference would this make in the growth of his bones? A child's bones are just as soft proportionately, then what will be the effect on them if tight shoes are worn, or if corsets or tight bands are worn about the waist?

Country children often look forward to the time of cider-making in the fall as a great treat, while those in the city are likely to prefer beer. These drinks will appear to them in a new light, if they learn in connection with this lesson that the alcohol such drinks contain can stunt the growth of their bodily framework and keep them small and stunted all their lives.

Children always think of being grown up as being tall and large. Bring out the fact very plainly that all drinks which contain alcohol, and cigarettes as well, work directly against this end, and that the tendency of such things is to make undersized men and women.

Put on the board as points to remember the following:

We must sit and stand straight when we are children, if we want to be straight when we are men and women.

Young people's bones are so soft that tight shoes or clothing will change the shape of their bodies and make them deformed.

There is alcohol in beer and cider, and alcohol stunts the growth of children.

A boy who smokes cigarettes is likely to grow up small and puny.

AUTHORITATIVE QUOTATIONS

ALCOHOL STUNTS GROWTH

The injurious effect of alcohol on the entire development of the child is evident from the fact that children who drink spirituous liquors are noticeably stunted in growth.—ADOLF FRICK, M. D., University of Zurich.

Alcoholic drinks certainly do incalculable damage to children. Alcohol interferes with the normal development of body and mind.—A. BAER, M. D., Counsellor to Board of Health, Berlin.

TOBACCO AND PREMATURE AGE

In Portugal, where smoking is indulged in from the earliest possible age, the children, especially among the neglected ones of the poor, have a stunted and prematurely aged appearance.—THOMAS MORE MADDEN, M. D.

TOBACCO IMPAIRS GROWTH AND NUTRITION

Nutrition is impaired by the use of tobacco in youth, during the age of growth and development.—JAMES STEWART, M. D., Head of Medical Staff of Royal Victoria Hospital, Montreal.

An anti-alcohol society of railroad workmen and employees with already more than 600 members has lately been organized in France, its object being to combat the ravages which alcohol in all its forms is daily making upon the social organism.

Teaching the evils of intemperance will not prevent drunkenness. What is needed is teaching the danger of beginning to drink.

All his glory and beauty come from within, and there he delights to dwell, his visits there are frequent, his conversation sweet, his comforts refreshing, and his peace passing all understanding.—THOMAS À KEMPIS.

FOREIGN RAILROADS AND THE ALCOHOL QUESTION

The German Association of railroad physicians held its fifth annual meeting in Munich on September 17, 18, and 19. Among thepapers presented was one by Dr. Raub of Nuremberg on "The means of combating alcohol among railroad employees." The speaker mentioned the importance of a thorough inquiry by railroads as to the effects of alcoholism among their employees, especially a close study of the influence upon vision of the use of alcoholic drinks. "An employee must not see green signals as red." This preliminary work finished, the injury of alcoholic drinks having been demonstrated to railroad employees, the latter would accept more readily the restrictive measures which the management would take. Under this latter head, Dr. Raub proposes to forbid employees to use alcoholic drinks while on duty, and to compel locomotive engineers to be total abstainers, as they are charged with heavy responsibilities, and a moment of drunkenness on their part endangers hundreds of lives.

"But," adds Dr. Raub, "railroad companies should replace alcohol by something better. Healthful, inexpensive, non-alcoholic drinks should be at the disposal of the employees in order that nothing may be neglected which will ensure their well-being."

The report of Dr Raub was vigorously applauded, especially by the high railroad officials who were present at the meeting.

'It is significant that Dr. Raub's recommendations are quite in line with the course of events in the United States in this matter. The railroads in this country now almost universally require total abstinence of their employees, a requirement which has largely become general since the schools of the United States began to teach the danger in the use of alcoholic drinks.

The same instruction has made the employees ready to accept the restrictive measures laid down by the railroad companies, and thus has secured the very ends which Dr. Raub suggests as necessary.

THE LITTLE WILDFLOWERS

The little wildflowers to sleep have gone,
'Way down in their cozy beds;
A thick brown blanket of leaves they've drawn
Right over their little heads.
For well they know cold weather's about—
The time when Jack Frost appears,
And that some night, if they don't watch out,
He'll come and bite off their ears.

"Out of Egypt have I called my Son"

They know that his partner, Mr. Snow,
Will also in time be due,
For old Mother Nature told them so,
And they know that it must be true.
So, tightly tucked in their beds, they lie,
And laugh in their dreams so fair,
To think that neither, in passing by,
Will be able to find them there!

The little wildflowers are tired of play,
And weary of field and sun;
The birds and the bees have gone away,
The song of the rain is done.
So now they nod on their beds of sod,
While winter winds o'er them sing,
And sleep so deep, knowing well that God
Will awaken them in the spring.

—James Courtney Challis.

THE ADVENT OF JOEL

"And pray a gladsome Christmas
To all good Christian men.
Carol, brothers, carol,
Christmas once again."

THE last words of the quaint old carol were the signal for the boys that the choir rehearsal was over. One by one they seized their caps and coats and disappeared out of the door with whistles and shouts of pent up Christmas feeling, such as can only be known by a choir boy who has been practising carols in a holly-trimmed Sunday school room on Christmas morning.

Earle Benton, the boy soloist, lingered behind the rest. The choir master left his seat on the organ bench, and came over and laid his hand on the boy's shoulder.

"Be sure to be early tonight, my boy," he said. "You know I'm depending on you to make the concert a success. There isn't another boy in the choir can take that high C in your anthem. It's nothing to be conceited about," he hastened to add as Earl straightened himself with conscious pride. "You don't deserve any great credit because you can sing. A voice is a God-given gift that one is born with or goes without all his life. You happen to have one, that's all. I wish we had another high soprano to substitute for you once in a while. Well, what do *you* want?"

An undersized boy, carrying a large pack of morning papers, shuffled swiftly down the aisle and stopped before him with eyes shining with excitement.

"Say, mister," he volunteered, "I can sing his pieces."

"Why, it's our paper boy," Earle ejaculated.

The boy nodded,

"Yup," he assented briefly, "I allus tries to listen outside the winder when youse fellers is practisin'. Then I goes home and sings the things to the kids."

The master looked down at him a moment, trying to keep the amusement out of his eyes. He was a curious figure, this diminutive newsboy, with a sturdy combination of enterprise and impudence assertive in his every gesture, and betraying itself in the peculiar redness of his hair, the tilt of his freckled nose, and even the set of the giant, frostbitten, yellow chrysanthemum worn jauntily in the buttonhole of his thin coat.

Mr. Whiting sat down once more and played over the prelude to the anthem the boys had been practising.

"Come here," he said, beckoning to the newcomer, and smiling indulgently.

The boy hesitated a moment, glancing cautiously at Earle. He reluctantly laid down upon the piano the bundle of papers he carried and went over to the organ, and then the amused smile that had played about Mr. Whiting's lips died away, for the boy began to sing, and as he heard the first appealing notes the master knew that he was singing as no child had ever sung for him before. The untrained flexible soprano ran on unfalteringly, putting all unconsciously into the simple hymn the story of a short life that had known many heartaches and few pleasures, and as the last notes died away there was a moment's silence, for the master could not trust himself to speak. Not so the newsboy. His thin, sharp face turned from Mr. Whiting to Earle scornfully.

"Say, why don't youse say nuthin'?" he said, retreating toward the door, with a quick sidewise motion, seizing as he did so the bundle of papers reposing on the piano.

Earle, who had been standing by silent with envying admiration, laughed in spite of himself.

The choir master cleared his throat.

"What's your name?"

"Reid." The boy clipped the monosyllable out sharply.

"Well, then, Reid, how would you like to sing in this choir?"

The master never forgot the expression that his question brought out on the face of the street urchin. For a moment it was a study in suspicion, unbelief, scorn, struggling with a great yearning desire that the words might be true.

"You're foolin'," the boy said incredulously, and it took several minutes for Mr. Whiting to convince him that he meant what he said.

Five minutes later, Joel Reid stood outside the church pinching himself to see if he were awake. Ever since he had been a tiny shaver he had hovered about the doors of churches to catch glimpses of the long train of white-robed choristers, and as he grew older he had dreamed with all the fervor of a music-loving soul of becoming one of them some day, and now the master had said that that day had come. He must still be dreaming.

"You forgot your hat." It was Earle's laughing voice that aroused him. He took the cap that Earle held out to him and put it on. He could not help laughing himself as he thought how foolish he must have looked bareheaded. It was the first time in his life that he had so far forgotten himself.

Earle eyed curiously for a moment this new kind of choir boy, as if figuring up whether it was worth while cultivating his friendship. He evidently decided that it was.

"Say, Joel," he said unceremoniously, "if you'll come down to my house I'll show you my presents. Let's race. I'll bet I can beat you."

Joel's sporting instincts were sufficiently keen not to let the challenge go by. Together they ran down the broad avenue and drew up out of breath before a bow window filled with the pale gold and green of Scotch heather.

Earle opened the door with the shiny brass knocker, and led the way down the polished hall. The dining-room door was open, and through it a savory steamy odor of stewing, baking, and boiling was wafted through the house. As they passed the door, the newsboy sniffed greedily and stole a longing sidewise glance at the table already set for dinner. The sunlight, slanting across it, caught the glint of cut glass and silver, of such a richness as he had never seen before, outside of a shop window. Earle saw the wonder manifest on the other boy's face and laughed.

"Say," he said, "I'm thirsty. Let's get a drink."

Joel was not loath to explore the wonderful room. There was a tall decanter of rich red wine on a side table, set about by graceful slender goblets, and as they crossed the floor Earle caught sight of it. An idea occurred to him. He glanced around cautiously.

"Carol, children, carol, carol joyfully;
Carol for the coming of Christ's Nativity."

"It's Christmas," he said, "and I'm going to drink your health the way my father does."

He poured out two glasses of the sparkling liquor.

"Drink it quick before any one comes," he whispered.

Joel smelled the wine and pushed the glass away.

"I don't want it," he said stiffly.

Earle laughed.

"That's because you're not used to it," he boasted. "Just watch me."

He raised his glass and drank it, and then reached out intending to pour a second, but, to his astonishment, Joel seized the decanter.

"You can't have any more while I'm here," he said shortly. "You ought to know enough not to touch wine or beer or any of them things."

"Why?" Earle demanded angrily.

"'Cause they're bad," Joel retorted. "They kill your father and make your mother have to work too hard, and if you once begin to drink them they make you want more and more. I guess I know."

Earle hesitated a moment.

"It's cheap beer that does that," he said scornfully. "Wine's different. Every gentleman drinks it. You're a coward to be afraid of it."

Almost before the taunt was out of his mouth he repented of the words. He ran to the door. But Joel was already at the foot of the steps and when Earle called him he would not turn back.

Two hours later Joel Reid was repeating for the fifth time to his admiring family the story of the wonderful choir rehearsal. For the fifth time he adorned it with embellishments such as a newsboy alone knows how to bestow. And for the fifth time also, six small, shrill-voiced Reids were preparing to vent their appreciation in wild enthusiastic hoots of joy as he reached the climax. But their demonstration was rudely interrupted. There was a knock at the outside door and Joel, opening it, faced Mr. Whiting. He could not have been more surprised if he had confronted the President of the United States.

As he saw the boy, a look of relief came over the choir master's face.

"I've been inquiring all over the neighborhood to find where you lived, Reid," he said. "I want you to sing a solo tonight, and you must come for rehearsal now."

And then the family listened as to a fairy tale as he explained that the soloist, Earle Benton, had been taken suddenly ill and could not sing.

So the newsboy, Joel, led the choir at St. Anne's that night. And as the clear soaring tones of his strong young voice filled the great church, the choir boys ceased for a time to wonder at his sudden coming into their midst,

and at the awkwardness of his odd little figure, for like every person in the vast congregation they were conscious only that he was causing chords of beauty to vibrate in their natures that they had never known were there. As for Joel, for the first time in his short life he was perfectly happy.

The next morning Joel carried about to his customers papers with his own picture on the first page. In front of Mr. Benton's he met Earle wearing a heavy ulster and looking pale. The rich boy flushed when he saw Joel, but he ran down the steps to meet him.

"Say," he said sheepishly, holding out ten cents, "I want some extra copies of the paper telling about last night. I want to see how I would have looked if — "

He broke off and then went on impulsively.

"Joel, I want to tell you I guess you were right yesterday. I've found out what wine does for a fellow, and I'm never going to drink any more of it. Father's locked it up and we're not going to have it on the table again. Be sure you call for me on your way to rehearsal tomorrow night."

And Joel went on his way rejoicing that he had found a friend. —Rachel Irving.

THE ORIOLE'S CHRISTMAS STOCKING

"Just as morn was fading amid her misty rings,
And every stocking was stuffed with childhood's precious things,
Old Kris Kringle looked around and saw on the elm tree bough
High hung, an oriole's nest, lonely and empty now.

"'Quite like a stocking,' he laughed, 'hung up there in the tree.
I didn't suppose the birds expected a visit from me.'
Then old Kris Kringle who loves a joke as well as the best,
Dropped a handful of snowflakes into the oriole's empty nest."

"The utterances of the philosopher today become the sayings of the market-place tomorrow."

We have on hand a limited number of Journals for the year 1901-1902, including all months except April and May. Files of the remaining eight copies will be sent postpaid to any address for $ .25 a set, or single copies by the hundred at $ .02 a copy as long as the supply holds out. This affords an excellent opportunity for teachers who did not have the Journal last year to secure the lesson suggestions and other helps which these numbers contain.

BOOK NOTICES

Arithmetic by Grades. Prepared under the direction of John T. Prince. Books I–V, Ginn & Co., Boston. Price 20c. each.

A text-book in arithmetic for primary grade pupils would seem, at first thought, to be entirely out of place, but examination of the Prince books shows otherwise. The problems are stated in the same simple familiar words as are used in the best readers for these grades, and furnish admirable material for seat work to accompany and follow teaching by objects. Almost without exception the problems deal with practical questions which the child is constantly meeting in every day life, and are well graded to his ever increasing ability. The large number of problems provided ensure plenty of fresh material for continued drill. A separate manual of explanations and suggestions for the teacher has been prepared to accompany the series. The books are attractively bound and the low price at which they are offered will commend them.

Morphinism and Narcomanias from Other Drugs, by T. D. Crothers, M. D., Professor of Mental and Nervous Diseases, New York School of Clinical Medicine. W. B. Saunders & Company, Philadelphia and London. Price $2.00.

Dr. Crother's long study of narcotic problems at first hand as Superintendent of Walnut Lodge Hospital, at Hartford, has peculiarly fitted him to deal with this question from the standpoint of physician and scientist. This work is the outcome of more than twenty-five years of clinical experience and actual treatment of patients suffering from some form of narcomania. In it he discusses with great clearness and force the various drug addictions of our time, grouping general facts, outlining frequent causes and symptoms and suggesting methods of treatment and prevention. Practical questions relating to the care and cure of neurotic patients of these types are considered, and practical aid is given toward their solution. Although a distinct and valuable contribution to psychopathic literature, the style of the book is simplicity itself and as such commends itself to the lay student as well as to the medical expert.

PHYSIOLOGY TOPICS FOR DECEMBER

Primary—Parts of the Body used in finding out things: Five Senses. Food: what becomes of it after it has been eaten. Alcoholic drinks.

Intermediate—Bones and Joints. Secretion. Organs of Excretion.

Advanced—Organs of the Body. Muscles. Food and Digestion.

(Continued from page 57)

ers that when pupils come to them having acquired such habits to any extent, they find the work of reformation a very difficult task.

It is claimed that the study will be an unnecessary repetition if pursued from year to year. This is not true, if the subject is graded as it now is in the best manuals of instruction which furnish fresh information each year.

In conceding that the study may be omitted in the ninth year and in years beyond the first year in the high school, if pursued the first year of the high school, are we not evading the requirement of the law that this study "shall be taught all pupils in all schools?"

No, because the accompanying clause of the law, "shall be taught as a regular branch," means not only that it shall be taught in the same manner as other regular branches are, *i. e.* with text-books in the hands of pupils who have books in other studies, but that when the pupil has mastered as much of the study as is adapted to a department of the public school he may drop it to be taken up in a more advanced stage, as he does other regular branches. Experience shows that this study can be covered in a minimum of three lessons per week for ten weeks each of nine school years. Therefore, it is no evasion of the law not to continue the subject after as much of it as is adapted to public school study in the grammar and high school has been mastered. Because of the disposition to evade this provision of the law, many of the states have specifically stated in what grades the study shall be pursued, with acknowledged profit to the children and society of which they are a part.

The School Physiology Journal

Contents

PUBLISHED AT
BOSTON, MASS.
MARY H. HUNT, EDITOR

VOL. XII. NO. 5
JANUARY, 1903

School Physiology Journal

Vol. XII *BOSTON, JANUARY, 1903* *No. 5*

OCTOBER 20, 1902

BY MARY H. HUNT

IN response to urgent requests, we reproduce for JOURNAL readers the representation of the Department of Scientific Temperance Instruction in the public schools as set forth on Demonstration Night at the late annual convention of the National Woman's Christian Temperance Union in Portland, Maine. For the benefit of those wishing to reproduce the exhibition, certain features are somewhat more fully developed here than was possible in the limited time at our disposal in Portland.

Scene, Jefferson Theater, Portland, Maine.

The National Superintendent of the Department of Scientific Temperance Instruction in schools and colleges came upon the large, beautifully decorated stage accompanied by a standard-bearer carrying a banner on which was inscribed the name of the department. Immediately the large temperance education map of the United States, for the first time showing all the states in white because scientific temperance is now a mandatory study in all the public schools of the nation, slowly descended from the ceiling and hung just above the heads of the actors in full view of the audience.

Stepping to the front, the Superintendent said:

You have heard of the Loyal Temperance Legion and its work in training its members, boys and girls 200,000 strong, to become the future temperance workers of this country. That is a grand work, but this is a government of majorities, therefore the success of these future temperance workers when they come to their kingdom will depend upon their finding a majority of the people in this land not wanting to drink alcoholic liquors, but anxious to have them abolished. If the Loyal Legioners were all we had in training against alcohol and the saloon, the 200,000, when grown up, would find themselves in the same condition now facing us in many portions of our country, namely, a splendidly trained minority fighting against the odds of an unenlightened majority who believe in alcoholic liquors, drink them, and do not want their manufacture and sale abolished. If our education of the young were confined to the Loyal Temperance Legion, grand as that work is, our labors for a day when this whole people and land will be free from the slavery of alcohol would be almost hopeless. But we present to you a line of work through which we are educating not only a majority but all the children of this nation as found in its public schools to intelligent obedience to the laws of health, including those that teach the physiological reasons for total abstinence from alcohol and other narcotics.

The gravest incentives to Christian patriotism impel us to this effort. We are trying in this country a new and dangerous experiment. Other great nations are composed of one or at most two or three races, with similar tastes, tendencies and histories. The ancient Gaul is represented in the modern Frenchman, the German is a Teuton, the Russian a Slav, the Italian the descendant of the wolf-fed Romulus, the Englishman is a union of the Anglo-Saxon and Norman. But in the United States, a land with the boundless resources of all zones, God is evidently making a new race by mingling the blood of all peoples into one new type. Only a superficial mind will attempt to explain God, but he explains Himself in the story of the centuries as they unfold their history. This continent, hidden beyond the mysterious seas, was unknown to civilized man until it was time to get it ready for freedom-loving, God-fearing men and women who could be depended on to brave the wilds of a new world, stay here and become the nucleus af a great free nation. When that time arrived, Columbus came and the Spaniard. Here comes a representative of Spain bearing the flag of his nation.

Enter boy bearing a Spanish flag. He comes to the front of the stage.

Superintendent: The Spaniards, coming for gold and conquest, were out of harmony with the future destiny of this nation which from the beginning was dedicated to liberty. The Spaniard, left no permanent settlement in the United States, and they recently retired from Cuba, at our request, so that now Spain does not own a foot of land on the western hemisphere.

Enter girl bearing the flag of Holland. She stands beside the Spaniard.

Superintendent: First of all permanent settlers came the Dutchmen, Father Knickerbocker's ancestors, landing in this country even before the Pilgrims. Senator Depew says, "Holland, at a time when there was no light for man elsewhere in the world, preserved the principles of civil liberty. For a century Holland was the safe deposit company of the rights of men." Thus the Dutch had common ground with those who came next.

Enter, standing in line with the Spaniard and Hollander, boy and girls bearing English flags, representing England, Scotland and Wales.

Superintendent: This race brought with them the Bible, the fear of God, love of home, of fair play, and therefore trial by jury, and a genius for liberty. From the first, they seem to have been divinely chosen to dominate the new world, not so much by might as by right and conscience.

Enter an African boy taking his place in the ranks without a flag, thus representing a race without an established government of its own.

Superintendent: Next came a people of whom Booker T. Washington said, "The African is the only race especially invited to this country with an irresistible invitation." The wrong of that "irresistible invitation" to a land dedicated to liberty entailed four years of bloody war in which this country, as Lincoln said, "sank all the wealth piled up by the bondsman's two hundred and fifty years of unrequited toil and paid every drop of blood drawn with the lash by another drawn by the sword.' The history of nations as well as of individuals echoes down through the centuries the divine mandate, "Whatsoever ye sow, that shall ye also reap."

Enter girl bearing French flag.

Superintendent: In those long ago days when the destiny of the country was being shaped, Louis XIV. was determined that the lilies of France should float over this land. But such was not the divine plan, and long, bloody wars drove the French legions farther north, and decreed that our country should be New England, the home of English-speaking peoples, instead of New France. The Huguenots stayed, giving something of French vivacity to the solemn strain of Puritan blood in the new race that was being evolved, and we must not forget that later France bravely helped in our struggle for national freedom.

Enter, joining the others, a boy bearing the green flag of Ireland.

Superintendent: Here comes the Irishman. What this country would have done for policemen, ward politicians, aldermen, and even mayors, if the failure of the potato had not driven the Irishman to our shores, who can tell?

Enter boys and girls with German flags.

Superintendent: Now comes the German, driven from the fatherland by revolution, bringing to us brain and brawn and, alas, beer.

Enter boys and girls bearing the flags of their respective nations as the names of their countries given below are called.

Superintendent: As years rolled by, the story of the wealth and liberty of this land beckoned great hosts from the revolutions and oppressions of the old world, and their people poured in upon us from Norway, Sweden, Denmark, Greece, Portugal, Belgium, Switzerland, Japan, China, Mexico, South America, Russia, Finland, Austria-Hungary, Italy, the Orient, and from every other country under the sun. Six hundred thousand, a real army of invasion, are coming to us this year, and still they come.

Can this mixed multitude be so permanently united in one great self-governing nation that it will withstand the stress and strain of time, is the burning question before us. Can we be so assured of the capacity for self-government of these many peoples from many lands that we may reasonably expect our republic, growing in strength and virtue, will survive a thousand years and more if the world shall stand as long?

Not unless alcohol is banished from the habits and traffics of its people, for alcohol destroys the capacity of man for self-government. It is its nature to dethrone in the human being that kingly quality of self-control without which a government of the people must perish.

Can alcohol be thus abolished? Yes. We depend upon education for the perpetuity of our institutions. A republic has no power with which it can compel majorities. It can only educate them to right choice and then depend on results. This nation has provided for the necessary education on this subject. The white map over our heads tells the story of the laws of this land requiring the 22,000,000 children in all its public schools to be taught, with the laws of health, the evil nature and effects of alcoholic drinks and other narcotics. As this teaching goes faithfully on, the power of alcohol is being weakened, and the drinking id eas brought from other lands are giving place to the teachings of the new world. The whilom immigrant rapidly becomes an American.

Turning to the ranks with their foreign flags, the Superintendent said, You are here, children, representing many nations. Are you now

Spanish, Dutch, English, French, German, Irish, and so on? What are you?

Instantly the children dropped their foreign flags, and waving the stars and stripes which heretofore they had held down at their sides, in loud and clear voices they shouted altogether, "We are Americans!" Then, led by the piano, and keeping time with the flags, their strong young voices rang out:

"My Country, 'tis of thee,
Sweet land of liberty," *etc.*

At the close of the song, enter a tall figure, dressed in star-bespangled coat and vest of blue, pantaloons of striped red and white strapped under his feet, and a bell-shaped hat with broad star-decorated band, a veritable reproduction of the tutelary genius of the Republic, Uncle Sam.

Approaching the front of the stage, he shook hands with the Superintendent and turning to the children said:

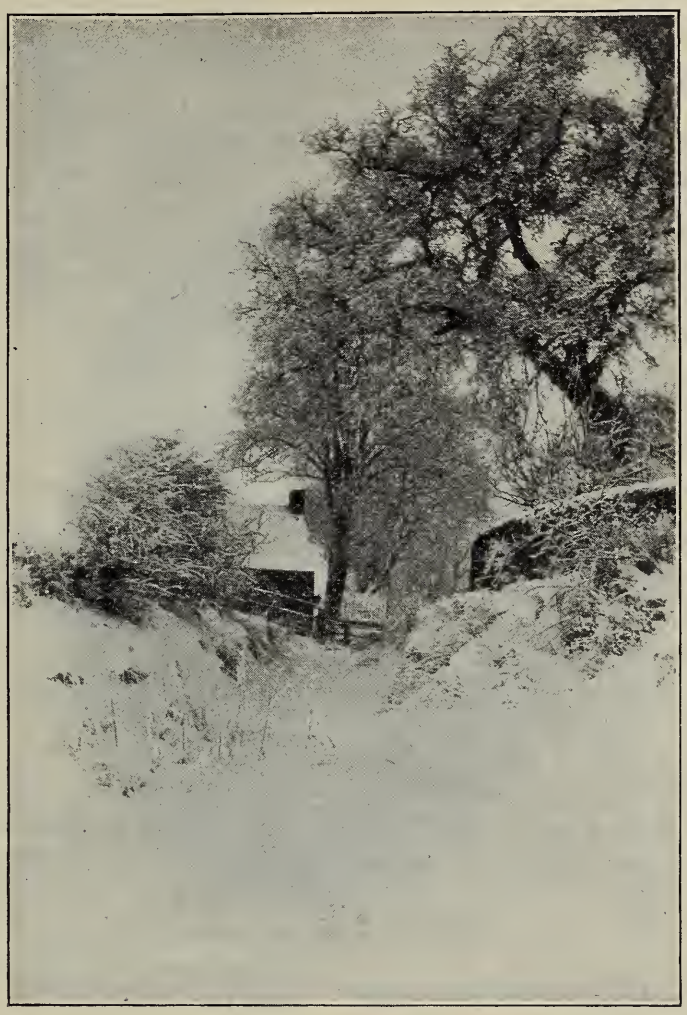
These represent the children of my 75,000,000 people. They are my future men and women.

Then turning to the Superintendent and delegates, he said:

I want to thank you for helping me get the order on my statute books requiring the millions of children in my public schools to have a temperance education. My people will make laws in favor of saloons until they are taught better, and if they are not taught better the saloons will destroy my government of the people, so we must hurry up this temperance teaching. While I thank you, Woman's Christian Temperance Union workers for scientific temperance, for what you have done, I bespeak your co-operation in keeping unweakened these laws on my statute books and in getting them well enforced, especially in the lower grades of my schools, because so many of my future men and women early leave school to go to work. If you will drill temperance truths into the heads of my little folks and young people, we shall keep the stars and stripes floating over this land for all time, and make it truly "the land of the free and the home of the brave."

Superintendent, turning to Uncle Sam: In behalf of the Scientific Temperance Instruction Workers in the Woman's Christian Temperance Union here present, and in all your great land from ocean to ocean, from the lakes to the gulf, and in your new possessions, for these workers are everywhere, we solemnly pledge you to work without ceasing for this education for all the children, and, especially, as you ask, for those who early leave school to enter your workshops and fields, that thus, ere many more decades shall pass, your flag shall float over a land of people free from the alcohol bondage and without saloons.

Then, taking Uncle Sam's proffered arm, they left the stage, followed by the children waving flags and singing the "Star Spangled Banner."



"On turf and curb and bower-roof
The snow storm spreads its ivory woof"

Announced by all the trumpets of the sky,
Arrives the snow, and, driving o'er the fields,
Seems nowhere to alight: the white air
Hides hills and woods, the river, and the heaven.

—*Emerson.*

THE LITTLE NEW YEAR

Oh, I'm the little New Year, oh, ho!
Here I come tripping it over the snow,
Shaking my bells with a merry din,
So open your doors and let me in!

Blessings I bring for each and all,
Big folks, and little folks, short and tall,
Each one from me a treasure may win,
So open your doors and let me in!

For I'm the little New Year, oh, ho!
Here I come tripping it over the snow,
Shaking my bells with a merry din,
So open your doors and let me in!

—*Songs and Games for Little Ones.*

Primary Lessons

SECOND YEAR

SOME NEEDS OF THE BODY

HOMER says of certain of his heroes that "not without good right do they eat the fat and drink the sweet, for they fight ever in the front."

From Homer's day to this, his statement has held true. If we want to get the most out of our bodies, we must put only the best materials into their making. The same inexorable law pushes the beer-drinker and the cigarette fiend far to the rear. They have invested little capital in their bodies and must be content with a proportionately small income. American life is the most strenuous in the world. The newly landed immigrant finds he must count for two and a half times as much here as at home to equal our native workmen, and almost invariably he fails. But there is hope for his children, and it is they whom the schools are trying to reach. If they win their way to the front with other heroes, it will not be because life has been made easy for them, but because they have been made strong enough to grapple with it successfully.

(1)

PURE AIR

The child, like the adult, must realize for himself the needs of his body before he will take steps to supply them. Hunger shows him at the outset that food is necessary, and he loses no time in trying to get it, but the need of oxygen is not always apparent. For this reason he should be so accustomed from infancy to pure air that he will be uncomfortable without it.

This responsibility lies mainly with parents and teachers, but the child's own co-operation is important and the lessons which follow are prepared with this end in view.

CLASS TALK

How does the house look at home after people have been working in it all day, and children have been running in and out? What does Mamma do to make it sweet and clean again?

Each of you has a little house of your own to take care of. You carry it around with you all the time, just as a snail does his shell. What is the name of this little house? Write the word, body, on the board.

Point to this little house of yours. Does the outside of it ever get dirty? What do you do then? How often does your face need washing to keep it clean? Your hands? The rest of your body?

Perhaps you will be surprised to know that the inside of your body needs to be kept clean as well as the outside. We can not wash this with soap and water, so we have to keep it clean in some other way.

You know how you air your bedrooms at home every morning, opening the windows so the sweet pure air from outdoors can blow in, and all the impurities can blow out. We take air into our body houses for the same reason, and besides keeping them clean on the inside it helps to keep us alive. Nobody could live very long if he did not have plenty of air to breathe.

Find the little windows which let the air into our bodies. How many are there? There is a door, too, that can be used when we need an extra amount of air in a hurry, or when we have colds and it is hard work to open the windows, but is always better to use the windows when we can. That is what they are for.

ACTION STORY

Stephen and Rachel were flattening their noses against the window watching for Uncle Ned. (Peer out through thumb and fore finger)

"Here he comes!" they shouted, (Clap hands joyously) and both children ran to meet him as he came up the steps. (Fingers run on desk)

They did not want to go to bed at all that night, (Shake head) but Uncle Ned said he would go up stairs (Climbing motion with fingers) with them and sing them to sleep.

"I wish I could sing like you," said Stephen. (Clasp hands eagerly) "Do you suppose I can when I am grown up?"

"Perhaps you will sing better, but you must learn how to breathe first. You and Rachel stand up in front of me and I'll show you how. (Class rise and imitate motions of teacher)

"Put your hands flat on your chest, and see how high you can raise them when you breathe in. All ready, now. One, two, three.

"That was too fast. You could not sing a line without taking breath at that rate. Try again, and don't get ahead of my count.

"Bravo! Now try a new exercise. Stand squarely on both feet, arms at the side. Raise arms at sides as high as your shoulders and breathe in while I count. Slowly, now. One, two, three.

"Rest a minute. Now try again, lowering arms to your sides and breathing out. Play you are pushing something down. Ready, now. Breathe in. One, two, three. Breathe out. Three, two, one.

"Now I will sing your favorite 'Wynken, Blynken and Nod,' for you to go to sleep on, and tomorrow night we'll have another lesson."

POINTS TO REMEMBER

Pure air helps to keep us alive.

It keeps the inside of the body clean.

It gets into the body through two little windows in the nose.

We should breathe through the nose instead of the mouth.

(2)

FOOD

Early knowledge of what food does for the body is necessary that the child may choose what is best for his body, instead of eating only for the momentary gratification of his sense of taste.

CLASS TALK

Find whether any of the children have seen a garden being made, or have helped to make one themselves. What was the first thing to be done? Why is the gardener careful to have good rich soil? to give his plants plenty of water? to keep them free from weeds?

Each of us has something to take care of and make grow, something a good deal more important than any plant. What is it? Our bodies.

These are not planted in a garden like corn and potatoes. They are free to run about wherever we like, so they need very different care from plants. Who can tell one thing they must have?

Write the word, food, on the board. What would happen if we should stop giving our bodies any food? If we should give them only a little?

If we want tall, strong bodies we must give them all the food they need, but if we eat too much it may make them sick and so stop their growth. How can we tell when they have had just enough? We have a good little servant who always lets us know. His name is Hunger. When he leaves us, it is time for us to go away from the table and stop eating. If we nibble between meals we keep our bodies at work all the time. They do not like such treatment.

We should get very tired of eating only one kind of food, so there are many kinds we can have. Name some foods that grow in the ground; on top of it; on trees; bushes; some foods that come from animals.

Ask the children to tell what they would like for breakfast, dinner and supper. If a poor selection is made in any case, tell why it is not good for the body, and substitute something else in its place.

"Here he comes! they shouted."

READING LESSON

A gardener spades up the ground and makes it very soft and fine before he sets out his plants.

He gives them good rich soil to grow in and plenty of water to drink.

He pulls up all the weeds, so his plants will have room to grow.

We have our bodies to take care of. They are worth more than any plant.

Our bodies need food to make them grow tall and strong.

If we did not eat at all, our bodies would starve and die.

If we do not eat enough, they will not grow so well as they ought.

If we eat too much or too often, they will have to work too hard.

When we are no longer hungry, it is time to stop eating.

(3)

DRINK

Even stronger than the desire of food is that of drink. For this reason the child can not know too early in life what drinks to choose and what to avoid.

CLASS TALK

Read aloud or recite parts of Tennyson's "Brook" or Southey's "How the Water comes down at Lodore." Ask where a brook comes from; where it goes; what it is good for; why we like it.*

*See picture on page 73

What do we give our plants when the leaves droop and the soil looks hard and dry? How do they look after they have had a good drink?

Tell the children that a large part of our bodies is made up of water and that the body needs water every day in order to do its work. This is what makes us thirsty so often.

Where does our drinking water come from? Make the class familiar with the sources of the town or city water supply, whether river, lake, or reservoir, taking them to visit it at some time during the year.

There is another good drink which is a food as well. What is it? Write the name, milk, on the board. Ask where it comes from, and help them to trace its source back to the cow.

Find what other drinks are familiar to the class, and in what light each is already regarded by them. Classify tea and coffee as drinks for grown up people, not for children, and soda waters, lemonades, etc., as treats rather than drinks for every day use. Who can give a reason?

Bring out the cost as one objection. It is not right to spend much money on things which please us only for the moment. Also such drinks are often stale and so not good. Contrast with water which costs nothing and is just what the body needs.

If beer, wine, cider or other alcoholic drinks are named, tell why each is dangerous both to children and grown people.

Show fruits and grains from which such drinks are made. These are good food for everybody. Press out a little fruit juice. This is good too, but after it stands awhile, as it always does when it is to be made into a drink, it is spoiled for food. A bad substance, alcohol, is formed in it which has the power to hurt people, so we should never touch such drinks.

POINTS TO REMEMBER

Water keeps plants and flowers alive.

A large part of our bodies is water.

We need water to make our bodies grow and to help them do their work.

It is the best drink for everybody.

Milk is a food as well as a good drink.

Tea and coffee are not good drinks for children.

Lemonade and soda waters are not the best drinks for everyday use.

Beer, wine and cider are bad drinks. We will let them alone.

(4)

CLOTHING

Cold weather makes the need of clothing very apparent to the child and is thus a favorable time for class work on this topic.

Show the picture of the snow baby reproduced on page 71 and tell the story of

LITTLE AH-NI-GHI-TO

The baby girl with this very long name was born hundreds and hundreds of miles away in the land of the Eskimos. Those queer little brown people had never seen a white baby before, and many of them came a long way to see her. How do you think Ah-ni-ghi-to was dressed when she was big enough to go outdoors? She would freeze to death in such clothes as you have on when you go coasting or snowballing.

She wore a little Eskimo suit made all of fur. It was in two pieces, a fox skin coat with a hood, and deer skin trousers fastened to her ankles with a draw-string. Fur boots were sewed to the trousers, and in this warm dress she could play out in the dreadful cold just as if she had been a little polar bear. But even in that cold land it gets too hot for furs in the summer time, so then these were put away, and Ah-ni-ghi-to wore woollen gowns, and a little sunbonnet to keep her face from getting burned.

When she was a little older she came home to this country to live, and now she dresses just as you do.

LESSON TALK

Why did little Ah-ni-ght-to wear fur clothes? How were they made? How were they different from ours?

Get the children to tell how and why their own dress differs in summer from that worn in winter? Who wore Ah-ni-ghi-to's dress before she did? Where does our clothing come from?

Name different articles of clothing in the room; coats, dresses, shoes, stockings, and tell the children the material of which each is made, if they do not know already.

What shall we wear on our feet in wet weather? Explain why rubbers are better than leather shoes for such wear, and also why these should not be worn in the house.

How shall we take care of our clothes? Every child who is well brought up at home will have something to add on this point, and the others will learn much from them. Tell why the same clothes should not be worn both day and night, but be given a chance to air.

(5)

SHELTER

No matter how warmly dressed he may be, the child soon learns that additional protection is needed against cold and storms. Thus the

next topic is naturally the home, what it does for him, and what he should do for it in return.

CLASS TALK

Choose a stormy day for this lesson, one on which all the children will be glad to be indoors. Call attention to the fact that they have on warm clothes, and ask if these would keep them comfortable if they had to eat, sleep and live outdoors. What else is needed?

Show pictures of homes in different lands, palaces of the wealthy, peasant's cottages, the Indian's wigwam, the snow hut of the Eskimo, the broad verandas of tropical houses. Get the children's ideas of each as they look at the pictures. Supplement their statements as may be necessary to give them a good general idea of the differences in houses in warm and cold countries, and also among civilized and savage peoples.

Sketch on the board an attractive house, and tell the children to play that it belongs to them. It is just being built, so we can have it just as we like. What rooms shall we have in this house of ours? Write the name of each on the board as it is given.

Of course we must have a kitchen. What for? What furniture will be needed here?

What is done with food after it is cooked? What do we call the room in which we eat? What do we need in our dining-room?

Go through all the essential rooms of a house in the same way, not forgetting the bathroom and cellar, and have the children furnish each in imagination, after telling why such a room is needed.

A home does a great deal for us. It protects us from cold and storms, and it gives us a place to live. What can we do in return? We do not want to get all this for nothing.

Give each child a chance to answer. The question may perhaps be left on the board a day or two while all think of ways to make home pleasant and happy. Write each answer on the board as soon as given, and read the entire list over occasionally with the children.

Little Ah-ni-ghi-to *

READING LESSON

Our homes keep us warm in winter.

They keep off the hot sun, and rain and snow.

They give us a place to eat and sleep and entertain our friends.

In return, we can help to keep the home neat and tidy.

We can clean our feet every time we go into the house.

We can put everything in its place when we are through with it.

We can play quietly in the house and not disturb others.

We can shut doors after us without banging them.

We can be careful not to break or spoil anything in the house.

We can run errands pleasantly.

We can help Papa and Mama.

JACK FROST

Who makes our Tommy's nose so red?
Nips his hands if he draws his sled?
Bites his toes when he goes to bed?
Jack Frost.

Who paints his cheeks and nips his ears?
Who from his eyes draws big, round tears?
Who comes to see us every year?
Jack Frost.

Who covers window panes at night,
With picture castles all in white?
But always keeps quite out of sight.
Jack Frost.

Whom do the boys all love to greet,
As he comes creeping down the street?
They know his coming means a treat.
Jack Frost.

And who skips up the chimney wide,
To find a place in which to hide,
When we sit around the fireside?
Jack Frost.

—ALICE LOTHERINGTON, *in Kindergarten News.*

Grammar Lessons

FIFTH OR SIXTH YEAR

THE ORGANS OF BREATHING

"God ne'er dooms to waste the strength
He deigns impart."

CHILDREN, even in royal nurseries, are not intrusted with costly playthings until they are old enough to appreciate and use them carefully. But the human body, which is infinitely more valuable than any toy, is given to each of them at birth, and they have to find how to take care of it by actual experiment on the thing itself. If one makes a mistake and spoils it the damage is irreparable. He can not throw it away and buy another for there is nothing like it in all the world.

Early instruction, therefore, in the uses and care of this wonderful piece of mechanism is more needed than in any other subject. The child must study the body as a whole and the workings of its various parts; he must learn what will promote its well being and what must be shunned because of the possibility of harm; and he must begin this work in early childhood before he has formed habits which he may have to reform.

The lessons on the human body which have been selected for this month deal with one set of organs for purifying the body. It has been well said that "our own breath is our greatest enemy." It is also an enemy that can not be defeated and driven off once for all. Everybody must face its attacks many times a minute as long as he lives. Our hope of safety lies in making these attacks harmless by flooding our lungs and houses with pure air and sunshine.

In lower grades, pupils have learned how air gets into the lungs, and something of its work there. They need now to amplify these topics, and in addition to study the organs with which we breathe, their position, size, shape and fitness for work, the relation of this work to health, and how their efficiency may be increased or diminished by the way we live and the care we take of them.

LOCATION IN THE BODY

Stand facing the class and breathe slowly and deeply several times, while they watch to see what parts of your body move. Repeat, standing sidewise, and again with your back towards the class to give all points of view.

What part of your ribs moves? In what direction? What keeps the ribs from moving at the back? Show from the chart how they are attached to the backbone.

Provide a tape measure and have the pupils find how much they can increase their chest circumference by taking a full breath. Give the name, thoracic breathing, to this outward movment of the chest. Why is it so called?

Have the class sketch the bony framework of the chest as it appears in inspiration and again in expiration, explaining how and why the two drawings differ.

Let dotted lines indicate the position of the lungs, bronchi, trachea, and nasal passages in each drawing. Text-book study of the physiology of all the breathing organs will necessarily precede this work, and books may be consulted afterward to make necessary corrections, but should not be allowed while the drawings are being made.

Ask what supports the lungs at the bottom, and have the diaphragm added to the drawings. Again take a full breath, asking the class to watch especially the movements of the abdomen, until they can describe the same.

Give the name, abdominal breathing, to that caused by the lowering of the diaphragm. In what different way is the chest enlarged by abdominal breathing than by thoracic? Why are both kinds necessary?

What neighbors have the lungs above the diaphragm? Have the class point out the location of each of these organs in their own bodies, and then estimate the proportionate amount of space in the trunk that is taken up by the breathing organs. What does this show as to their relative importance?

RELATION TO HEALTH

Contrast the appearance of even the neatest schoolroom in the morning and at night after the day's work is over. Do the same with the home kitchen or some well known workroom, bringing out the thought that no kind of work can be done without leaving some waste or refuse behind.

Call for examples of work done in the body; *e. g.* the constant beating of the heart; the digestion of food, the growth and repair of the different organs. None of this work can be done without waste, and if this is not got rid of we get sick.

What do we call the people who remove waste from our houses and cities? The breathing organs are one set of scavengers for the body.

Let the class find by experiment what kinds of waste are carried off by these organs. Have some one breathe through a piece of tubing into a glass of lime water. What change takes place in the water? Explain that there is only one thing which turns lime water milky, carbonic acid. Have different ones breathe on pieces of cold glass. How does this make the glass look? Name this second impurity given off through the lungs. How does a room smell after it has been shut up for some time with people in it? This close stuffy odor shows that worn-out particles from the different organs of the body, organic particles we may call them, have been given off from the body through the lungs. Have some one write on the board these three kinds of waste matter which the breathing organs are constantly throwing off —carbonic acid, water, organic matter. Find how each is harmful to the body.

"Never ending, but always descending,
The water comes down at Lodore."

Examine the veins on the back of the hand. What color is the blood in them? What color is the blood when a vein is cut? Give the reason for this difference in the color.

The heart is all the time sending the impure blood of the body to the lungs. There the oxygen we breathe purifies it, and so changes its color from dark purple to bright red, just as it does in a cut where we can see the change.

In this way the organs of breathing are feeders of the body as well as scavengers. Write the name of the substance they supply opposite those waste matters which they remove.

Find how many in the class ever cured a headache by going outdoors. How many have found that they can get a lesson better after recess than just before? How many have ever felt sleepy in church? Call for the reason in each of these cases.

It is estimated that every person ought to have 600 cubic feet of room and to have all the air in this changed five times every hour. Have the class find how many cubic feet in their schoolroom there are for each pupil, and how often it will have to be changed to meet this standard. Have all find out the same in regard to their sleeping rooms at home. Ask each to suggest a means of ventilating, and have the best written on the board.

INJURY FROM ALCOHOLIC DRINKS OR TOBACCO

Insistence upon an abundant supply of pure air in the schoolroom and home, until the youth feels its lack at once when deprived of it, is a long step towards keeping him from the use of tobacco and other narcotics. But precise knowledge of the way in which these substances harm the breathing organs and interfere with their work is also necessary.

Introduce such facts when discussing each of these topics. When the class learn that the breathing organs furnish the whole body with oxygen which it must have or die, see that they learn also that tobacco and drinks with alcohol in them pollute this necessary oxygen and lessen the amount which the body gets.

In the same way, as soon as they find that the breathing organs are necessary scavengers of the body, make sure that they learn how this work of removing waste is hindered by the use of alcohol or tobacco.

When they study the delicate structure of the breathing organs, and remember from experience how the throat looks and feels when one is suffering from a cold, have them find how smoking and drinking affect these organs.

Two of the most dreaded diseases in every community are pneumonia and tuberculosis, and both are diseases of the breathing organs. If the body is kept constantly supplied with oxygen, and if its waste matter is promptly got rid of, the system ordinarily will be too strong and healthy to allow the microbes of either of these diseases any foothold. Why is the smoker or drinker more likely than others to contract tuberculosis or pneumonia, and having contracted either less likely to get well?

Refer the class constantly to their books in considering these questions, to the authoritative quotations which follow, and to all other available sources. The thought to be left with them is that if it is worth while growing up to manhood and womanhood at all, it is worth while trying to be the very best possible men and women; it is worth while to put the best materials into the building of their bodies and minds, and to leave out everything which weakens and degrades.

AUTHORITATIVE QUOTATIONS

ALCOHOLIC DRINKS INJURE THE RESPIRATORY SYSTEM

BY CHECKING THE REMOVAL OF WASTE

Purity of blood encourages health; its impurity encourages disease. Whatever lessens the normal amount of oxygen cripples the functions of the body.

Nearly all experiments have shown that under the influence of alcohol the normal amount of carbon dioxide exhaled by the lungs is decreased.—J. W. Grosvenor, M. D., Buffalo.

BY ROBBING THE SYSTEM OF OXYGEN

Alcohol robs the system of oxygen, and a man suffers from disease in proportion to the amount of alcohol he consumes.—Dr. Allinson *in the Temperance Record.*

BY ACTING AS A RESPIRATORY POISON

Alcohol should be regarded as a respiratory poison, because it interferes with the interchange of the gases of the entire body by disturbing the normal life processes of the individual cells.—August Schmidt, M. D.

Its [alcohol's] effects upon the lung tissues, and the nerves supplying the same, have led some writers, very appropriately, I think, to denominate it a respiratory poison.—D. R. Mann, M. D.

BY FAVORING TUBERCULOSIS

The public house is the purveyor of tuberculosis. In fact, alcoholism is the most potent factor in propagating tuberculosis. The strongest man who has once taken to drink is powerless against it.—Professor Brouardel of Paris.

TOBACCO INJURES THE RESPIRATORY SYSTEM

BY IRRITATING THE MUCOUS MEMBRANE

Cigarette smoking irritates and poisons the mucous membrane, perverting its action, affecting digestion, the brain, heart, lungs and liver, shatters the nervous system, and ruins body and mind.—B. Broughton, M. D.

BY PRODUCING INFLAMMATION OE THE THROAT

One of the commonest effects of indulgence in tobacco is a chronic inflammation of the throat and upper respiratory passages, leading to hoarseness and excessive secretion of the mucous glands.—Arthur R. Cushny, M. A., M. D., Professor of Materia Medica and Therapeutics, University of Michigan.

BY IRRITATING THE LUNG TISSUE

I consider cigarette smoking one of the most harmful ways of using tobacco. The smoke from the cigarette is not so strong as from the cigar or pipe, and it is in this way often that the habit is started; the smoke being mild and not so irritating, it is usually inhaled into the lungs. In this way not only the lung tissue is irritated, but the poisons from the tobacco directly enter the blood and are carried to all parts of the system.—N. S. MacDonald, Principal of Richmond Hill Public School.

BY CAUSING INHALATION OF CARBON DIOXIDE

Through nicotizing the blood, as well as vitiating it by the inhalation of carbon dioxide and other substances contained in the smoke, cigarettes seriously impair general nutrition.—Chas. L. Hamilton, M. D.

BY CAUSING CATARRH

Even in those who are used to it, tobacco smoke may produce catarrh of the pharynx.—White & Wilcox's *Mat. Med. and Therapeutics.*

BY PRE-DISPOSING TO DISEASE

The catarrhal disturbances of the air-passages render the smoker more liable to dangerous and fatal diseases of the air-passages. Every case of laryngeal tuberculosis coming under my observation for several years has presented a history of the victim being a smoker, in the majority of instances to excess.—I. N. Love, M. D.

WHERE FIELDS LIE WHITE

Where fields lie white beneath the snow
The grasses sleep.
Here cold wild winds of winter blow.
Yet soon will April raindrops weep
And happy sea born breezes go
Singing landward, soft and low,
Where fields lie white beneath the snow.

Still listening for the call they know
Life's mysteries are,
Here by the water's ebb and flow.
Yet, soon each grass blade scimitar
Shall taper, slim, toward skies that glow,
In joyance waving to and fro,
Where fields lie white beneath the snow.

—Ellen Brainerd Peck, in *Town and Country.*

School Physiology Journal

COPYRIGHT APPLIED FOR

Single Subscription.....$0.60 a year

CLUB RATES

Clubs from 5 to 50. .....$0.50 each
Clubs of 50 and over..... .40 each

Please remit by post office or express money orders, draft on New York or Boston, or by registered letter.

MARY H. HUNT, EDITOR
HENRIETTA AMELIA MIRICK, Assistant Editor

Published monthly at 23 Trull St., Boston, Mass.
SEPTEMBER TO JUNE, INCLUSIVE

Entered at the Post Office at Boston as Second Class matter

OUR DEBT TO HONEST SCIENCE

FROM the earliest ages people have liked alcoholic drinks, and thinking them harmless if moderately taken, have drunk them. The moderate use having the power to create the immoderate, drunkenness and demoralization follow. Thus a false premise concerning the nature and effects of alcohol is the root of alcoholism, the greatest menace facing modern civilization. The correction of this false premise, the first step toward the removal of this curse, waited for the advent of modern experimental science.

There never lived a more able and conscientious scientific investigator than Sir Benjamin Ward Richardson, M. D., LL. D., F. R. S., F. R. C. P. At a medical conference in Oxford, in accounting for his experiments to find the real nature and effects of alcohol, he said:

"For my own part I was ignorant, and that is why I sought for certain knowledge. To the research I devoted three years, namely, from 1863 to 1866, modifying experiments in every conceivable way, taking advantage of seasons, extending observations from one class of animals to another and making comparative researches with other bodies of the alcohol series than the ethylic or common alcohol.

"The results I confess were as surprising to me as to any one else, from their definiteness and uniformity. They were most surprising for the complete contradiction they gave to the popular idea of alcohol."

At another time he said:

"I learned purely by experimental observation * * * that alcohol can not by any ingenuity of excuse for it be classified among the foods of man. It supplies matter neither for construction nor heat. On the contrary, it injures construction, and reduces temperature."

In reply to the question if his experiments did not reveal evidence of some good service as well as bad rendered by alcohol as a beverage, he replied:

"I answer that question *that there was no such evidence whatever and is none.*"

He and others learned from experimental science that alcohol is not only not a food but that it is a narcotic poison, having the power even when taken in small quantities to create an uncontrollable and destructive appetite for more. Hence no one can be sure that its moderate beverage use will not end in alcoholic enslavement of the user.

When great events are passing, men seldom recognize them as great and destined to powerfully influence the future. We are yet too near these experiments to comprehend their full meaning, but when the perspective of time shall reveal the relation of cause to effect in human betterment, the historian of our civilization will cite as epochs in the emancipation of the race from its greatest enemy these discoveries of Sir Benjamin Ward Richardson, followed by those of Drs. Adolf Fick, Emil Kræpelin, A. Forel, Gustav W. Bunge, J. Gaule, and E. Destrée in continental universities, of Dr. N. S. Davis in our own country, and others who through experimental science have revealed the real nature and effects of alcoholic drinks.

As the drink problem has its roots in the idea that a moderate amount of alcohol is harmless, the testimony against it as a beverage in all forms and amounts by these honest searchers for scientific truth recalls what the historian, Hallam, said of a certain victory over the invading Saracens: "It may be justly reckoned among the few battles of which a contrary event would have essentially varied the drama of the world."

Dark would be the world's drama of the twentieth century if these men had juggled with the findings of their laboratories to condone the beverage use of "two and one-half ounces of alcohol per diem," as suggested in the reports of Prof. Atwater's experiments. To have done that would have been a crime against humanity without parallel, involving national disaster, for the strength of the nations is that character of the people which it is the nature of alcohol to destroy.

The manner of this country in dealing with these discoveries as contrasted with that of Europe is a good illustration of the saying of the dean of one of our industrial colleges, "It is preeminently an American tendency to apply knowledge as soon as acquired." While our brothers across the ocean were filing away in scientific alcoves the reports of these discoveries, we have put them into progressive manuals of instruction adapted to all grades of our public schools, and have enacted laws

making the study compulsory for all pupils in these schools throughout our entire country.

Many previous temperance agitations from a moral standpoint have, in a measure, prepared our people for the strong testimony of science against alcoholic drinks which our children are now learning. Nevertheless, I have said from the first, this teaching must be invulnerable, for the time will surely come when it will be challenged point by point by old ideas backed by appetite and the avarice that fattens on meeting the demands of appetite. That the challenge did not come sooner is due to the fact that the work has gone quietly on without the blare of trumpets. On June 13, 1899, the challenge was thrown down by Professor W. O. Atwater, in declaring that this beneficent teaching in our public schools, Sunday schools and pulpits should be changed to teach, as he claimed he had proved, that two and one-half ounces of alcohol per day is food.

The newspapers of this country were flooded with the statement that alcohol in amounts equal to one bottle of Rhine wine or three glasses of whiskey per day is food. But not until nearly six months after did he publish the history of his experiments showing whether he really did prove this and how he did it.

Circular 357 accompanying the bulletin describing his experiments distinctly said, as the newspapers had been saying for six months, that the experiments now published in Bulletin 69 proved that alcohol, when substituted in the daily diet of the men experimented on, protected the material of the body from consumption just as effectively as corresponding amounts of sugar, starch and fat, the inference being that therefore alcohol is a food. But in point of fact, the results of those experiments tabulated in Bulletin 69 show that, instead of protecting the material of the body like sugar, starch and fat, alcohol did no such thing, but acted instead as a protoplasmic poison.* Thus failed this much vaunted attempt to prove the scientific temperance instruction in our schools false.

The secular press just now seems to be missing the point in the latest controversy over this question. The people of this country whether in the Methodist church or out of it are not objecting to Professor Atwater's experimental search for evidence that alcohol is or is not a food. Every one says let him or others search all they can, but they must not try to deceive us about what they find. Nobody is persecuting Professor Atwater. What the public demands is that the popular report of the findings of such experiments shall tally with the actual facts recorded in the tables that tell just what happened to the men in the calorimeter, when instead of sugar, fat and starch in their diet they took a daily equivalent of two and one-half ounces of alcohol.

The immortal Lincoln said, "You can not fool all the people all the time." The American people have not much use for the man who attempts it. While they are gratefully open-minded to every new truth that leads to stronger, truer lives, they know that to teach that moderate drinking is harmless, or to repeal or weaken our temperance education laws, would be to invite physical, moral, and economic disaster.

*(See testimony of Professors Seneca Egbert, A. M., M. D., Professor of Hygiene in the Medico-Chirurgical College of Philadelphia: Frank Woodbury A. M., M. D., Fellow of the College of Physicians of Philadelphia, Associate Professor of Larynxology in the Philadelphia Polyclinic and College for Graduates, formerly Professor of Materia Medica and Therapeutics in the Medico-Chirurgical College of Philadelphia; Winfield S. Hall, Ph. D., M. D., Professor of Physiology, Northwestern University School, Chicago; and C. A. Herter, M. D., Professor of Pathological Chemistry, University and Bellevue Hospital Medical School.).

CASH PRIZES

FOR STORIES, POEMS, AND ORATIONS FOR THE DEPARTMENT OF NON-ALCOHOLIC MEDICATION OF THE NATIONAL W. C. T. U.

1. For best story showing the evils of the medical use of alcohol, $12.00.

2. For best humorous article, suitable for recitation, showing the evils and absurdities of the use of patent medicines containing alcohol, opium or cocaine, or other dangerous drugs, $12.00.

3. For best poem, suitable for recitation, showing the evils of the medical use of alcohol, $10.00.

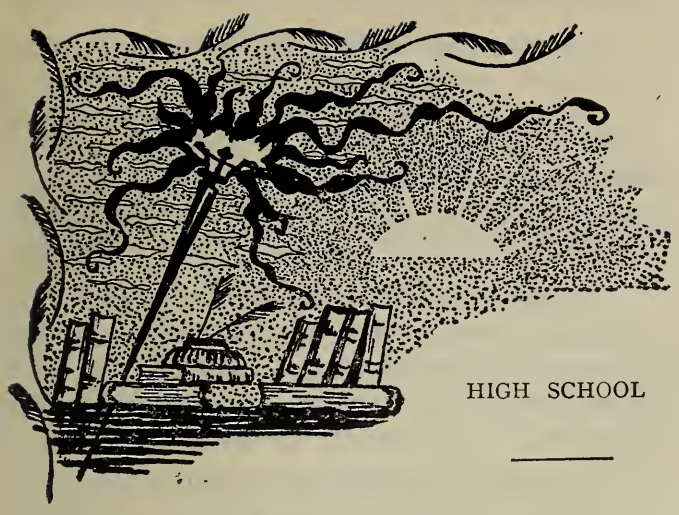
4. For best oration showing the evils of the medical use of alcohol, including alcoholic patent medicines, or fraudulent medicines, $10.00.

CONDITIONS

Each story, poem, humorous article, or oration must contain at least 800 words, and not more than 1,400, and must never have appeared in print. All manuscripts must be sent to the undersigned by June 1, 1903; and each must be accompanied by $1.25, for which money a copy of the department book, *Alcohol, a Dangerous and Unnecessary Medicine*, will be sent to the address given by the contestant. Prize winners will be announced in the *Union Signal*. A committee of three judges will decide upon the manuscripts. Writers are expected to show the danger of the home prescription of alcoholics as well as the professional.

(Mrs.) Martha M. Allen,

Supt. of Non-Alcoholic Medication for National W. C. T. U., 348 Delaware St., Syracuse, N. Y.



HIGH SCHOOL

EXCRETION

CLOSELY linked with the nutrition of the body is the disposal of its waste products. One is as vital to health as the other, but while a person can live several days without food he could not live twenty-four hours if all the waste matter formed in his body during that time were retained within it. For this reason, the problems concerned in excretion are even more important hygienically than those involved in the selection and preparation of food.

It is desirable to take up both these topics in natural sequence, studying first the functions of food in renewing the tissues and storing up energy in the body, then the elimination of waste matters formed as a result of the setting free of this stored-up energy. In the lesson which follows, this order is observed, and it is assumed that the subject of food has already been considered by the class.

ORIGIN OF WASTE MATTERS IN THE BODY

Waste is everywhere one result of energy, for no work can be done without the wearing away of some particles of matter. But where does energy come from? Let this be the first research question for the class, or for review, if it has already been taken up under food.

Give time for full consideration and discussion of the ideas presented, taking care that in the last analysis each source of energy is traced back to the heat and light of the sun, whether in plant and animal life, water power, or coal.

As special topics for further study, ask the class to find how plants get energy from the sun and what they do with it; how man uses the energy stored up in plants; and finally, how it is set free in his body, and in what forms. What does he do with it?

These topics show clearly the origin of waste in the body; that it is the ashes which are left as a result of the combustion of the tissues. In what parts of the body will waste be found? Compare the tissue cells to the separate buildings in a city each of which contributes its share of ashes and refuse. How is this waste removed from all parts of the city? From every tissue of the body?

Trace the course of these impurities with the lymph and blood until each is finally eliminated, comparing again with the best sanitary provisions in vogue in a city. Show that in both cases the waste is sifted, picked over, every useful particle saved, and only that which is of no possible use is cast out.

THE ORGANS OF ELIMINATION

Have drawings put on the board of the lungs, kidneys, and a section of the skin. After finding what waste substances are removed by each, study the several processes until these can be clearly explained by diagram. Use the lime water test, exhaling several times through a glass tube into a bottle of lime water, to show that carbon dioxide is given off from the lungs. Breathe on a mirror. What waste product is thus indicated? Examine through a microscope solid particles which can be rubbed off the skin. How does their appearance show that these are no longer of use to the body?

Get a sheep's kidney from the market. Find the tubes which lead into and out of it, and identify the veins, arteries, lymphatics and the ureter, tracing each to its finest subdivisions in the kidney. Examine the structure of the kidney, and find reasons for the cortical part, the large number of tiny tubes, the epithelial cells, and the connective tissue. What separate function does each have? Make a similar examination of a chicken's lungs, noticing how these differ in structure from the trachea and bronchi. Why are not all parts of the respiratory system alike in structure?

Study the skin with regard to its function as a heat regulator of the body, as an organ of sense, of protection, of respiration, of absorption, of secretion and of excretion, and find how it is perfectly adapted in its make-up to each of these widely varying kinds of work. Make drawings of a sweat gland. Notice the tortuous course of these tubes. Why are they not perfectly straight?

Call attention to the fact that the body waste which has been studied thus far is mainly liquid or gaseous in character; but waste solids also are continually being formed, as undigested bits of food and worn out particles of the intestinal tract. Owing to their bulk, these must be provided for in a special way, namely, the large intestine. Why is this unlike the small intestine in structure? Give a reason for this difference.

RELATION OF EXCRETION TO HEALTH

Suggest that the class find and report on the condition of the machinery in any up to date manufactory. Why is every bit of metal kept oiled and polished to the highest degree of perfection? How would dirt on any part interfere with its action and lessen its value? Answer the same questions regarding the complex workings of the body, and decide why an excretory system is necessary to health, and why these different outlets for impurities must always be kept open and able to work easily.

Compare the excretory system also to the drainage of a country and to the sewage of a house or city, pointing out how much more complex it is than either, and so proportionately liable to get out of order if neglected.

The main facts of personal hygiene should already be known to the class. If so, study rather the scientific and physiologic reasons which underlie them. For instance, *why* good circulation aids elimination of waste, and why exercise promotes circulation; why a rich or an unnutritious diet gives one a muddy complexion; why daily action of the bowels is necessary.

Preventive measures are as important as hygienic in the care of the excretory organs, and should be studied from the best authorities. Have the class find what doctors have to say as to the action of alcoholic drinks and tobacco on the kidneys and lungs; as to the relation of one or both of these narcotics to dropsy, Bright's disease, and consumption.

Divide the class into two sections, asking the first to find out out and report as to the effects of narcotics upon the structure of the excretory organs, and the other to study their effects upon the work done by these organs, explaining the reasons in each case. The appended authoritative quotations should be consulted freely, and the statements made by these physicians compared with those in their text-books and with the opinions of reputable doctors whom they may know personally.

AUTHORITATIVE QUOTATIONS

ALCOHOL CAUSES RETENTION OF WASTE IN THE BODY

Alcohol readily finds its way into the blood, impoverishing it, without itself undergoing any chemical change, and before it is eliminated by the skin, kidneys, lungs, etc., setting free fatty and other matters, diverting the oxygen of the blood and causing the retention of waste matter, urea, etc., which ought to be carried off from the body.—D. H. Mann, M. D.

ALCOHOL BOTH A TISSUE AND FUNCTIONAL POISON

There is not a tissue in the body which is exempt from the subtle and undermining influence of alcohol. It renders the system liable to all sorts of diseases. * * * It impairs at first the functions of the liver, kidneys, stomach, brain, heart and lungs, and later, it ruins these organs themselves.—J. D. Mishoff, M. D., Milwaukee.

The kidneys are the organs that suffer more frequently, and usually most severely from the ingestion of alcohol; their action is, therefore, soon interfered with in removing the ashes from the blood.—E. Claude Taylor, M.D., F. R.C.S.

ALCOHOL A CAUSE OF KIDNEY DISEASE

Glaser, working under von Jaksch, made 106 observations on 15 individuals and found that alcoholic drinks in relatively moderate quantities showed their irritating effect on the kidneys by the presence of leucocytes and casts, and uncommonly large numbers of crystals of oxalate of lime and uric acid.—J. Mackie Whyte, M. D., University of St. Andrews.

ACTION OF BEER ON EXCRETORY ORGANS

I think beer kills quicker than any other liquor. * * * The first organ to be attacked is the kidneys; the liver soon sympathizes, and then comes most frequently dropsy or Bright's disease, both certain to end fatally.—S. H. Bergen, M. D.

BEER-DRINKING A CAUSE OF CONSUMPTION

It would appear that fully 50 per cent of spirit and beer drinkers in northern climates dies of consumption. The relation between consumption and drinking is very close.—T. D. Crothers, M. D., Hartford.

SMOKING PREVENTS COMPLETE RESPIRATION

Cigarette smokers inhale the dry, hot smoke into the bronchial tubes, which are thus gradually devitalized and become incapable of performing their proper respiratory functions, and this immediately affects nutrition.—C. H. Shepard, M. D., Brooklyn.

CIGARETTES A CAUSE OF KIDNEY DISEASE

The habit of cigarette smoking indulged in by boys under twenty, results in stunted growth, nervousness, indigestion, and disease of brain and kidneys.—C. P. Chesley, M. D.

THE TOBACCO HABIT INCOMPATIBLE WITH CLEANLINESS

Touching the matter of person, the tobacco habit is unclean, touching the matter of health, it weakens multitudes, touching the matter of morals; it belongs to the things of darkness.—B. L. Whitman, Ex-Pres. Colby University.

METHODS OF TEACHING SCIENTIFIC TEMPERANCE

BY DELOS FALL

State Superintendent of Public Instruction, Michigan.

"Good health and good sense are two of life's greatest blessings."

"Hygiene aims at rendering growth more perfect, decay less rapid, life more vigorous, death more remote."
—EDMUND A. PARKES, M. S., F. R. S.

WITH regard to teaching the effects of alcohol upon the human system it is suggested that this instruction should always be carried on in the same spirit which characterizes the teaching of any other truth of science. It is probably true that when this teaching is mingled with too much sentiment concerning the far-reaching effects of the use of alcohol, the observant child receives it as mere sentiment and discounts it to suit his own personal judgment; but when brought face to face with a truth scientifically presented, showing the actual effect which alcohol has upon the various tissues of the human body, he is convinced of the truth, and will, consciously or unconsciously, formulate a judgment as to the attitude which he personally should assume toward this evil.

"So near the stars those rugged crests have dared to rise,
Perchance the blossoms on their breasts fell from the skies."

Therefore, before proceeding with the subject, certain conditions ought to be insisted upon which, in my judgment, are quite essential to the proper enlistment of the pupil's interest in the subject:

1. The teacher must lay aside all sentiment, both in manner and in words. This subject demands the same cold, critical, scientific treatment that every other question in science receives.

2. On the other hand, the pupil himself must have passed beyond that stage of observation that simply makes sport of the drunken man, making such a man serve as the occasion for fun and frolic. It would be well if the teacher should set the pupil to the task of seriously and carefully observing for himself those facts which are apparent when he comes face to face with one of the victims of the alcohol habit.

3. The subject can be studied to advantage only during the progress of regular lessons in anatomy and physiology.

4. Care should be taken not to exaggerate the teaching, for the ordinarily bright boy will recognize the exaggeration and instinctively rebel against it; he will detect the fallacy and discredit not only the exaggeration but the truth as well.

Teach that business considerations as well as those of health strongly favor total abstinence; that the boy who wants a position on a railroad or in a large mercantile establishment is much more likely to secure it and rise if he abstains from the use of alcohol and tobacco; that many large corporations will not employ young men who use these substances.

Teach that great as the danger is to health and purse, alcohol is instrumental in causing mental and moral ruin. Let the pupils note for themselves the mental and moral standing of boys who are habitual users of the cigarette; let them see that even here may be observed the pale face, the weakened body, the lack of ambition, the loss of memory, the low motives, and the bad language which are inevitable accompaniments of such habits.

RESOLVE

As the dead year is clasped by a dead December,
So let your dead sins with your dead days lie.
A new life is yours and a new hope! Remember
We build our own ladders to climb to the sky.
Stand out in the sunlight of promise, forgetting
Whatever your past held of sorrow and wrong.
We waste half our strength in a useless regretting;
We sit by old tombs in the darkness too long.

—*Selected.*

ONE BOY IN TEN TO BECOME A DRUNKARD

BY MARY H. HUNT

THE Christian Advocate of December 18, quotes from the Annual report of Dr. Henry P. Stearns, superintendent of the Retreat for the insane in Hartford, Connecticut, to show that for seventy-nine years more than seventeen per cent of the insanity treated in that institution is attributable to the abuse of alcohol. This is a painful incidental confirmation of the truths our children are learning in the public schools concerning the awful injury alcohol does to the great coördinating forces, the brain and nervous system. In view of this, well does Dr. Stearns say:

"The importance that some effective measure be adopted to have instruction given to the pupils of the public schools of the state regarding the nature and effects of alcohol when used as a beverage can hardly be overestimated. Such a course should be continued even at the expense of less important subjects. This can be done more effectually than anywhere in the higher grades of school."

Let us see how this last suggestion would work. According to the school report of Connecticut, 150 out of every 1000 of those who enter school leave by the end of the third or last primary year, one half of whom are boys. If this study is left for the upper grades, all these go out into the battle of life without school instruction concerning the laws of health, or warning as to the danger in alcoholic drinks and other narcotics, and the same would be true of the 550 out of every 1000, one-half of them boys, who leave before reaching the sixth year.

Before the study of scientific temperance was introduced into the public schools of this country, it was estimated, judging from experience, that one boy in seven in the public schools would be a drunkard. That estimate I made a part of the plea in the national Congress and in many states for the enactment of specific temperance education laws, always adding that I could not vouch for the exact number, it might be more or less than one boy in seven, but that in either case it was our duty to provide the education that would warn all of the danger of beginning the use of substances that are destroying such great numbers who might otherwise be useful citizens. Many middle aged members of legislative assemblies in all parts of our country said at the close of these hearings, "From my recollection of those who started life with me, I do not think the estimate of one boy in seven becoming a drunkard is too large." A professor of economics and sociology in one of our large universities recently told me that this average has fallen and is now estimated to be about one in ten.

On this estimate, out of 1000 children who enter the primary schools in Connecticut, at the end of the third year will go out 75 boys, unwarned of the danger of beginning to drink, one tenth of whom will be drunkards, and of the 550 out of every 1000 who leave before the beginning of the sixth year, insufficiently warned, 25 boys will be drunkards. This is true every year, provided the instruction is left until grades above the fifth. It is unthinkable that Christian people will abandon so large a percentage of children to such a fate, and as a possible preventive we must not leave any class of pupils unwarned. The physiological reasons for total abstinence need not be dry, on the contrary, with well graded manuals of instruction the average teacher in our country is making the study one of live interest.

BOOK NOTICES

THE SNOW BABY, by Josephine Diebitsch Peary, $3. Frederick A. Stokes Company, New York.

The story of this little snow-baby who first opened her big blue eyes on a world of glaciers and icebergs appeals to children as keenly as do the Arctic explorations of her father to scientists. Ahnighito's home and its surroundings, the dark-skinned Eskimos who came to see this strange white baby and kiss her hand, her visit to Grossma in Washington accompanied by Billy-Bah, and her welcome back to Snow land are all charmingly described by her Mamma, and illustrated by snap shots taken on the ground. One of these pictures, showing Ahnighito in her winter costume of fox and deer skin, is reproduced on another page of this magazine. The large type and attractive binding make the book especially suitable for children and the holiday call for it is likely to be large.

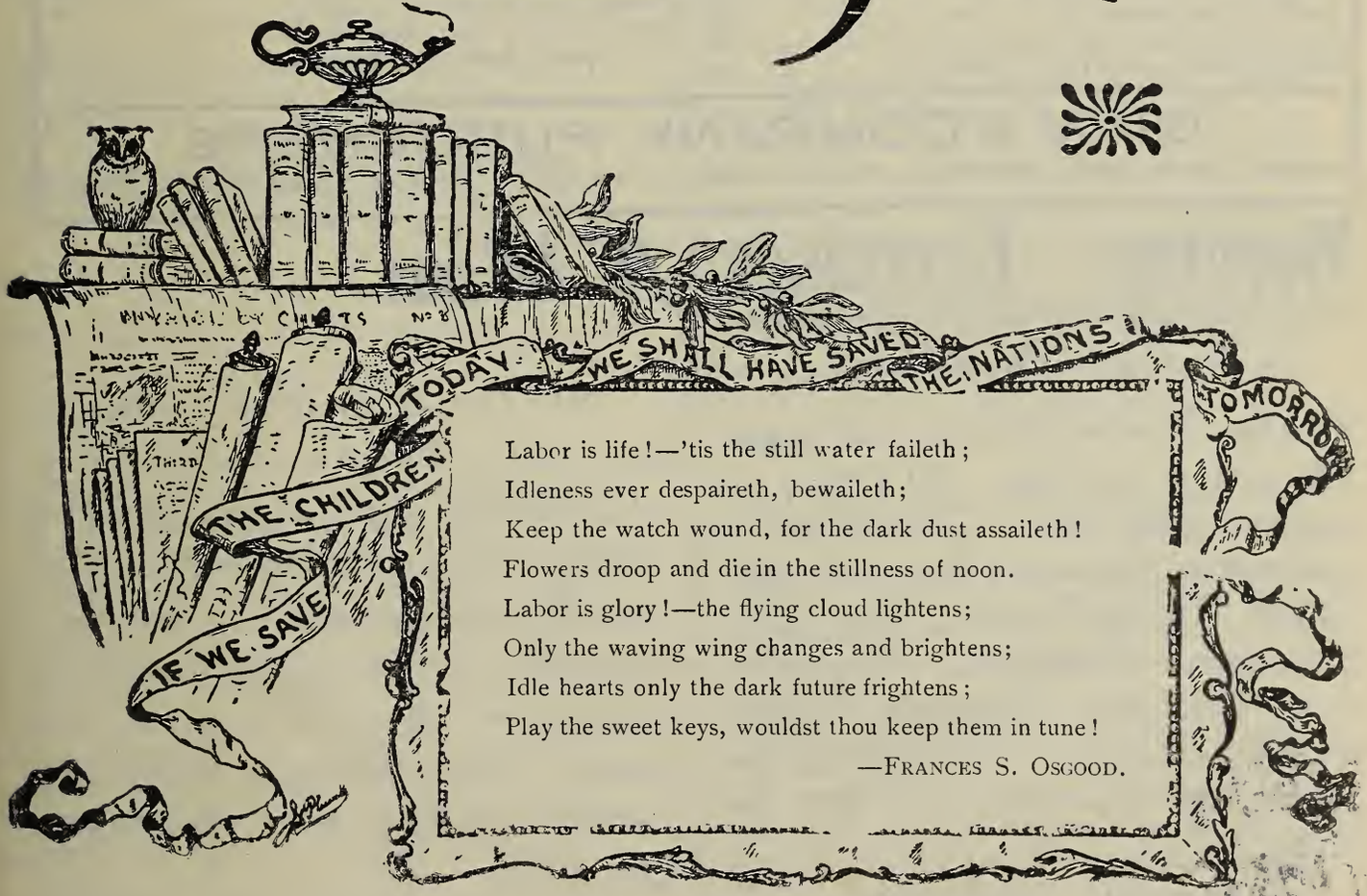
PHYSIOLOGY TOPICS FOR JANUARY

PRIMARY—Parts of the Body Used in Living: Head, Trunk. Needs of the Body. Food. Table Manners. Heart. Blood.

INTERMEDIATE—Muscles. Food. Digestion. Organs of Breathing.

ADVANCED—Bodily Training. Nervous System. Secretion. Excretion.

The School Physiology Journal



Labor is life!—'tis the still water faileth;
Idleness ever despaireth, bewaileth;
Keep the watch wound, for the dark dust assaileth!
Flowers droop and die in the stillness of noon.
Labor is glory!—the flying cloud lightens;
Only the waving wing changes and brightens;
Idle hearts only the dark future frightens;
Play the sweet keys, wouldst thou keep them in tune!

—Frances S. Osgood.

PUBLISHED AT
BOSTON, MASS.
MARY H. HUNT, Editor

VOL. XII. NO. 6
FEBRUARY, 1903

School Physiology Journal

Vol. XII *BOSTON, FEBRUARY, 1903* *No. 6*

THE FUTURE

The world is young.
'Tis but the morning of the human race.
The night-like ages that have passed away,
Do they seem long? They are the merest span,
A moment in Eternity, an hour
In the full day of human destiny.

The world is young.
The Golden Age lies onward, not behind.
The Pathway through the past has led us up.
The pathway through the Future will lead on
And higher. We are rising from the beast
Unto the Christ and human brotherhood.

The world is young.
And the New Time is filled with glorious days.
We've tarried in the wilderness of wrong
And worshiped there an image made of gold;
But now we leave it for the mountain tops,
To see the promised land of better things.

The world is young.
And God is good; and Truth victorious;
And Right and Love and Virtue stir us yet;
And Christ is living, and we follow Him.
See, brothers, see, the night is on the wane
And all the hills are blossoming with morn.

—J. A. EDGERTON.

TWO FACTORS IN THE MAKING OF AN AMERICAN

BY MARY H. HUNT

"OUR greatest need today, in the words of Superintendent Howard, of New Orleans, is primary education; the education of the masses, the great common people, who are the brawn and sinew of our community. We spend too much money on high schools, colleges, and universities, while the simple education of the great masses is too much neglected. In our public schools the primary grades are overcrowded and the high schools are partly empty. That is an object lesson for our legislators and our rich men."

The above is true and timely as far as primary education is concerned, and not in Louisiana alone. While this education is probably farthest advanced north of the Potomac, where public schools have been longest established and where the color question does not complicate the educational problem, in the northern states the immigration question is intensifying as never before the need of the best primary education for the masses.

THE RECOVERABLENESS OF HUMAN NATURE

More than half a million people a year are coming to us from southern Europe. While most of them are white, many bear the stamp of centuries of old-world oppression.

What is to prevent them from producing here the conditions they have fled from, and thus repeating for us the experience of other invaded nations that have been submerged by their invaders?

Our hope lies in the recoverableness of human nature under favorable conditions, and we must provide the conditions. This recoverableness is wonderfully illustrated in the changes that result to humanity when, under kindly conditions, it can blossom upward. "But time," the objector says, "is a factor full of peril to a republic that is making its invaders a part of its government as soon as the United States does. The historian Green says that the barbarian hosts of Engles who followed Hengest and Horsa into Britain were the first Englishmen, and that it took more than thirteen hundred years to transform their descendants into the Puritans who founded this republic. Our experiment of a government by the people, which depends for its success upon the capacity of the majority to choose and vote for the right, will have a chance to fail many times over if it is to take us as long to Americanize our invaders.

On the other hand, no other nation ever provided free public schools for the education and enlightenment of its invaders as we are doing. If the children of those grim sea-kings, our English ancestors, had been put into such graded public schools as ours, and had there received, as do our children, such elementary knowledge as is essential to civilization, orally for the first three primary years and with progressive books and other helps in grades above, until they were fourteen years old, who believes it would have taken thirteen hundred years to develop Puritans out of even that stock?

But the objector reminds us that the achieving capacity of our forebears was inherent, only misdirected; that under the transforming power of Christian civilization the adventurous spirit that found expression in piracy has become

modern commercial enterprise, while grim fighting propensities have found expression in defense of such human rights as inhere in a liberty-loving republic.

Again the objector says, "The south of Europe people are of a different stock. We admit it; but when one looks closely into their history he finds them descended from races that have either been at one time great nations or conquerors of the same, both of which facts imply achieving capacity. Greek, Italian and Jewish immigrants can point with pride to the past of their people. The Sicilians, who are now coming in great numbers, are a race made up not only of colonists from the above nations, but of such virile peoples as the Lombards, Goths, Vandals and Normans. They can not therefore be without possibilities capable of development. There has been achieving ability in the past of all these people that must inhere to some degree in their descendants; ability that only needs to be developed and directed according to American ideals to make them a source of strength and power instead of danger to the new land to which they have come. They are here and keep coming, invited by the story of the great wealth and liberty of this country. Already they constitute a majority of the population in some sections.

How their presence is to affect the future of our nation will depend upon our fidelity in securing for them now the education necessary to their development into good citizens.

THE PERILS OF IGNORANCE AND DRINK

While the literacy returns show that, as a whole, foreign-born parents in this country have not failed to send their children to school, it is startling to learn from the last census reports that during the previous ten years Massachusetts dropped from being next to the first of all the states having the greatest proportionate number of children between the ages of ten and fourteen able to read and write, to the ninth in the list, below states once regarded as the frontier.

One writer says, "This fall of Massachusetts in the scale of literacy may be due to several causes." First, "the influx of French-Canadian, Portuguese, Italian, Russian and Syrian children of the ages between ten and fourteen years is large, and will doubtless continue to impress the condition of Massachusetts in this respect." Hence, she needs to bestir herself to educate the children of this mixed multitude. Ignorance and drink are the two perils from which, for her own sake as well as theirs, she needs to save them.

Happily, these two needs are legally provided for by our compulsory free school system upon which has been engrafted throughout the entire country the study of the physiological reasons for the laws of health, including those that teach total abstinence from alcoholic drinks and other narcotics. But while the study of the laws of health should begin, as the law requires, with the first school year and continue as a progressive study through the grades, the work must be well done in the primary and lower grammar grades of our schools, because these foreign-born children when they enter school are often near or past the age limit of fourteen years, at which time they leave in large numbers to go to work.

A DISASTROUS POLICY

On this point the recommendations of the Massachusetts Committee of Twelve are most disastrous. The Committee recommend oral instruction in temperance physiology in the three primary years, before children have learned to read, which is all very well, but there they draw the line, specifying that pupils in the fourth year, although abundantly able to read and using books in other studies, shall have no books in this subject; and that all study of it as a regular branch shall be entirely dropped in the fifth and seventh years. Thus they recommend that the study of temperance physiology as a "regular branch," that is with text-books in the hands of pupils who have books in other subjects, shall be postponed until the sixth school year. Before that time a large class of these children, including many who most need such help will have left school never again to be reached by its instruction on this subject, which they might have received and profited by if they had studied it as a regular branch, orally in the three primary years, and with text-books in the fourth and fifth years as in other branches.

Oral instruction in primary grades is essential, but it is as illogical to assume that it will be adequate for those who leave at the end of the fifth year, without additional study and helps in the fourth and fifth grades, as it would be to refuse books and progressive study in arithmetic, geography and other branches during those years. Why not shut up the schools and turn the children loose on the streets to let their brain cells rest from all study during the fifth and again during the seventh year?

It is difficult to understand how any one having the well-being of humanity at heart, to say nothing of patriotism and temperance, can approve this proposition thus to deprive our foreign and native population of needed instruction in this subject.

We are painfully reminded in this connection that the number of license cities in Massachusetts has nearly doubled during the last decade

If the recommendations of this Committee are carried out, there will be no text-book instruction in temperance physiology below the sixth school year to do its part in preventing a continued increase in this number.

The first step toward literacy is learning to read, because ability to read opens the printed page to the learner. That that page should be a guide to the knowledge that will help the child to lead a happy and useful life and to be a good citizen nobody questions, except a few who have never told why it should be refused the pupil in physiology and hygiene which includes the physiological reasons for total abstinence from alcoholic drinks and other narcotics, a study teachers know the least about.

WISE AND HOPEFUL METHODS

The influx of immigration has evidently affected the ranking in literacy of other states, especially the manufacturing states to which immigrants naturally flock for employment. New York during the last ten years has dropped from the eighth to the fourteenth rank in the scale of literacy; Illinois from the sixth to the fifteenth; and Pennsylvania from the sixteenth to the twentieth. But nevertheless, there is great hope that these, our most populous states, will not consequently suffer more severely from the drink curse, because each has a strong temperance education law in successful operation, and the Christian and temperance people of all three of these states, New York, Illinois, Pennsylvania, are vigorously opposing any attempts to weaken these laws or their enforcement in any way, while they are especially watchful to secure the best results in the lower grades.

Old stone church still standing in Sulgrave, England, the ancestral home of the Washington family.

Connecticut has dropped in the scale of literacy from the fifth to the seventh place, and that state has, alas, small reason to hope that the temperance question will not correspondingly suffer within its borders, for it has weakened its temperance education law, taking all legal requirement of the study from the primary grades, which excludes 15 per cent of the entire number entering school, and making no legal provision for systematic text-book instruction in the subject until the sixth grade, too late to reach the largest number.

AN UNAMERICAN IDEA

A man connected with the administration of public instruction in one of the thirteen original states recently said, "Temperance physiology, thoroughly studied in the lower grades of school will educate the masses. The same study confined to the higher grades will educate the coming leaders of thought, the influential people of the future. Which will be the more beneficial? I am inclined to think the latter method will be the better."

"Why not provide for the thorough progressive study of this branch by all pupils in all grades?" I asked. "That is what the law requires. Thus not only a select few, but the masses, the sovereign people, will be their own intelligent leaders on this question."

The plan of omission in lower grades is better adapted to an aristocracy than a government of the people. I agree with Dr. McMurry, that "The proper bringing up of a commonplace American child requires us to sift out the gold nuggets from a whole series of civilizations."

TWENTY YEARS OF WAITING FOR THE SCHOOLMASTER

The National Educational Association had been in session in Minneapolis five days. Men and women engaged in education from all parts of this country, after discussing every phase of almost every topic taught in any grade of school, closed their meetings with a long list of resolutions from which it seemed to me only one subject was omitted. Turning to a gentleman on the platform, a superintendent in one of our great western cities, I asked, "Is it not almost time, in a gathering like this, for the teachers of this country to make some declaration of

heir loyalty to the great commission delegated o the profession by this nation, when it made he study of temperance physiology a manda-ory branch for all pupils in all public schools?"

"The truth is," he replied, "there is some reaction against the study being thrust upon the schools by legal requirement, without giving us time to adjust it to our school systems and to adjust ourselves to it." How long a time do these gentlemen want to adjust this study to the school system and themselves to it? Is not twenty years enough? Two decades have passed since the first temperance education law was enacted in this country, to be rapidly followed by similar legislation in state after state until it is now a national requirement. The laws first enacted merely required the study by all pupils in all schools, presupposing that school men would adapt or grade it to meet this progressive need of pupils as they have other branches. Since they have failed to do this, recent legislation is now requiring them to do it.

THE NEED OF CONSTRUCTIVE ABILITY

"Why are school men giving so little constructive ability to this branch?" I recently asked another school principal. "Some of them do not hesitate to find fault." He replied, "It takes very little ability to find fault. Any one can do that, but the real trouble with most of us is we do not know much about the subject, and so we are shy about touching it."

This I honestly believe is the trouble. Dr. W. T. Harris, United States Commissioner of Education admits as much in his report quoted in part on another page of the JOURNAL.

Where this subject is reduced, as Dr. Harris says, to "progressive lessons" in "pedagogic form," "the first lessons are good and valuable if no more lessons are given." They cover what the children can then comprehend and need to know. "These early lessons prepare the pupil step by step for the later lessons," and the necessary steps are not lacking which connect the truths already learned with the larger development of the subject which follows. It is a tax on patience which has given years of study, not only to the whole subject but to its progressive pedagogical adaptation to all grades of pupils, to be told with dogmatic assurance that nothing should be taught until the ninth school year concerning that great co-ordinating force which controls the whole human structure, the nervous system.

But better days are coming. Good courses of study in this subject providing for progressive lessons are already published, with more to come. The questions and criticisms afloat imply thought that will result in study of the whole subject, and this in the reception and advocacy of the very principles now questioned. This subject is one of more than mere pedagogics; it involves the question whether the generations, home-born and foreign-born of this great republic, coming from our schools shall be strong in mind and body and clear of brain, equal to the tasks that are awaiting them in life. They will be, if under your tutelage, teachers, they learn how to care physiologically for their bodies, and to keep undefiled by alcohol and other narcotics this noblest of all God's structures, in which their souls must dwell until time for them shall be exchanged for eternity.

A nation, rich not only in material resources but in strong, pure men, true, beautiful women and lovely children, can not fail to result from this special education, perfected as it is destined to be by the highest co-operation of the men and women in our teaching profession. May none hear the words which Guerber says in his "Legends of the Middle Ages" that Parzival heard in his search for the Holy Grail, after he had failed through pride to ask the question that would have broken the evil spell liberating an enthralled soul, "THOU HAST BEEN CHOSEN TO DO A GREAT WORK WHICH THOU HAST LEFT UNDONE."

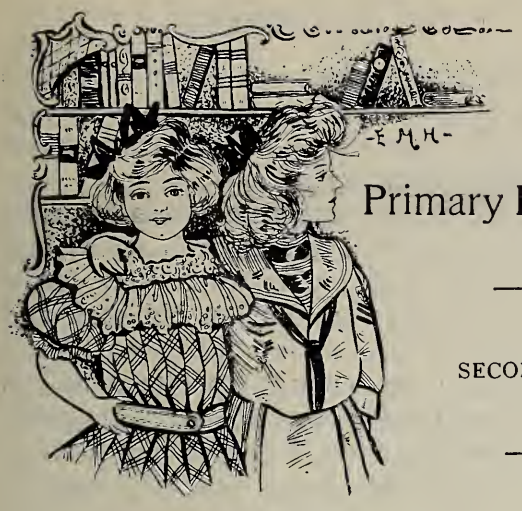
FREEDOM

The wild birds sang on bough and wall
That day the Bell of Independence Hall
Thundered upon the world the Word of Man,
The word God uttered when the world began—
That day when Liberty began to be,
And mighty hopes were out on land and sea.

But Freedom calls her conscripts now as then:
It is an endless battle to be free.
As the old dangers lessen from the skies
New dangers rise:
Down the long centuries eternally,
Again, again, will rise Thermopylæ—
Again, again, a new Leonidas
Must hold for God the imperilled Pass.
As the long ages run
New Lexington will rise on Lexington:
And many a valorous Warren fall
Upon the imperilled wall.

Man is the conscript of an endless quest,
A long divine adventure without rest—
A holy war, a battle yet unwon
When he shall climb beyond the burnt-out sun.
Each hard-earned freedom withers to a bond:
Freedom forever is beyond—beyond!

—EDWIN MARKHAM, in the *Independent.*



SECOND YEAR

KINDNESS

"There is none in life
But needs it and may learn."

HORTICULTURISTS find that the choicest varieties of fruit and flowers refuse to remain choice without constant care. The rare chrysanthemum of the greenhouse bears slight resemblance to the meadow daisy, but traces of its lowly origin must somewhere persist, for the moment cultivation stops it begins to retrograde towards the original type.

The same law holds good in human development. Watch the ordinary group of children at play. Petty acts of unkindness appear almost as quickly as supervision is withdrawn, not because children mean to be cruel, but because they have not yet learned to feel as their own the pain they cause another.

As soon as the child is old enough to play with other children, he is old enough to learn that they have rights which must be respected as well as his own. More than this, he is dependent on other people for almost everything he has, for the food he eats and the clothes he wears, for books and toys and games, even for the power of speech.

So much dependence on others calls for thoughtfulness toward them on his part, if he would not be ungrateful. This is one of the first principles of kindergarten games, and it should be kept well to the front during the whole school course.

In addition to the incidental instruction to be given whenever the need for it arises, set apart some time for definite lessons on kindness. Teach the children what kindness is, to whom it is to be shown, and why we should be kind to every living thing. Point out also definite ways of showing kindness.

(1)

A DEBT WE OWE

A tendency to be guarded against is the disposition of children to regard acts of kindness on their part as a virtue rather than a duty. A story is a good way to set them right on this point.

NOBLESSE OBLIGE

"See what grandpa gave me for being a good boy!" said little Richard, holding up a shining ten cent piece.

"I was out on Long Hill with my new sled," he went on eagerly, "and, oh mother, it's the best coasting you ever saw. Just as smooth as glass.

"All the boys had sleds but Jack Noble, and I s'pose his father is too poor to buy him one. Any way, he was just standing around watching the rest of us, so I told him he could take my sled half the time.

"Grandpa came along when it was Jack's turn, and asked where my sled was. And when I told him, he said, 'That's the stuff,' and gave me this ten centses. What'll I spend it for?"

"Mother is glad her boy was kind, but he was only paying his debts."

"Why, what do you mean, mother? I don't owe Jack anything."

"Do you remember asking me once about the two words on my locket, *noblesse oblige*? They are French, and mean that those who have had much given to them owe much to other people in return.

"I had a good home and kind parents when I was a child, and I owe the same care to you.

"You have a sled and many other toys, so you must share them with Jack and others who have none.

"Any one who has a good education should help somebody else to learn whenever he has a chance. That is what your teachers are doing for you.

"Some people have a great deal of money. *Noblesse oblige* means that they must use it in such a way that others will get the benefit of it as well as themselves."

"Does it mean my ten cents, do you think?"

"Yes. It does not mean that you have to give it away necessarily, but you owe it to others to do good with it.

"A shorter way of saying *noblesse oblige* is just this, be kind. And in that way you see it means everybody; because there is no one so poor or ignorant that he can not be kind to others in some way.

"But the more one has, the more we expect of him, and there is more chance for him to share with others, or do good with what he has; just as a King, because he *is* King, is servant of all, and owes more to the least of his subjects than they can possibly owe to him."

"I know how I am going to spend my ten cents," said Richard after a pause. "Can you guess?"

Can you?

Get the children to tell what they would do with ten cents under such conditions, and write the best answers on the board. Discourage suggestions that are plainly made for effect, and emphasize again the fact that being kind is only living up to one's privileges, and that nobody deserves praise for that.

(2)

WAYS OF PAYING THIS DEBT

What are some of the ways in which we can be kind? We can be on the lookout to see what people need, and what we can do for them. Tell some of these needs that you have noticed today in school; at home; on the playground; in the street.

Have the children tell some of the acts of kindness that are showed to them every day. Somebody has built the houses they live in, furnished them, and made them comfortable homes. Somebody cooks their food and prepares their meals; makes their clothes and keeps them mended; makes books for them to read and pictures for them to look at. What can they do in return for so much kindness?

Pet animals are almost always kind to those who treat them well. A horse will go out of his way to avoid stepping on a child, and dogs and cats will suffer much at the hands of children without making any ill return. Even wild animals have been known to be good to children. Tell the story of Romulus and Remus and the wolf in this connection.

What do we owe to our pets? How can we be kind to kitty? to the dog? to other animals?

Read to the children parts of Longfellow's poem, The Birds of Killingworth. Tell how much good the birds do everywhere in eating insects which would spoil the fruit and vegetables. What can we do for them in return? Let the children keep a record of all birds seen near the school during the different months. Why should we be especially kind to the birds in winter?

(3)

EFFECTS OF KINDNESS ON OTHERS

Everybody wants to have friends, and nothing does so much to make people friendly as to show them some act of kindness when one has the opportunity. Give this thought to the children through the story of

LYNN'S CROSS NEIGHBOR

Some new people had just moved into the house next to the little cottage where Lynn and Sara lived, and they were all eagerness to know who their neighbors were.

"I do hope there are some children for us to play with," they said, over and over again, and they felt almost like crying when they found that the newcomers were only an old man and his wife.

"He looks cross enough to bite a nail in two," Lynn told his mother a day or two afterward. "We always run if we see him coming out of the house. He scares us so."

"Well, be kind to him whenever you have a chance," said mother. "Perhaps you will find him better than you think."

That very night there was a hard snowstorm. It was Lynn's work to clear all the paths before he went to school, and how he did hate to get up so early.

He had just waked up enough to dread it the next morning, when he heard the sound of a snow-shovel outside. He tiptoed over to the window and looked out. Yes, it really was their next door neighbor.

By the time he was dressed there was a fine path all around the house and he did not have to go out in the cold at all.

"Now you must think what you can do for him," said mother, with a little twinkle in her eye. "It will never do to let such a cross person get ahead of you in doing a kind act."

"You are laughing at me," said Lynn, 'but I guess I deserve it. I don't believe he is cross after all, and I'm going right over to thank him and see if he doesn't want me to bring his mail when I come home from school."

He was back in a few minutes. "Oh, mother, he says he wishes I would get his mail, because it is so far for him to walk, and he sent you these apples."

All winter long Lynn and his neighbor changed work in this way, and both found that it paid to be kind.

Animals are influenced by kindness as much as children. Tell the children about the wonderful trained horse, Jim Key. Using cards with letters or figures on them, he can add, subtract, or multiply small numbers as quickly as anybody, spell his own name, and perform many other tricks that are equally surprising. His master has used only kindness in training him. If he had been harsh or cross he could not have succeeded.

A DOG THAT COULD SAY HIS PRAYERS

Bundar looked like any other pug dog, but

he knew a great deal more than most of them do.

"It is time to go to bed now," his mistress would say. "Come, say your prayers."

Bundar would jump up in a chair, put his fore paws on the back, bow his head on his paws, shut his eyes, and stay there until she said, "Amen!" Then he would jump down at once.

He could play hide and seek. All you had to do was to show him a handkerchief, then tell him to go out of the room. After it was well hidden, he would begin to hunt for it.

He knew what "warm" and "cold" mean as well as you do, and he never spent any time looking in "cold" corners.

How excited he would get when he was told that he was "hot!" and after that it never took him more than a minute to find the handkerchief.

Sometimes his mistress would offer him a bit of cake, saying "Kruger sent it to you." Bundar was an English dog, so he would only shake his head.

If she put the cake on his nose he would scowl but not offer to eat it. If she tried to put it into his mouth he would spit it out.

Then she would put another piece on his nose and say, "Lord Roberts sent this." Almost before she was through speaking it would disappear down his throat, and Bundar would be bowing his thanks.

"I know how I am going to spend my ten cents"

If his mistress asked him what he would do for his King and country, Bundar would throw himself down limply and "die" at her feet.

"How did you ever train him to do such clever tricks?" I asked.

"Just by telling him over and over what I wanted him to do, and always treating him kindly," was her answer, and it told the whole story. We can do a great deal with our pets in this way, but nothing at all by being unkind to them.

(4)

POINTS TO REMEMBER

In review, ask each child to tell something he has learned about kindness that he did not know before. Write all the different answers on the board and leave them in sight of the class for several days, pointing to each, or underscoring it as occasion may require.

Kindness is treating other people as we would like to have them treat us.

We owe kindness to everybody.

We should be kind to our parents, because they have done much for us.

We should be kind to our playmates, because we may sometime need help from them.

We should be kind to strangers, because we may some time be in a strange place.

We should be kind to old people, and to those who are smaller than we are, because they need our help.

We should be kind to birds and animals, because they can not tell their needs.

The more we have, the more we can do for others.

FOR KEEPS—Mamma—"Don't be so selfish. Let your baby brother play with your marbles a little while."

Tommy—"But he means to keep them always."

Mamma—"Oh, I guess not."

Tommy—"Yes he does, 'cause he's swallered 'em."—*Philadelphia Press.*

GOOD FOR EVIL

AN organ-grinder stopped to play in front of a tenement-house. A number of children gathered to hear him. A large, rude boy made a snowball and threw it, knocking off the organ-grinder's hat and it rolled into the gutter. The man picked up his hat, brushed it, and put it on. Then he said to the big boys, "Now, I will play you a merry tune," and he bowed and began to play a lively air. The little children danced, but the large boys were ashamed and walked away. The organ-grinder had taught them a lesson. He had returned good for evil.—*Ex.*

Grammar Lessons

INTERMEDIATE WORK

PUNCTUALITY

SOME years ago a New York merchant wanted a bootblack to meet him at a certain corner every morning on his way to business. He tried several before he found one who was exactly on time every day for a week. That boy is now in the merchant's permanent employ, and in the line of swift advancement if he keeps on as he has begun.

The boy or girl who knows the value of time is always in demand, while there is no place anywhere for the laggard. Punctuality is a habit, and as such it must be formed in early life if at all. This responsibility devolves upon the school in great measure, since the child is under its care during so large a portion of his waking hours. It can meet this responsibility in two ways; by example and precept.

In the first place, every session of the school and each recitation should open and close exactly on the stroke of a reliable clock. Occasionally some valuable bit of information may be lost to the class because "time is up," but the pupils will gain far more in appreciation of the importance of punctuality. When this is the unvarying rule of the school, the same promptness can reasonably be required of them and should be.

In addition, every boy and girl must be taught why it is necessary to form the habit of being on time, and how this will affect their success in life. The first topic to be considered in this connection may be punctuality as

A BUSINESS REQUIREMENT

In most schools, the great majority of pupils will have their own living to make in after years. Punctuality will be required of all such the moment they begin a business life, whether they have ever been on time before or not. Call attention to this fact while they are still in school, and discuss in class this coming responsibility.

Write on the board names of factories or other places of business in the vicinity and have the class find and report as to the hours of work in each. At what time do they open and close? How much does this time vary from day to day? How long an intermission is given at the middle of the day? Another point to find out is what provision is made for the tardiness of employes. Are they required tomake up lost time, or is its value deducted from their wages?

Pupils in country schools may find instead what time the farmers begin their work in the morning, and how much this varies in any case during a week or month. Why is this punctuality necessary on a farm? Compare the general appearance of farms on which work begins promptly every day with that of others where little or no method is followed in this respect. Account for the difference found.

Find what requirements in punctuality must be observed by railroad men. How is the lack of punctuality guarded against in work that involves the care of human life? What might be the result if a switchman were late in getting to his work, or if he should go home before being relieved by some one else?

Take up other kinds of business in the same way, finding the hours of work for clerks, office boys, expressmen, milkmen and others, and the degree of punctuality which must be observed by each, with reasons.

In cities and large towns boys begin selling papers while they are still in school. What does lack of promptness mean in their case? Girls leave the grammar school to become clerks or typewriter operators. How long will they keep their positions if they are habitually tardy?

Ask each one in the class to choose the kind of business he thinks he would prefer to engage in, and then find what hours he would be expected to keep in it. What will be the penalty of failure?

Bring out some of the reasons why punctuality is necessary in all kinds of business; for instance, the loss in time and money involved, the inconvenience to customers and the consequent falling off in trade, as well as the inability to compete with other firms who are punctual. Place these facts before the class in actual figures. For instance, if a firm employs five hundred workmen and each is five minutes late in beginning work, how much time would the firm lose in a day? in a month? a year? How much money would be lost, if the average daily wages are $1.50?

AN INDICATION OF CHARACTER

Call attention to the fact that practically every successful business man is habitually prompt and punctual and has been all his life.

If he makes an engagement he is on time to the minute. Everything he undertakes is done quickly, and just as well as it can be done. How is it with people who earn barely enough to live on? It would seem as if they of all people could least afford to be lazy or behindhand, but they frequently are just the ones who are. These facts show that there is a close relation between one's own habits which form his character and his success in business. What is this relation?

In almost every kind of employment there are young people who begin on the same salary, but in a year or two some are getting much more than others. It is not favoritism but merit that makes the difference. Those who have been promoted are invariably the ones who are always prompt, energetic, and busy at their work. These habits show what their character is.

Lack of promptness predisposes to other bad habits. Why is it that the idle boy or the lazy one is frequently a cigarette smoker, and then a beer guzzler by the time he has become a man? Call attention also to the fact that these habits react on each other; that smoking and drinking tend to make a person indolent and slow in doing his work. Have the class find the reason for this, by noting what their physiologies state as to the effect of such narcotics upon the nervous system.

"Dream! yes, dream! but be more than a dreamer!
Work while you dream, that your dreaming be yea, not idle or vain."

Refer to those boys and girls who have recently left your school and are succeeding best in a business life. What do you know of their habits? How are these habits helping to make their work a success?

STEPS IN ITS CULTIVATION

Nowhere is punctuality more strongly insisted upon than in the army and navy. From the moment a youth enters the service, all his time must be accounted for and every duty must be performed exactly at the proper time. The story of the old soldier who dropped his dinner pail in the mud when a fun-loving friend called out, "Present arms!" shows how strong the habits of punctuality and obedience may become. The question is how to form such habits in the first place.

Describe to the class the daily life of a West Point cadet. He must rise at six o'clock every morning but Sunday, and then at seven, do his room work, and then go to breakfast. After breakfast comes forty minutes for rest and recreation, followed by recitations and study until one o'clock. One hour is given to dinner and rest, then come two more hours of hard brain work, an hour and a half of drill, the dress parade, at which he must present himself in spotless order, supper, and three hours more of study. At ten o'clock "taps" is sounded, and every light goes out for the night.

Illness is the only excuse for failure to appear at any exercise, and all work must be made up afterward. If a cadet fails, he is dropped to a lower class or dismissed from the school.

Put this daily program on the board and ask all the class to contrast it with one of their days. Have each one copy it, making out also a list of the things he is expected to do every day, and the time at which each should be done. How do the two lists compare? Which has the easier time and the more leisure? Which is getting the better training for his future life?

Get the whole class if possible to try the West Point plan of punctuality throughout their entire day, substituting their own tasks for those of the cadets. At least, see that it is followed during the school hours. Reserve one of the blackboards for the day's program, that the class may have constantly before them the exact times when they are to recite and study, and also the hours for recess. Only some great emergency should then prevent the carrying out of the schedule exactly as written.

Children who have lived in the country or have been on tramps through the woods know that cows and other animals make deep paths for themselves by walking in the same places

day after day. It is easier to do this than to try to make a new path every time. Tell the class that brain paths are made in something the same way. That is, every time any one does a certain thing a corresponding impression is made in his brain. The next time he does the same thing the impression becomes a little deeper, and when he has done one thing a great many times the impression has become so strong that he can do it almost without thinking. It has become a habit.

This shows why it is easier for some people to be on time than others. They have practised punctuality so long that it takes little or no effort to be prompt. On the other hand, when one puts off work day after day, or neglects it, he is fast forming habits of idleness which perhaps never will be overcome.

In every kind of business there are always two kinds of workmen; those who by their promptness and energy have grasped every detail of their work, and others who look upon every duty shirked and not found out as so much clear gain. To which class do you belong?

A CAUSE OF FAILURE

Probably nine out of ten men past middle life, if asked how it happens that they are today only barely earning their living, would tell you that they never had a chance; that they were kept back, that circumstances were against them, that they had no opportunities, such as other boys around them had, that they did not have the proper schooling, or else plead some similar excuse.

The probabilities are that opportunity did visit every one of these men more than once in their youth or early manhood; but that they did not see that all good chances consisted in doing everything they undertook cheerfully, promptly, and just as well as it could be done.

They did not think that their slipshod methods, their careless attire, and their aggressive manners, would lie as great bars across the path of their future success, and keep them back from the goal of their ambitions.

They do not think that all these things were the real causes of their being fixtures at salaries of ten or fifteen dollars a week.

They did not think that these seeming trifles in youth would doom them to be perpetual janitors, clerks, or farm hands, and that it would be almost impossible in maturity to outgrow the defects of their youth.—Orison Swett Marden.

ELEMENTS IN SUCCESS

Brightness, cheerfulness, alertness, promptness and energy of attitude and bearing are things which attract attention very quickly and secure situations where dullness and carelessness of attire, though joined as they sometimes are, with unusual intelligence and wisdom, make undesirable employes.—*Success.*

PROMPTNESS THE FIRST LESSON

Promptness is the first lesson every boy and girl should learn. The person who is not punctual—who is not on time—is not honest. If you desire the services of a boy or girl in your office or store to run errands, consult the teacher's tardy roll and pass by all whose names are found there.—*Country School Champion.*

ACHIEVEMENT THE STANDARD IN LIFE

One of the surprises of life for the youth beginning business is to learn that mere virtue is not a sufficient equipment for success; that if he means well, that is not all that is required of him. He comes into an office with an amiable intention to do the right thing, and it is both touching and amusing to see his bewilderment when his placid, "I couldn't find it, sir," is met with an impatient, "But you must find it! Never come back with that sort of an answer." It opens up a new world to him, a world where achievement is the criterion, responsibility the common lot, and the ability to accomplish something the test of manhood. If he learns the lesson, he will be graduated into the class of master-workmen, for it is the workers, the men who can achieve, that have the mastery of the world. If he does not, he will remain to the end of the chapter an amiable nonentity.—*Fame.*

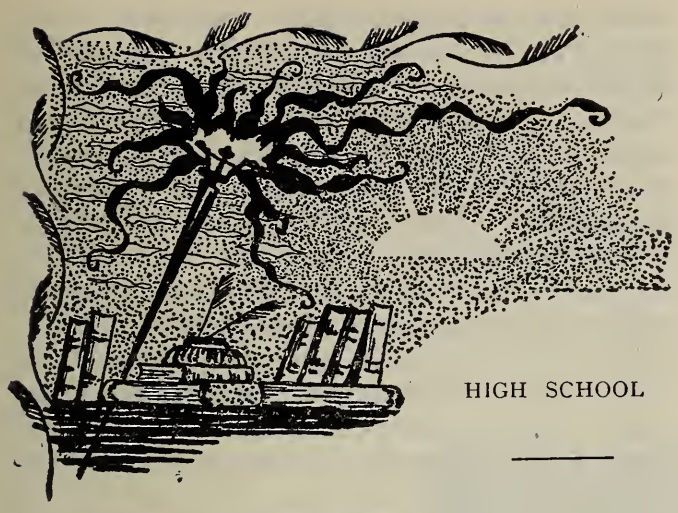
WHICH GENERAL

Sometimes mamma calls me "general,"
I wish I knew which one;
But I always try to tell the truth,
So I hope it's Washington.

But when I tell my papa that,
He laughs loud as he can,
And says if she calls me "general,"
She must mean Sheridan;

Because whenever she wants me,
And I am out at play,
I nearly always seem to be
'Bout "twenty miles away."

—Kate W. Hamilton.



HIGH SCHOOL

SELF–RELIANCE

IN the wonderful story of the Round Table, the supreme moment comes when the best knight in the world arrives to fill the honored place at the King's right hand. Every eye is turned anxiously on the new comer, for no one else has ever sat in the "Siege Perilous" and lived; but there is no fear or dread in the eyes of Galahad. Confidently, modestly, he takes this seat before them all and completes the list of brave men who have vowed in all things to be true and loyal to God and the King.

A "siege perilous" stands empty today in each of the countless forms of the world's activities, waiting for that best man or woman who alone can fill it worthily. Its acceptance is fraught with disaster only for the unprincipled, the incompetent and the weakling; the Galahads find their names written in it in letters of gold, and for them it is an opportunity for larger service.

Many of those who are to fill these seats in the future are now in our high schools, and to the whole army of young people the lists are open. Two conditions must be met; fitness to assume the responsibilities involved, and belief in one's self and one's own ability to fulfil them.

To this end, training in self-reliance should begin with the child's earliest years and continue through the whole school course. From the first he must be taught to stand on his own feet and to stand alone; to depend on his own head and hands to conquer difficulties; and above all, to control his own acts and to use wisely that utmost liberty which is his as long as he does not abuse it.

By the time he has reached the high school, the youth is prepared to understand the business value of self-reliance and consequently

ITS PRACTICAL WORTH IN LIFE

One of the best methods is to study the lives of men and women whom the world honors, noting the times when each was thrown on his own resources and the way in which he proved equal to the strain. Washington, surveying in the woods of Virginia while yet in his teens; Franklin, alone in the streets of Philadelphia; Stewart, creating the largest dry-goods business in the world; Lincoln, emancipating a race, are illustrations which may be multiplied indefinitely.

Select any kind of business or profession which especially appeals to the class and study with them the leaders which have developed it and given it higher rank. Notice the fact that these are always capable and self-reliant, not a weakling among the number. Why not?

A short time ago a man without arms or legs was chosen by the government to go to the Philippines to make some confidential observations. He was brilliantly successful. Here was self-reliance, hand in hand with ability, overcoming the severest physical handicap and making life and work a success.

What did self-reliance mean to the handful of American colonists in the dark days of '76? to Field, laying the Atlantic cable, and Fulton struggling with the first steam-boat? What has it done for every man and woman who has won name and fame?

STEPS IN ITS ACQUIREMENT

Read to the class Hubbard's "Message to Garcia," the story of a young man in the Cuban war who was told to find General Garcia and give him a certain message. He went and did it, not asking why or how or when, or if somebody else could not do it just as well. That is the whole secret of self-reliance everywhere.

Carrying the same principle into school life, the self-reliant youth is the one who gets his lessons without help, who studies as diligently by himself as when he is being watched, who is fair and square on the playground, who is not afraid to refuse to smoke cigarettes or take a glass of beer.

Every day of one's school life, as well as later, questions will arise which some one must settle. Whoever does so honestly, and to the best of his ability, has acquired a little more self-reliance than he had the day before. Whoever shirks this responsibility has grown a little weaker. "Captains of industry are invariably the men who have made the most of their opportunities, and who are well equipped and ready when the call comes for good men at the front. There will be great crises in the future as in the past, and every young person should regard himself as the possible leader who may be summoned in such an emergency."

School Physiology Journal

COPYRIGHT APPLIED FOR

Single Subscription.....$0.60 a year

CLUB RATES

Clubs from 5 to 50. .....$0.50 each
Clubs of 50 and over..... .40 each

Please remit by post office or express money orders, draft on New York or Boston, or by registered letter.

MARY H. HUNT, EDITOR
HENRIETTA AMELIA MIRICK, Assistant Editor

Published monthly at 23 Trull St., Boston, Mass.
SEPTEMBER TO JUNE, INCLUSIVE

Entered at the Post Office at Boston as Second Class matter

SOME UNTENABLE CRITICISMS ON THE TEMPERANCE EDUCATION LAWS

BY MACY A. SMITH

AN article written by Superintendent W B. Ferguson, under the title "Temperance Teaching and Recent Legislation in Connecticut," appeared in a recent number of the *Educational Review*.

The author concedes to his readers some well established facts, viz., that "The use of intoxicants has been the cause of poverty, crime, and suffering, of social and personal degeneracy, of political corruption and social disaster." For all this he suggests no remedy. He also says that it has produced problems which have baffled philanthropists and statesmen. This certainly no sane person would question. Next, he proceeds to call the roll of temperance organizations from the days of the Nazarites and Rechabites down to the present hour. The Woman's Christian Temperance Union is the last on the list. All except the last, to his thinking, have proved failures, for "In spite of statute and moral suasion, in spite of the strong arm of the law and the appeal of reformers, nearly all the evils and problems that have their source in alcoholic drinks remain to cause public anxiety and sometimes alarm." "Laws punishing drunkenness and designed to regulate the traffic are old," and like all else, have failed.

As one of the leading agencies in modern temperance work, affecting both public instruction and legislation, he singles out the Woman's Christian Temperance Union. If we understand the author correctly, this organization is doing more harm than good. It is doomed ere long to take its place with the dead and useless organizations of the past. It is responsible for "laws which do violence to modern pedagogy, which force upon the schools devitalized and machine-like methods, and a kind of teaching which is a travesty on modern education, all in spite of the opposition of teachers and school superintendents, in spite of state officers of education, college professors, and college presidents, in spite of prominent physicians, clergymen, the public press, and even legislators themselves." One might inquire in passing how it is possible to "force upon the schools" any law "in spite of the lawmakers themselves," without whom no law can be enacted.

That the Woman's Christian Temperance Union possesses force is evident from the influence it has exerted on legislation and elsewhere. It is therefore a power to be reckoned with.

Even according to the author, "the object of this society is noble." "Only praise can be bestowed upon its ultimate object." What, then, are the grounds for such opposition as he arrays against this noble order?

First, the organization is fully resolved that all the children of the schools shall be taught what science has to say on the effects of alcohol. They believe that on this question as on all others, learning is better than ignorance. The assertion of the author, that the temperance education movement rests upon the old Socratic philosophy that knowledge of evil insures the avoidance of evil, is an absurd assumption. Nobody has ever made so sweeping a claim; but knowledge certainly tends to influence action, and in time is sure to become cumulative. When this cumulative knowledge of the effects of alcohol has influenced the majority of the people, the saloon will be abolished. Therefore, it is our duty to educate in matters pertaining to temperance, as well as in other subjects, even though in every individual case knowledge may not be acted upon.

Most people know that accumulation of refuse about the dwelling house may be productive of disease and death, yet some fail to remove it. Are our boards of health then acting on "an assumption not founded on truth" in continuing to educate the public as to the dangerous consequences following such a course?

Moreover, the author of the article under review is inconsistent with himself, for on another page he says, "The evil effects of alcohol and tobacco should be pointed out to children."

A second objection to the present system of temperance education seems to be that it does violence to pedagogy. Ideals alone, we infer, are fit subjects for the minds of children. How unfortunate that the Bible is so unpedagogical as to teach the Decalogue as well as the Beatitudes! It may be well to take a lesson from the Great Teacher. Who does not know that the parable of the Prodigal Son is considered

the Gospel in a nutshell? Was it an ideal boy, or an ideal young man, or an ideal mature man, that was thus held up to view? Yet that parable is an illustration of the work of the greatest teacher the world has yet seen, some modern ideas of pedagogy notwithstanding.

But although granting that some temperance instruction should be given, Mr. Ferguson complains, in the third place, that many of the existing laws are too stringent, and that school officials were not consulted nor their advice followed. Without recrimination, it may be said that in every case in which weak laws have been strengthened there had been previously a period of years during which such laws gave educators abundant opportunity to develop an effective system of temperance education according to their own ideas. Those ideas, for the most part, seemed to be to do as little as possible, and they were thoroughly lived up to, to the detriment of the children.

For this reason, the people of our most populous states were compelled to take the matter into their own hands and indicate in more specific laws a minimum of the work to be done. As to immediate results, the Report of the New York State Central Committee, lately issued,* contains abundant testimony from every county save one that the universal instruction required by the revised law is powerfully influencing for good the habits of the children.

"My strength is as the strength of ten,
Because my heart is pure."

The law of Pennsylvania is cited in the article under discussion as an illustration of effective results secured under a "liberal law." But the author misrepresents its provisions. He says that it "specifies nothing as to what, how much, or how temperance should be taught, nor is it specified that text-books should be used in any grade."

That law says that this subject shall be studied and taught "as a regular branch by all pupils in all departments of the public schools of the commonwealth;" that there shall be "proper provision for instruction in physiology and hygiene which, in each division of the subject, gives special reference to the effects of alcoholic drinks, stimulants and narcotics upon the human system," . . . and any failure or neglect on the part of school officials receiving money from the commonwealth, "reported or otherwise satisfactorily proved, shall be deemed sufficient cause for withholding the warrant for state appropriation of school money to which such districts or educational institutions would otherwise be entitled."

This is certainly "*what* shall be taught," and "*when*." In regard to the other provisions of the law, Pennsylvania is fortunate enough to have school officials who are conscientious concerning the interests of the children and honest in interpreting the true intent of the law. The school laws and decisions of Pennsylvania (edition of 1899, page 234) say on these points: "The proper preparation of lessons assigned to the pupils . . . . makes the use of text-books absolutely necessary, even if the law did not peremptorily require their general introduction, as it does." Also, according to the statement of the Pennsylvania Superintendent of Public Instruction, "Without the penalty, our temperance education law would have been a failure."

If the Connecticut officials had been equally concerned for the children of that state, it would not have been necessary for the people to ask for a stronger law, as they did in 1893. Whether the educators under the present weak law of Connecticut will improve on their previous record remains to be seen.

Another respect in which, according to Mr. Ferguson, certain laws are too stringent, is that they require this instruction to be given *all* pupils in *all* schools. Why should it *not* be given, adapted, of course, to grade? All pupils in all schools are exposed to temptations; all pupils in all schools are continually forming habits. Why then deprive any of instruction which in many cases would be their only safeguard?

Mr. Ferguson advances no criticism of the temperance education laws which is tenable. A succeeding article will point out the fallacies in his criticisms of the text-book question.

*See October School Physiology Journal.

TEMPERANCE INSTRUCTION IN THE UNITED STATES

BY W. T. HARRIS, LL. D.

THE state of Georgia has recently adopted the law requiring temperance instruction in its public schools. This legislation has completed the list of states requiring, by statute, instruction on the effects of intemperance.

All persons with a knowledge of the situation will admit that it is very difficult to teach temperance in schools, and all will equally admit that such teaching is of the highest importance. Moreover, it must be total abstinence that is taught, and not a compromise which admits moderate drinking as the ideal to be reached. It is customary for teachers and superintendents of schools to criticise whatever instruction is attempted in the schools that has not yet been reduced to "pedagogical form." Many things thought necessary to be taught in the schools, such as manual training, cookery, temperance, and natural science, for example, have not, as yet, been reduced to the form of "progressive lessons." Arithmetic, geography, history, and grammar have been long since reduced to a "pedagogic form," and the first lesson or the first five lessons are good and valuable if no more lessons are given. The earlier lessons prepare the pupil step by step for the later lessons. In the new branches above mentioned, the necessary steps to connect one point with the next are lacking, and the instruction can not be made so thorough as it is made in the course of lessons in reading, writing, and arithmetic.

Admitting this, I think it explains the disparagements written regarding temperance instruction which we find in some of the reports of the superintendents of schools. On the other hand, I think that it will be admitted that instruction in what is called "scientific temperance," conducted as it is under the laws of all the states, in the public elementary schools, furnishes a permanent and active means for the dissemination of correct views regarding the effects of intoxicating drinks upon the human body. The pupils will have their attention called to the subject every year, and the intelligent ones will understand with some degree of clearness the results of scientific investigations in this matter. Even the dull pupils who fail to seize the scientific points will carry away an impression in their minds that intoxicating drinks are very dangerous and should not be used even in moderate quantities. It is an undoubted fact that a moderate use of intoxicating liquors is liable to lead, especially in predisposed organisms, to alcoholism. Total abstinence is the only safe course for such persons, and no one can tell in advance what person can safely become a moderate drinker of alcoholic beverages in any form.

Dull pupils, and I may say all pupils, if taught by incompetent teachers, will fail to master the scientific evidence on which these conclusions are based. The examination papers of such pupils will provoke ridicule if made public. This is true not only in regard to temperance instruction, but in regard to instruction in all branches of natural science, manual training, history, religion, and whatever other branches of useful information are taught in schools without having first been carefully reduced to pedagogic form. But very useful results are attained in these subjects notwithstanding. The scientific temperance instruction required in the several states of this nation is certainly a permanent and efficient source for the promulgation throughout the community of correct opinion regarding the effects of intoxicating beverages upon the body. Such instruction, too, is sure to furnish the greater number of the intelligent pupils in schools with a tolerably correct notion with regard to the scientific investigations which have furnished the evidence for these conclusions. The utter destruction to the body and mind which comes from habitual intemperance, and the danger of moderate drinking in arousing an abnormal appetite for intoxicating liquors, will certainly be seen and understood by the great mass of pupils that attend the public schools. It may be said that this movement is the most effective one ever devised by the friends of temperance to abate a great evil, one of the greatest evils abroad in the land.—From *Report of the Commissioner of Education for the Year* 1900-1901.

The moral pulse-beat which we are waiting for is such a universal condemnation of drunkenness and dissipation of human power, that immorality will pass out of our public streets and out of our public resorts.—*The Independent.*

"It is the man that dares to be ahead of the times that in the end leads the times."

Patriotism is such a loving sense of the unity and the vitality of the national life as will lead one gladly to obey the law, to guard its dignity, to aid in its enforcement, to exercise a noble self-restraint, to cultivate civic virtues and political wisdom, to sacrifice, to suffer, and, if need be, to die for the country.—J. ELLEN FOSTER.

THE WORTH OF A BOY

BY NATHAN C. SCHAEFFER, LL. D.
State Superintendent of Public Instruction, Pennsylvania

WHAT is a boy worth? What is an education worth?

An Indiana jury awarded $599.99 for the killing of a boy. A friend of mine, who is a superintendent in West Virginia, called that award an outrage. I asked him why. He answered, "To say nothing of the value of the boy's personality and all that a boy is to his father and mother and home, the commercial value of the boy's time at school is more than the award of that Indiana jury." I asked him how he made the calculation.

He said, "You find the value of a boy's time at school by subtracting the earnings of a life of uneducated labor from the earnings of a life of educated labor." Then he gave me a calculation that I have used this year before every institute, for I am anxious to get it into the daily papers, to have it carried to every schoolroom and put upon every blackboard, so that the pupils may carry it home and discuss it with their parents.

"Oh, little loveliest lady mine,
Here is my heart for your valentine!"

He said: "If an uneducated man earns $1.50 a day for three hundred days in a year he does very well; and if he keeps it up for forty years, he will earn $1.50 x 300 x 40, or $18,000. An educated man is not generally paid by the day, but by the month and by the year. If you will strike an average of the earnings of educated men, beginning with the President of the United States, who earns $50,000 a year, the presidents of the insurance companies and of large railroad companies, and run down the scale until you come to the lower walks in point of earnings among educated men, you will admit that $1,000 a year is a low average for the earnings of educated labor. For forty years you have $40,000 as the earnings of an educated man. Subtract $18,000 from $40,000 and the difference, or $22,000, must represent the value of a boy's time spent at school in getting an education." You will all admit that the man who works with his hands at unskilled labor puts forth as much muscular effort as the man who earns his livelihood by his wits and education. Now if $22,000 represents the value of time that a boy spends at school in getting an education, what is the value of a day spent at school? The average school life of every boy and girl in Massachusetts is seven years of 200 days each; let us say that it takes four years more to get a good education. Reckoning eleven years of 200 days each, you will find that the 2,200 days at school are equal to $22,000, and a simple division on the blackboard will bring it home to the comprehension of every boy that each day at school, properly spent, must be worth $10.

One director asks whether it is a violation of the compulsory law if a farmer keeps at home his eleven-year-old boy to plow, because it costs $1.00 a day to get some man to do the work. While he is putting $1.00 into his own pocket he is robbing that boy of $10. in the shape of future earning capacity. Is not that high-handed robbery by a father of his own child?—*American Journal of Education.*

"Every noble life leaves the fiber of it interwoven forever in the work of the world; by so much, evermore, the strength of the human race has gained."

A VALENTINE

Oh! little loveliest lady mine,
What shall I send for your valentine?
Summer and flowers are far away;
Gloomy old Winter is king today;
Buds will not blow and sun will not shine:
What shall I do for a valentine?

I've searched the gardens all through and through
For a bud to tell of my love so true;
But buds are asleep, and blossoms are dead,
And the snow beats down on my poor little head;
So, little loveliest lady mine,
Here is my heart for your valentine!

—LAURA E. RICHARDS.

A DESTROYER OF MEN

THE first and most seductive destroyer of most young men is the drinking of liquor. I am no temperance lecturer in disguise, but a man who knows and tells you what observation has proved to him; and I say to you that you are more likely to fail in your career from acquiring the habit of drinking liquor than from any or all the other temptations likely to assail you. You may yield to almost any other temptation and reform—may brace up, and if not recover lost ground, at least remain in the race and secure and maintain a respectable position. But from the insane thirst for liquor escape is almost impossible. I have known but few exceptions to this rule. . . I implore you, hold it inconsistent with the dignity and self-respect of a gentleman, with what is due from yourselves, being the men you are, and especially the men you are determined to become, to drink a glass of liquor at a bar. Be far too much of the gentleman ever to enter a bar-room. You do not pursue your career in safety unless you stand firmly upon this ground. Adhere to it and you have escaped danger from the deadliest of your foes. . . . There is no use in wasting time upon any young man who drinks liquor, no matter how exceptional his talents. Indeed the greater his talents are, the greater the disappointment must be. . . . The men of the railroad world are to be congratulated on occupying the proud position, as I believe, of the most temperate body of employes in the world. They are an example to the workingman of other branches of the outspreading tree of labor, and their influence can not fail to prove of incalculable benefit. No rule that a man can adopt will bring greater regard than this, to abstain from the use of alcohol as a beverage. A drinking man has no place in the railroad system. Indeed, he should have no place anywhere.

My men are not required to be total abstainers, but all who are can obtain from me a gift equal to ten per cent of their wages with my best wishes, upon stating that they have abstained for the year.

I consider total abstinence men worth ten per cent more than others.—ANDREW CARNEGIE, in *The Empire of Business*.

A GOOD INVESTMENT

THE best possible investment a young man can make is in himself,—that is, in his own training and development for useful and effective work in the world. Opportunities nowadays are so numerous and varied that the young man of health and determination may reasonably hope to make his way in the world without regard to any beaten path. But in one way or another he must become educated and trained for efficiency. The thing in general to be attained is power. The thing in particular is the special training of some kind that enables a man to make expert application of his developed force and ability. If trained capacity has been a valuable asset in the past, it becomes the one indispensable asset under the new conditions.—DR. ALBERT SHAW.

A Sunday school teacher after reading to her class the story of a generous child, asked them what generosity was. One little fellow waved his hand vigorously, and on being requested to answer said, "It's giving to others what you don't want yourself."—*New York Tribune*.

PHYSIOLOGY TOPICS FOR FEBRUARY

PRIMARY—Needs of the Body Externally: Shelter. Clothing. Sunshine. Voice: Use, Care, Training. Teeth. Pure Air and Breathing.

INTERMEDIATE—Food. Digestion. Assimilation. Brain and Nerves.

ADVANCED—Food. Tobacco. Skin and Cleanliness.

Ex-Speaker Reed's Monumental Achievement in Literature.

MODERN ELOQUENCE

A Library *of the* Best After-Dinner Speeches, Popular *and* Classic Lectures, Famous Addresses, Reminiscence, Repartee, Illustration *and* Story, Ten Handsome Library Volumes.

When the Honorable Thomas B. Reed took up the self-assigned task of making a library which should honestly and adequately represent the best of the modern world's eloquence, he had voluntarily relinquished all political ambitions and was therefore in a better position than ever to view men and things in their proper light. His brilliant intellect was exercised not only for the present good, but also for that of future generations.

It is probable that in no work undertaken by Mr. Reed were his foresight, his judgment, his knowledge of affairs, so nobly used as in the preparation and personal editorship of MODERN ELOQUENCE. This unique work, complete in ten volumes, stands today an emblem of the man and his methods, a fitting monument to his efforts, and a precious legacy to posterity.

WHY SO UNIVERSALLY POPULAR

What is the reason for the unprecedented sale of Ex-Speaker Reed's literary achievement, MODERN ELOQUENCE?

It may not have been brought to your attention before, but it is a fact that the first year's sale of MODERN ELOQUENCE has exceeded, by at least 5000 sets, that of any other set of books published in the history of the World.

To what is this universal favor attributable? Is it the prestige of the Honorable Thomas B. Reed, the Editor-in-Chief, or the distinguished Associate Editors? Is it the valuable contents—the rich gift of 600 contributors—or the matchless beauty of the volumes?

Why are these books in the libraries of most of the prominent professional and business men of America and Europe?

Why is MODERN ELOQUENCE so popular in that all-important place—the home?

Why are scores of sets being sold in single villages of less than 1000 inhabitants?

Why are so many ambitious young men among its subscribers?

The entire satisfaction which the work gives, and the enthusiasm of subscribers in recommending it, are largely responsible for the constantly increasing sale which is now taxing the capacity of the two largest binderies in New York. But why this manifestation of such unusual interest by subscribers?

Do you not wish to know more of this set of books?

Would you not like to see what substantial reasons exist for the sales of this work aggregating more than $1,000,000 a year?

Your interest in the broad subject of American literature will be sufficient to make these facts and questions of more than passing moment.

Upon receipt of the attached coupon indicating your interest, and giving address which will insure proper delivery, we shall be pleased to send you a portfolio containing specimen pages and handsome illustrations (including a fine photogravure of Mr. Reed), and to submit a special proposition which will place in your possession a set of MODERN ELOQUENCE.

JOHN D. MORRIS & COMPANY

Publishers, Philadelphia

CUT OFF HERE

A Fine Portfolio Sent Free.

JOHN D. MORRIS & CO.

1201 CHESTNUT STREET, Philadelphia.

Gentlemen: Referring to your advertisement of Hon. Thos. B. Reed's library of Modern Eloquence in The School Physiology Journal, I shall be pleased to receive portfolio of sample pages, photogravures and chromatic plates; also full particulars regarding binding, prices, etc.

Name.....

Business.....

Street.....

City and State.....

NEW CENTURY SERIES
of Anatomy, Physiology and Hygiene

The latest series of physiologies published since the recent agitation regarding the systematic study of physiology and hygiene, including scientific temperance instruction, in our public schools. It represents the latest phases of scientific research and study, combined with the best methods of instruction. The books have been arranged in accordance with modern experimental methods and particular attention has been given to the treatment of alcohol and other narcotics and to the subject of right living.

Anatomy, Physiology and Hygiene For High Schools. By Henry F. Hewes, M. D., Instructor in Physiological and Clinical Chemistry, Harvard University Medical School.
Price, $1.00

With experimental work this book gives a connected outline of the processes which accomplish the maintenance of life in the body and of the rules of hygiene which it is necessary to follow in order to facilitate their harmonious action. Chapters are included upon the nature and action of bacteria in connection with infectious diseases, and also upon physical culture and gymnasium exercises.

Elementary Anatomy, Physiology and Hygiene For Higher Grammar Grades. By Winfield S. Hall, Ph.D., M.D., Professor of Physiology, Northwestern University Medical School, ... **Price, 75 cents**

Treated according to the inductive method, beginning with the easily observed facts of plant physiology and leading by comparison up to human physiology and hygiene. Simple illustrations and experiments, but no dissections, are presented in connection with the physiological facts. A particular feature of the book is the lessons on domestic economy which form a noteworthy contribution to one of the most important problems of sociology.

Intermediate Physiology and Hygiene For Fifth and Sixth Year Pupils, or corresponding classes in ungraded schools. By Winfield S. Hall, Ph.D., M. D., and Jeannette Winter Hall, Special Teacher of Physiology, Berwyn, Ill. . . **Price, 40 cents**

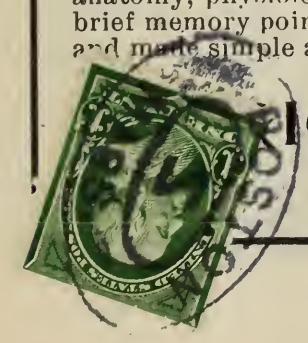
The illustrations are a marked feature of this book, including both mechanical diagrams and attractive pictures designed to interest the pupil. Special attention is called to the simple comparisons of the bodies of human beings and of the lower animals. The object of this comparative study is to impress upon the mind of the pupil the unity of nature and to cultivate in him a love and sympathy for the lower animals.

New Century Primer of Hygiene First Book for Pupils' Use. By Jeannette Winter Hall. . . . . **Price, 30 cents**

A simple and attractive presentation of the elementary facts of physiology for pupils of the fourth year grade. The language used is free from technical terms and readily comprehended by the child, while familiar facts are used to emphasize the principles discussed. Brief object lessons in general physiology are given, together with a simple treatment of the most important laws of hygiene. Contains numerous illustrations and useful and practical suggestions.

Oral Lesson Book in Hygiene For Primary Teachers. By Henrietta Amelia Mirick, A. B., Assistant Editor School Physiology Journal. . . . **Price, $1.00**

A manual for the teacher, containing suggestive oral lessons on the most elementary facts of anatomy, physiology, and hygiene, for the first three years of school life. At the end of each lesson are brief memory points summarizing the most important features. Each day's work is thoroughly planned and made simple and interesting.



AMERICAN BOOK COMPANY, *Publishers*
Cincinnati Chicago Boston Atlanta San Francisco

The School Physiology Journal

Contents

PUBLISHED AT
BOSTON, MASS.
MARY H. HUNT, EDITOR

VOL. XII. NO. 7
MARCH, 1903

IMPORTANT BOOKS ON NATURE STUDY

NATURE STUDY AND LIFE

By Clifton F. Hodge, Assistant Professor of Physiology and Neurology in Clark University, Worcester, Mass. With an Introduction by Dr. G. Stanley Hall. 12 mo. Cloth. 514 pages. List price, $1.50.

"Nature Study and Life" is intended to assist teachers in directing their pupils in nature-study work, and to be used by the children themselves as a reference book. It has twice formed the basis for nature study courses in the Clark University Summer School; it has further stood the more practical test of teachers' institutes in various states; and, finally, its most important suggestions have been tried thoroughly in the schoolroom.

	List Price
Atkinson's First Studies of Plant Life	$ .60
Ball's Star-Land (Revised Edition)	1.00
Beal's Seed Dispersal	.35
Bergen's Glimpses at the Plant World	.40
Burt's Little Nature Studies for Little People, from the Essays of John Burroughs. Vols. I. and II., ea.	.25
Gould's Mother Nature's Children	.60
The Jane Andrews Books—	
Seven Little Sisters	.50
Each and all	.50
Stories Mother Nature Told Her Children	.50
My Four Friends	.40
Lane's Oriole Stories	.28
Long's Ways of Wood Folk	.50
Long's Wilderness Ways	.45
Long's Secrets of the Woods	.50
Morley's Seed-Babies	.25
Morley's Few Familiar Flowers	.60
Morley's Flowers and Their Friends	.50
Eddy's Friends and Helpers	.60
The Finch Primer	.30
The Finch First Reader	.30
Hale's Little Flower People	.40
Stickney's Study and Story Nature Readers—	
Earth and Sky	.30
Pets and Companions	.30
Bird World	.60
Jefferies' Sir Bevis (from 'Wood Magic')	.30
Newell's Outlines of Lessons in Botany—	
Part I. From Seed to Leaf	.50
Part II. Flower and Fruit	.80
Newell's Reader in Botany—	
Part I. From Seed to Leaf	.60
Part II. Flower and Fruit	.60
Porter's Stars in Song and Legend	.50
Strong's All the Year Round Series—	
(Spring, Autumn, Winter,) each	.30

GINN & COMPANY, PUBLISHERS

BOSTON NEW YORK CHICAGO SAN FRANCISCO ATLANTA DALLAS COLUMBUS LONDON

SOMEBODY--SOONER OR LATER--SOMEBODY.

—some progressive teacher—will ask you if you have ever seen THE LITTLE CHRONICLE. If you are not aware of the fact that THE LITTLE CHRONICLE marks an epoch in education, you should send for free sample copies and the "two-cent-a-week plan" as soon as you read this. THE LITTLE CHRONICLE is one of those phases of modern educational progress which it is

EMBARRASSING NOT TO KNOW.

ADDRESS DEPT. Q,

THE LITTLE CHRONICLE,

CHICAGO.

P. S.—We Buy Bright Children's Sayings.

THE SUFFOLK

ENGRAVING AND ELECTROTYPING CO.

Illustrators, Engravers, Electrotypers,

234 CONGRESS ST. and 275 WASHINGTON ST.

BOSTON, MASS.

NEW COURSE of STUDY

Plans for fresh topics each year during the primary and grammar grades . . . . . .

IN

the most difficult school subject. With its help the teacher can make

PHYSIOLOGY and HYGIENE

the favorite study of the whole course. Send 5c. for sample copy.

School Physiology Journal

23 Trull Street, Boston, Mass.

School Physiology Journal

Vol. XII *BOSTON, MARCH, 1903* *No. 7*

AN EASTER GARLAND

BY CLINTON SCOLLARD

UNTO the altars bring
The firstling flowers of spring—

The violet with evening's purple eyes;
The valiant crocus-spear
That hath of frost no fear;
The daffodil in morning's golden guise;

The hyacinth, whose bells
Breathe fragrant spells;
Hepatica sprays entwined,
And the shy wind-flower amorous of the wind!

One more fair bloom bear ye,
And let it be
As softly white as plumage of the dove,
The lily that's for love!

O ye that fare with faint and falling breath
Toward the dim gates of death,
Be these the heartening sign—
Quickened by God
Within the dormant sod—
Of resurrection and the life divine!

THE RELATION OF SCIENTIFIC TEMPERANCE TO POPULAR NEEDS

BY MARY H. HUNT

WHAT must be taught in the public schools to insure a nation free from intemperance?

That was the question the writer was asking before a temperance education law was ever asked for or enacted. Study of the testimony of science as to the nature of alcohol and its consequent effects upon the human system had led me to see that the alcohol problem must be solved if our boasted civilization is not to perish, and that education is the only solution. In a republic the people are the sovereigns, the source of power. Hence the strength and perpetuity of a republic depend upon the character of the people. Alcoholic drinks injure character, therefore their use is a menace to the republic, and as such must be prevented. Since a republic has no power with which it can compel majorities, such prevention can come only through education. Therefore, the inquiry with which this article opens matches in gravity the question, Can the Union be preserved? which faced Abraham Lincoln when he left Illinois for the White House, in 1861.

In trying to find an answer to the question, what must be taught, two other questions, each involving many others, had to be answered:

First, What is the truth about the character and effects of alcohol that the people should know?

Second, What are the wrong ideas that are leading the people to drink and that consequently must be corrected?

OUR DEBT TO SCIENCE

There are some remarkable coincidences in the history of our temperance education movement in the United States. At the same time that on this side of the Atlantic the question, What is the truth about the nature and effects of alcoholic drinks? was insistently pressing upon the one destined to plead for this education before the legislatures of this and other nations, across the ocean, in England, Dr. B. W. Richardson was making those wonderful experiments proving what has been confirmed again and again by later investigators concerning the evil nature and perilous effects of alcohol as a beverage. Thus first came answers to the question, What is true that can be taught the people? Scientific experimentation and human experience have each year added more new and confirming testimony to that of Dr. Richardson.

FALLACIES LEADING TO THE DRINK EVIL

If at that time the Woman's Christian Temperance Union had not come into existence and extended its branch organizations to towns and cities in every state and territory of the land, we could not have found the answer to our second question, What are the popular fallacies that are leading to the drink evil? Our public school temperance education would have been incomplete if, through lack of knowledge of what these popular fallacies are, it had furnished no evidence proving them to be such.

For three years, from 1879 to 1882, the Woman's Christian Temperance Union made engagements for me to speak on scientific temperance education in different parts of nearly every state in the Union. Entertained in the homes of the people, I was everywhere, with the help of local temperance workers and by direct observation, studying the habits and opinions of all classes concerning alcoholic drinks and narcotics,—the fashionable leisure circles, workingmen, employers and employes, people in the churches, hospitals, police courts, prisons, and reformatory institutions. Every-

where, if there was alcoholic drinking, I was searching for the answer to the question, What are the popular reasons for drinking?

Let no one say that I generalized from single cases, because space permits citing here only a few of the many incidents that daily showed the fallacies which must be corrected to save this republic from the destruction following in the wake of alcohol. The inference that I make individual experience the voice of science would be as unjust. The incidents I observed were the result of popular fallacies exposed by science, as I had learned from previous study in my effort to find what is true about alcohol.

THE FALLACY THAT ALCOHOL AIDS MUSCULAR WORK

A railroad accident late one afternoon left me some twenty miles from the town in a western state where I was to speak in the evening. Officials of the road kindly arranged for my finishing the journey on a hand-car, the only means available. Two men to work the levers that moved the wheels, and two more to relieve them at intervals, with the writer strapped into a stationary chair to avoid accident in swinging around curves, made up the passengers on that small open platform that sped across the prairie as the winter sun sank towards the west.

The men had heard that their passenger was a temperance lecturer, and one said, "I hope you will not think it out of place, madam, if I ask how is a fellow to do a piece of hard work like this without a brace to keep up his strength, such as Jim and I took before we started?" Quickly one of the other two replied, "You fellows took whiskey to help you do this job. We two did not. Now, let's see which can pull the longest and hardest."

At once their silver watches came out. From their knowledge of the road, distances were allotted and the two sets of relays worked on time. As the abstainers easily distanced the drinkers in both time and staying power, I pondered: "Here is a continent to be subdued, to become the home of untold millions, its limitless resources containing the raw material of boundless wealth to be developed and utilized. There must be a strong, achieving, virile race here to do this, and the people, east, west, north, and south, for I had before met the same notion, are thinking that alcohol furnishes strength that will help them accomplish their tasks." Into my notebook went the statement, One of the most important things to be included in the coming scientific temperance education is that the evidence shows that

Alcohol, even in small amounts, has a deleterious effect on voluntary muscular work.

THE FALLACY THAT ALCOHOL DOES NOT IMPAIR MUSCULAR PRECISION

The same year I was a guest in a respectable, well-to-do artisan's home in a watchmaking town where I had spoken the night before. After my host had gone in the morning to his work, and the children to school, the wife, a member of the Woman's Christian Temperance Union, said, "I thought last night I would tell you how I found out that alcohol injures ability to do fine work.

"When he had sobered up the first time, I told John I should leave him the next time he came home drunk. It was Thanksgiving Day. In spite of my entreaties he drove off in the morning, promising to be home to dinner sure. I cooked our turkey dinner, set the table with the pretty china mother gave me, dressed baby and myself, and waited and waited until after dark. Then he came stumbling in and fell upon the sofa, dead drunk. I covered him with a quilt and quickly putting on baby's bonnet and cloak and my own wraps, went out and engaged the expressman to come in two hours with wagons. A kind neighbor, who knew the horrors of a drunkard's home, helped me, and in less than two hours, with baby wrapped up and asleep in my arms, and the furniture of our pretty little home, which was all mine, I was on my way for a twelve mile ride to mother's. There was nothing left in the house but poor John, the lounge he lay on, the quilt that covered him, the stove in which I had left a good fire, and the untouched dinner on the otherwise bare pantry shelves.

"After a time John came after us, promising, and begging me to go back. I told him when I had proof that he had not drunk a drop for two years I would, but not sooner. The proof I asked was that he should send me each week a copy, made out at the office, of the statement of his wages. I knew that the clerk would give him an extra one if he asked."

"How was that proof?" I inquired.

"John is a piece workman on the finest watches," she said. "Somehow the men got the notion that drink helped them to turn off more. That is the way John began to drink. But drink didn't help, it hindered. I could always tell by the money he brought home Saturday night whether he had been drinking. When he hadn't, he made good wages and we had everything we needed and laid up something. If he drank only beer it made his hand unsteady and his fingers clumsy.

"For two years he sent me that statement every Saturday night, and I knew by the money he had earned that he had kept his promise. I told him not to send money to me. I worked

in the shop, taking care of myself and the baby, and he put his money into the house that was ready for us when the two years were up. The Christian people got after him, and he became interested in religion, joined the church," and with a look of great content, she said, "we have a Christian home now." And I put into my notebook, The schools must teach the people that

The use of even the weak forms of alcohol impairs the power of muscular precision, diminishing ability to do fine work.

It is now nearly fifteen years since the fact that alcohol injures working ability, with other truths, has been quite generally taught the children of the people of this country in the public schools. An article published in Belgium, England, France, Russia and Switzerland entitled *One Factor in the Industrial Competition of Nations* shows the result of that teaching.

THE FALLACY THAT BEER, WINE AND CIDER DO NOT CONTAIN ALCOHOL

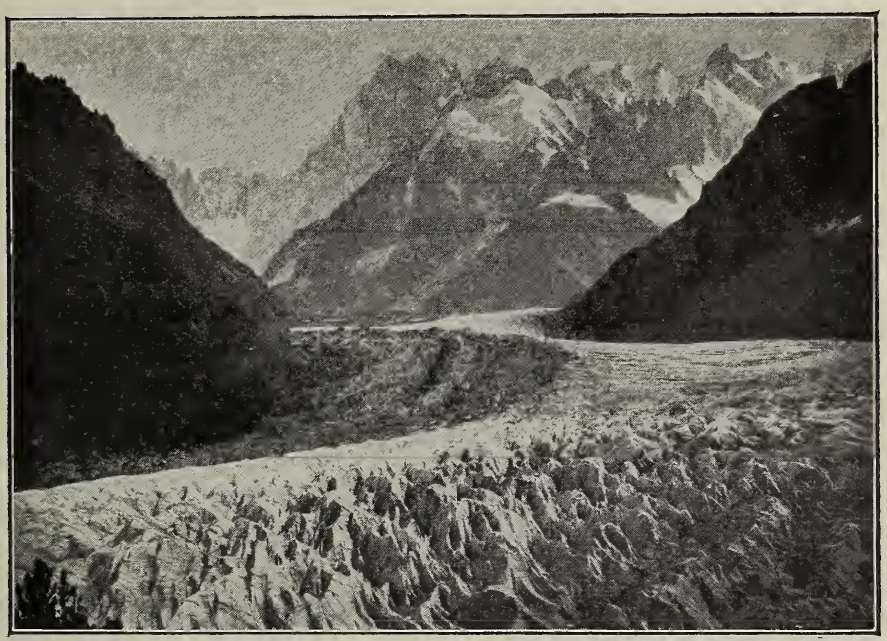
In a beautiful home in the middle west, my hostess, who had just returned from European travel, said, as we talked over the previous evening, "I liked your lecture last night. It was very interesting, but how can you be right about beer? Why, it is liquid bread, and the wines of France made from their delicious grapes can not contain alcohol."

Farmers in Vermont, Michigan, New York, Pennsylvania, Ohio, and elsewhere said in substance what the man in one of the Massachusetts hill towns said: "It is all nonsense about my cider being an alcoholic drink. I made it myself from the juice of good apples that grew on my farm. I put no alcohol into it."

In another part of the country, a doctor of divinity invited with others to dine with me in the home where I was entertained, holding up a bunch of grapes, said, "How are you going to teach the people total abstinence, when there is alcohol in all the fruits? There is alcohol in these grapes."

Here is another providential coincidence. Pasteur and others made the discovery that alcoholic fermentation in cider and wine is the work of minute organisms called ferments which rest on the skin of ripe fruits, but do no harm until the juice of such fruits is pressed out. Then these ferments, washed into the juices, change their sugar to alcohol. He discovered also that the yeast which produces fermentation in beer is another kind of ferment, that changes the sugar in the malt solution in beer to alcohol. If these facts had not been discovered, we could not have corrected the almost universal fallacy that beer, wine, and cider must be good, because the fruits and grains from which they are made are good. Thus the conviction grew, that read in the notebook, The people must be taught that

Fermentation is a process of decay.
Alcohol is a product of fermentation.



"A flowing solid of translucent ice, extended in the sunshine silently."

As fermentation changes the character of the substance it works upon, the sugar in good fruit and grain juices is changed to alcohol, a poison.

THE FALLACY THAT ALCOHOL INCREASES BODILY HEAT

A painful experience showed the necessity of teaching the people that alcohol diminishes instead of adding to bodily heat.

An early temperance education law was pending in one of the northern states. The expressman's horn and "all aboard" were the first sounds I heard at five o'clock the morning after speaking the evening before in a town way up on the Canadian line.

Hastily dressing, without breakfast, I jumped into the open sleigh, the only passenger in the vehicle called "The Express," to be driven ten miles to the railroad station where I could take the train for my next appointment. Snow had fallen during the night; the thermometer had gone below zero, and fierce winds had piled the snow in huge drifts. "Whisky is the only thing that will help a man stand cold like this," the driver said, proposing to stop to get some, as I supposed. Realizing the peril before us, with every power of persuasion, of truth, of entreaty, and of command I prevented him. It

was well I did, for the battle before us in that drive, with cold, snow drifts, and biting winds baffles description. As soon after that experience as my frost-bitten fingers could wield the pencil, the entry was made in the notebook, The people of this country of all zones must be taught why

Alcohol does not warm but causes cooling of the body.

THE FALLACY THAT ALCOHOL MAKES BLOOD

In a southern city, a lady confided to me that she was afraid drink was getting the better of her daughter. "Her blood and circulation were poor and we gave her wine as a medicine," the mother said. Then followed the oft told tale of the power of wine in debauching a naturally fine nature. So many times had I heard something like this, representing a fallacy that needed correction, that I put into the notebook, The people must be taught that

All the alcohol in the world can not make one drop of blood, and it impedes regular circulation.

THE FALLACY THAT ALCOHOL DOES NOT DULL THE SENSES

There had been a railroad accident in a state in the middle west that left me in a small city distant from my evening appointment. Going to the director's office to see what transportation was possible, I heard the following: The speaker, evidently the station agent, was saying to a man seated at the desk, "Yes, sir, that switchman had been drinking, not drunk, but one or two drinks aboard. You may think me a crank, but I am down on the road's hiring men who drink. They don't see quick or hear quick. If you'll look into it, I believe you will find that liquor is at the bottom of more than three-quarters of our accidents."

As a caboose attached to a freight train took me to my waiting audience, I recalled the railroad accidents, in one of which I was badly hurt, coming under my own observation during that itinerary, and the fact that quite generally through the country, when the cars stopped, the railroad men ran for a drink to the almost always nearby saloon, and I wrote in the notebook, the people must be taught that

Alcohol dulls the senses and thus unfits the drinker for responsible service.

For fifteen years the public schools have been so teaching, and for over five years the railroads of the country have demanded total abstinence of their employes.

(*To be continued*)

THE FASHIONER OF SPRING

In the dark of her chamber low
March works sweeter things than mortals know.
Her noiseless looms ply on with busy care,
Weaving the fine cloth that the flowers wear.

She sews the seams in violet's queer hood,
And paints the sweet arbutus of the wood.
Out of a bit of sky's delicious blue
She fashions hyacinths, and harebells, too;
And from a sunbeam makes a cowslip fair,
Or spins a gown for a daffodil to wear.

She pulls the covers from the crocus beds
And bids the sleepers lift their drowsy heads.
"Come early risers; come, anemone,
My pale windflower, awake, awake," calls she.
"The world expects you, and your lovers wait
To give you welcome at Spring's open gate."

She marshals the close armies of the grass,
And polishes their green blades as they pass.
And all the blossoms of the fruit trees sweet
Are piled in rosy shells about her feet.

Within her great alembic she distills
The dainty odor which each flower fills.
Nor does she ever give to mignonette
The perfume that belongs to violet.
Nature does well whatever task she tries
Because obedient,—there the secret lies.

—*Round the Year in Myth and Song.*

"The children who drop out of school at the end of the fifth year are usually those from the lower classes of society," said a school man as an excuse for taking the study of temperance physiology from the fifth grade. My indignation was at white heat that a man entrusted with the education of the people's children should so imperfectly understand his work, when my eye fell upon the ringing words of Mr. Walter N. Page:

"It is a shining day in any educated man's growth when he comes to see and to know and to feel and freely admit, that it is just as important to the world that the ragamuffin child of his worthless neighbor should be trained as it is that his own child should be. Until a man sees this, he can not become a worthy democrat nor get a patriotic conception of education; for no man has known the deep meaning of democracy or felt either its obligation or its uplift till he has seen this truth clearly."

MARY H. HUNT.

Primary Lessons

FIRST YEAR

DRINKING

IF the child's lead is followed in the order of topics taken up as lessons on the human body, that of Drinking will be one of the earliest to be considered.

Hardly an hour passes in any primary schoolroom without the familiar request from some child for a drink. Such chronic state of thirst is due to the fact that more than two-thirds of the body by weight is made up of water. This constant demand must be met in the growing child as in the adult, and in addition, the child needs an extra supply to provide for his continued increase in size and weight.

Since children, then, must drink, and oftener than grown people, what liquids shall be used to assuage their thirst? This is a vital question, and one in which the school must not only cooperate with the home in settling wisely, but in many cases even take the initiative.

Use tact in finding out how the children in your room are accustomed to satisfy their thirst. Sometimes this can best be done by playing tea party with them. Ask them to choose what they will have on their tea tables to eat and drink. If unsuitable articles are named in any case, tell them that wise parents do not allow their children to taste or drink such things, and give the reasons.

Instruction can thus be varied to suit the needs of the locality. In some rooms, it will be necessary to lay special emphasis on the undesirability of coffee or tea as drinks for children. In other cases, beer or cider may be the chief source of temptation, and yet again this may lie in the constant use of cheap sodas.

Do not make the mistake of trying to teach too much. A few thoughts clearly presented in the form of story or play, a strong, earnest word at the right moment will be all that little children can assimilate and act upon, but this little is vitally necessary for them, even more so, in fact, than elaborate instruction in later years after bad habits have been formed.

(1)

A PUZZLE STORY

My home was on the top of a high mountain where everything was covered with snow and ice.

It was cold and lonely up there. No trees or flowers were to be seen, and no birds ever came and sang.

Down in the valley I could see people and animals moving about, and beautiful green grass covering the ground instead of snow.

How I wanted to be down in that lovely valley! But it was a long way off, and I could travel only very slowly. You could not see that I moved at all, but I went as fast as I could, and after a long, long time I reached the foot of the mountain.

Now I could run instead of creeping along. The cold hard ice which had held me fast melted and disappeared.

Bright flowers sprang up all along my path, and tall trees crowded near and hung over me as if they too were glad I had come down from the mountain to be near them.

Sometimes I turned the miller's big wheel so he could grind his corn. Then I helped the farmer water his garden and his fields of grain.

I carried people on my broad back. Haymakers and ploughmen were always glad to see me, and so were their hot tired horses.* It made me happy to give them so much pleasure.

Best of all, I loved the little children. Some of them came every day to play with me, and we ran races or went wading and swimming together. I sailed their little boats, and took them fishing, and when they were tired I sang them to sleep.

I am in every one of your houses. I keep them clean, and you too. You have me for breakfast, dinner and supper, and not one of you would want to get along without me for a single day. I am the best drink in the world for everybody, and my name is — Water.

LESSON TALK

Show the children the picture of the glacier reproduced on page 99, and trace with them its slow course down the mountain until the warm sun has melted the ice and left it free to run sparkling along as a brook, or spread out wide like a river. See picture on page 111.

How can a brook play with children? Tell some of the good times you have had with water.

But water can work as well as play. What have you seen it do? How does it help people?

Why are the grass and flowers so glad to have running water near by? What does it do for them?

*See picture on page 109

Ask those who have a plant of their own to raise their hands. How many of you ever forget to water your plants? What happens to them then? Why do they need water? Would anything else do just as well?

We can not live without water any more than our plants can. This is the reason why we feel thirsty so often. It takes water to make us grow and keep us alive. We can go without food longer than we can without water.

How many have seen a bird drink? Show how he did it. He looks as if he were very thankful for the cool clear water. Name animals that need to drink every day. All our pets need water, and we must never forget to put it within their reach. They can not tell when they are thirsty, as we can.

(2)

READING LESSON

(See picture on page 103)

One day two children met at the ——.

They were about the same ——.

It was summer time, and they were both ——.

Each carried a —— to be filled with —— for breakfast.

"I got here first, so it is my turn before ——," said Edmund.

"No, it's mine," said Gertrude, "because I am a —— , and girls ought to have first ——."

"Say —— , then, and I'll fill your —— for you."

"Please give me a —— too, I am so ——."

What good —— it is, almost as cold as ——.

It is the best drink in the —— .

CLASS TALK

Let the class look at the picture of these two children, before giving the reading lesson with its omitted words for them to supply. Then let them talk about what they see in the picture.

What time of year is represented? How do you know it is not winter? How are these children dressed? What have they come for?

After brief discussion of the picture in general, focus attention on the running water. Where does it come from? What does it run into? What is the trough made of? Have you ever seen one like it? What is it for?

Ask where the water comes from which we use at home; at school. Show pictures of lakes and rivers, springs, the ocean. How does water for us to drink come from all these places, some of them many miles distant?

Take the children outdoors and show them the clouds in the sky. See how light these look, and how fast they can travel. They are carrying water from the ocean and rivers to dry places that need a good cool drink. When they get there they will come down in rain.

While emphasizing in these lessons the beverage use of water, encourage the children to name other ways in which water is a blessing as well as a necessity.

How does water help us to get dinner? Why do most people use more water on Monday than on other days of the week?

(3)

A TEA PARTY AT SCHOOL

Let us play tea party this afternoon. We will make believe that the desks are tea tables, and that you are the hosts and hostesses.

"What are you going to give your guests to drink, Ethel?"

"Soda water and lemonade," was the quick answer, as Ethel named her favorite beverages.

"They will like the lemonade, I am sure, and it will please them to think that you took the trouble to make it yourself out of lemons and sugar and water.

"What do the rest of you think about the soda water? Do you all like it?"

Every hand went up but one.

"What is it, Frances?"

"My uncle keeps a soda fountain and he used to let me have some every time I wanted it. But one day I drank too much and it made me sick. Mamma said it hurt my stomach."

"Your mamma was right. It is not a good thing for little people to have it often. Perhaps it will do to have it at tea parties once in a while, but it is not the best drink for every day.

"What is the drink on your table, George?"

"Mine is milk from a Jersey cow, and it has lots of cream on it," said George, whose father kept a fine dairy, and whose own pink and white cheeks showed that he drank plenty of just such milk every day.

"That is a good drink, and a food as well, so you will not need to offer your guests so many other things to eat.

"What is on your table, Dora?"

"Tea and coffee. That is what mamma has."

"Then I hope your guests are grown up people just like mamma's, because these drinks are not at all good for little folks. They are likely to make them cross and keep them awake at night.

"When I was a little girl I wanted to have tea at my parties. 'It won't be a tea party unless I do,' I told my mother."

"'Very well,' she said, 'you may make cambric tea. That belongs to children's parties, just as green and black tea belong to grown people's parties.'"

"Mine is cambric tea, too," said Dora.

"That is right. I know your company will

be glad to have you offer them the proper kind.

"What have you, Jamie?"

"I have beer."

"Oh, dear me! I don't know what your guests will say to such a drink as that. They will think you have never been to school, or you would know that beer is not good for any body to drink.

"It does not make people strong or good tempered or keep them well. But it often does make them like it so well that they can not stop drinking it."

Jamie's mother wit rose to the occasion.

"I thought at first I'd have some beer," he said, "and then I remembered it was not good for people, so I made some cocoa just before the folks got here."

"Cocoa is much better. If it happens to be a cold day, it will be a nice hot drink for them.

"But people can drink lemonade, and milk, and cambric tea and cocoa and still be thirsty. What is the drink that always satisfies?

"Yes, water. So we'll always have this best drink on our tables no matter what else we have."

"Say please, first!"

THE DANGER IN BEGINNING TO DRINK

It is not enough to warn children against immoderation; that is not the beginning. It is not enough to warn them of the dangers of drunkenness: The school must teach them that even the regular and moderate use of alcohol is injurious to the health and impairs physical and intellectual activity.

The school ought to uproot old superstitions. Children must be shown that alcoholic drinks, even taken in small and diluted amounts, diminish the capacity for physical and intellectual work, and that the feeling of increase of strength experienced after taking alcohol is but an illusion. Total abstinence, therefore, must be the foundation of anti alcohol teaching.

But the co-operation of teachers is essential. The personal attitude of the teacher is not a matter of indifference, especially in matters in which indifference and prejudice are still common. The teacher ought to speak not only from a sense of duty but from a warm personal conviction.—R. THURNWALD, M. D., Berlin, in *L'Abstinence.*

We shall never control alcohol until we have taught the people first—what alcohol is; second—what it will do for us if we drink it; third—what it will make us do: and I can see no way that this can be done but through the schools.—WILLARD PARKER, M. D.

HALF A PINT OF BEER

BY J. J. RIDGE, M. D.

"Half a pint of beer won't do anybody any harm." So said a broken-down, bleareyed individual to whom, no doubt, half a pint was not much more than a mouthful.

If there was but one half pint of beer in the world, and no possibility of making or getting any more, it might, perhaps, go down some red lane or other without any serious consequences. But the solitary half pint is a myth, and, in pleading for one, our beery friend had his eye on a long series of half pints, which, if one were allowed to be smuggled in, would plead the precedent, and join the first in the region within. Hence, the question is not simply what one half pint can do or not do. Half a pint today means half a pint tomorrow, and the next day and the next, and so on, day after day, week after week, month after month, and year after year. Nay, it often means more than that. The half pint for dinner paves the way for the half pint for supper; the half pint this year often means a pint next year, or, in too many cases, half pint after half pint, or even pot after pot.

Then, again, the innocent half pint of beer is the excuse for something stronger on occasion—the glass of wine or glass of spirits. So the half pint is but the camel's nose, and behind that is the camel's head, and his neck and his whole body. The invited guest becomes the tyrant who means to stay.

Grammar Lessons

INTERMEDIATE WORK

ALCOHOLIC DRINKS

A SUCCESSFUL hotel keeper was urged to open a new hostelry on a tableland overlooking the beautiful Cumberland Valley. From a scenic point of view the site was matchless, but the experienced manager shook his head.

"It would not pay," he declared. "Women and children are my best patrons, and no mother would bring her children up here. It is too near yonder precipice, and that can never be made safe for little folks."

With equal sagacity the enlightened commonwealth allows no saloons to be opened within certain distances of its schoolhouses. It knows that no place in which alcoholic drinks are sold, even the most gilded and outwardly respectable, can ever be made morally safe for children, and to this extent, it seeks to remove the temptation.

Such restriction is good as far as it goes, but as long as the drink evil abounds in the land it is necessary also to develop the child's powers of self-control, that he may be able to withstand its attacks whenever and wherever he may meet them. Knowledge is a far more potent factor than mere command in attaining this end. Tell a child he should not drink beer or cider, and his immediate reply will be, "Why not?" and with reason. This is a perfectly legitimate question and should be so treated, by explaining simply and clearly the nature of these drinks and the cause of their inherent danger.

Probably all fourth year pupils who have had instruction on the subject in the lower grades will know that beer is made from grain, and wine and cider from fruits. They may not have learned, or they may have forgotten, why such drinks should be denied them, when at the same time they are allowed and even urged to eat the fruits and grains from which these very liquors are made. In that case, the first topic to take up in connection with the subject in this grade is the

(1)

CHANGED NATURE OF FRUIT JUICES

Some hours beforethe lesson is to be given, pare an apple and cut it into small pieces before the class, leaving it on a plate in full view of them all until time for the recitation.

Begin the lesson by asking some one to describe a ripe apple, its color, size, shape, parts. How do we know an apple from other fruits? Of what color is the juice? If there is any one who is not sure on this point, he may be asked to get an apple and find out at home for himself.

Turn to the cut-up apple which has been standing near. Of what color are the pieces now? What change has taken place in their color since the apple was first pared? What further change would take place if the pieces should be left standing in a warm place several days or weeks?

Call for a brief description of grapes and pears, covering the same points as were brought out in the case of the apple. What changes would take place in these fruits if they were cut open and allowed to stand?

Ask the class to name other foods besides fruits which change in color and general appearance if left uncovered in a warm place for some time. Tell about the change which takes place in bread under such circumstances; in milk, meat, cheese. Do any of these things look, taste or smell as they did before? Why not?

Not one of these things would spoil of itself, but floating all through the air are the seeds or spores of tiny plants much too small to be seen, some of which get on our food and begin at once to change it.

The particles which spoil bread and cheese are called moulds. Those which change fruit juices are ferments. Have some in the class look up the word ferment in the dictionary. They will find the first meaning is to boil or bubble up. Explain that we usually speak of hot liquids only as boiling, but in this case bubbles are formed at the bottom of the cold juices and come floating up to the top just as they do in boiling water, so we use a term that means the same thing and say that such a liquid is fermenting. For the same reason, the tiny particles which make this disturbance are called ferments.

When the meaning of the word is clear, ask the class to open their books and find what these little ferments do when they get into fruit juices. Have the entire passage read aloud. This will give a chance to explain in fuller detail any point the meaning of which is not at once apparent.

As a result all should get these thoughts:

There are tiny particles called ferments floating in the air.
Some of them fall into fruit juices when they are pressed out and left standing.
When they once get into such juice they begin at once to change it.
It no longer tastes sweet and good.
Two new substances have been formed in it, a gas which bubbles up to the top and disappears in the air, and alcohol which stays in the juice.
It is the alcohol which changes the nature of the fruit juices and makes them no longer good for food.

(2)

DANGER IN BEER, WINE, CIDER

Outline on the board, using colored chalk, a basket filled with fruit of different kinds, writing underneath the question, Why do we eat ripe fruit and other kinds of food?

Get answers from as many in the class as possible, referring them to the chapters on food in their books if necessary, in order to bring out such facts as these:

We eat to keep us alive.
To keep well.
To make our bodies grow.
To get strong.

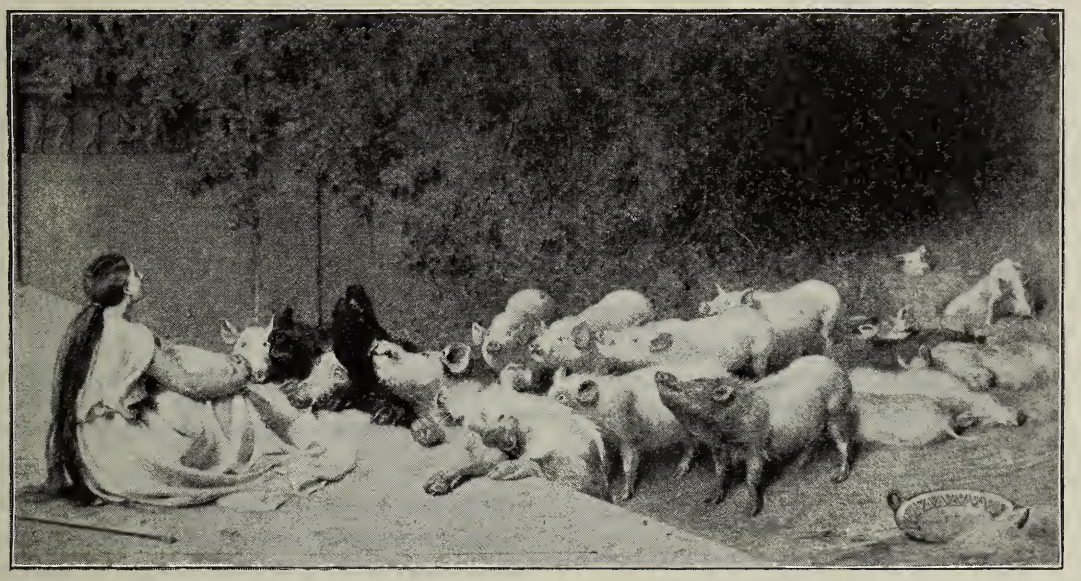
Write the answers which are finally accepted where they can be seen by all, then add other questions to the first, such as, Why do we play? Why do we study? Why do we work?

Some poor or insufficient reasons will probably be given, but in the main the class should agree that food and work and play and study are all necessary to make strong healthy men and women of the sort we all want to be.

Is there anything in beer, or wine, or cider that helps one to grow, or that makes people stronger or healthier in any way? Refer the class to their books on this point also, to find whether such drinks can make blood and bone and muscle; and whether one who uses them is able to do more or better work than if he should let them alone. Have all the passages bearing on these points read aloud, getting the opinion of the class on each.

When they have learned that there is nothing in any of these drinks that can be of the slightest use to them, put on the board the additional question, In what ways do beer, wine, and cider harm the body?

While all the research work thus far suggested should be done under the guidance of the teacher, and as a class room exercise, the constant aim should be to make the class familiar with books adapted to their grade, and increasingly independent in the use of the same. The first step to this end is to show them how to find any topic at will; the next to read the different paragraphs so understandingly that they can give the substance of each in their own words.



Circe and the companions of Ulysses

Following this method with each question suggested above under the general topic, the danger in wine, beer, and cider, the class with very little help from the teacher should reach conclusions similar to the following, based on their own research work:

Wine, beer, and cider do not build up the body as food does.
They do not make it stronger or healthier.
They do not help one to live longer or better.
They do not aid the growing child.
Every one of these drinks contains more or less alcohol.
This alcohol has the power to create such a desire for more that it is hard to give these drinks up after one has begun to use them.

(3)

EFFECT OF ALCOHOL ON SELF-CONTROL

Tell the story of the adventures of Ulysses' companions on the island of Aeaea, or use the same as a supplementary reading lesson in connection with these topics in physiology.

Emphasize the fact that Ulysses' companions were brave, strong men until they had eaten the food of the enchantress and drunk her wine. What happened to them after they had yielded to this temptation? Show the picture reproduced on page 105. What was the reason that Eumolpus escaped being changed into one of the swine?

Is this a true story? Why not? What is true about it? How does wine-drinking often affect people today if they indulge in too much of it? Why can not one take just a little of such drinks and stop before he has had enough to make him look or act silly?

Bring out this last point very clearly. When people eat bread and milk, or meat and potato, they can easily stop when they have had enough. It no longer tastes good to them. But when one takes a glass of wine or any other liquor which has alcohol in it, he never knows whether he can let it alone after that, or not. He may possibly be able to do so, but the chances are that he will get to like it so well that he can not give it up. This is because alcohol can destroy his power of self-control.

Explain what we mean by self-control. It is being able to manage ourselves, to make ourselves do what we ought. When one tastes any liquor that intoxicates, he is in danger of losing this power, just as Ulysses' companions did, and then he too will cease to be truly manly.

Lowell tells us,

"In life's small things be resolute and great,
To keep thy muscle trained."

He does not mean the muscles in our arms or legs, but our power of self-control. This can be trained and developed just as well as our bodies can, and it will be worth infinitely more to us.

AUTHORITATIVE QUOTATIONS

ALCOHOL IN BEER

Is beer not made from grain which is highly nutritive? Oh, yes, but the nutritive element in the grain is almost completely destroyed in its conversion into beer, so that it is practically robbed of its food properties, leaving the beer chiefly water and alcohol. — H. D. MANN, M. D.

ALCOHOL IN WINE

Two of our finest California wines contain six tablespoonfuls of alcohol in a pint. One much vaunted American wine has a little over eight tablespoonfuls of pure alcohol in one pint. One brand of port contains seven tablespoonfuls of alcohol to a pint. One French wine, imported and much advertised, contains five tablespoonfuls of alcohol to a pint. The lightest wine, a California brand, contains four tablespoonfuls of alcohol to a pint.— C. A. GREENE, M. D., in the *Medical Record.*

ALCOHOL IN LIGHTER LIQUORS

Alcohol is the intoxicating ingredient in all spirituous liquors, including under this term wines, porter, ale, beer, cider, and every other liquid which has undergone vinous fermentation. —*United States Dispensatory.*

ALCOHOLIC DRINKS INJURE THE BRAIN CELLS

Alcohol destroys first and most those parts which are most delicate and most recently developed, the wonderful brain cells. Whoever, then, gives wine or beer to a child, injures these delicate structures in their formation, and thoughtlessness, flightiness, passion, coarse sensuality, and all base characteristics attain domination.— FRANZ SCHONENBERGER, M. D., Bremen.

Doses of one fourth to one half an ounce of alcohol, which correspond to a glass of wine or a pint of German beer, are sufficient to paralyze, retard, or disturb the central and centripetal brain functions.—AUGUST FOREL, M. D., Zurich.

ALCOHOL CRIPPLES BODY AND MIND

Alcohol produces its most destructive effect upon the nervous system of the child. There is no surer method of producing idiots than by the continual administering of alcohol, which renders them stupid, listless and lazy, crippling them in mind and body.—EMIL KRAEPELIN, Heidelberg.

ALCOHOL DESTROYS SELF-CONTROL

My experience is that no substance wastes and destroys brain cells and impairs the tissues so rapidly, even when taken in moderation, as alcohol and its compounds. Alcohol destroys the moral sense and self-control. —DR. CLOUSTON, Edinburgh.

A subtle red
Of life is kindling every twig and stalk
Of lowly meadow growths; the willows wrap
Their stems in furry white; the pines grow gray
A little in the biting wind; midday
Brings tiny burrowed creatures, peeping out
Alert for sun.
Ah, March! we know thou art
Kindhearted, spite of ugly looks and threats
And, out of sight, art nursing April's violets!

—HELEN HUNT JACKSON.

School Physiology Journal

COPYRIGHT APPLIED FOR

Single Subscription.....$0.60 a year

CLUB RATES

Clubs from 5 to 50.....$0.50 each
Clubs of 50 and over.....40 each

Please remit by post office or express money orders, draft on New York or Boston, or by registered letter.

MARY H. HUNT, EDITOR
HENRIETTA AMELIA MIRICK, Assistant Editor

Published monthly at 23 Trull St., Boston, Mass.
SEPTEMBER TO JUNE, INCLUSIVE

Entered at the Post Office at Boston as Second Class matter

"The bushes struggle to peer
Through the crusted snow;
They listen and lean to hear
The brook below."

SOME UNTENABLE CRITICISMS ON THE INDORSED PHYSIOLOGIES

BY MACY A. SMITH

State Superintendent of Scientific Temperance, Ohio

IN the February issue of the JOURNAL certain untenable criticisms of Superintendent W. B. Ferguson on the temperance education laws, now universally in force in our country, were considered. The present article deals with his charge that the Woman's Christian Temperance Union is responsible for inferior text-books in physiology and hygiene.

We would respectfully remind our critic that the schools are indebted to the Woman's Christian Temperance Union for the introduction of any text-books whatever on this subject. Twenty years ago there was practically not a single work in existence for grades below the high school and exceedingly few for high schools. The passage of the first laws requiring the study of physiology and hygiene, with special reference to the effects of alcoholic drinks and other narcotics, made it necessary that the required instruction be so formulated that it could reach the childhood of the land. In other words, if this movement was not to fail, the facts the laws required taught must be put into well graded text-books for school use.

The Pathfinder Series was the first to meet these requirements, and it must be remembered that these books were in very truth *path-finders*. Up to the time when these books were issued, practically no facts of hygiene, to say nothing of those concerning the effects of alcoholic drinks and narcotics, had been available for grades below the high school. A readable book for little children which devoted even five lines to exercise would be a distinct advance over anything which had appeared thus far. As a matter of fact, however, the Path finder primer which Mr. Ferguson thus criticizes, discusses the value of exercise in four different chapters, including in all between two and three pages of matter.

ALLEGED FALLACIES IN THE TEXT-BOOKS

As soon as temperance education laws had been enacted by three or four states, publishers who had once scoffed at the idea of issuing text-books for the different grades perceived that there was really to be a demand for such books. They forthwith rushed upon the market books for lower grades prepared by the expeditious and convenient method of binding together a few pages selected from their old high school books, labeling the result a primary or intermediate text, as the case might be, size alone seeming to be their criterion.

Common sense and vital interest in the welfare of the children led the friends of temperance to protest against such an absurdity, and to work for the revision of these unworthy books or the substitution for them of better works. It is just here that Mr. Ferguson claims the temperance people made their first great mistake. He says that "in revising the physiologies the greatest care should have been exercised not to include in them any statements concerning alcohol and other narcotics which do not square with scientific truth." These revised books, however, in his opinion, "instead of being scientifically accurate, contain statements that contradict both science and the every day observations of men."

ALCOHOL A POISON

He claims that the question of whether alcohol is a food or a poison "is a purely academic one, and its discussion should have no place in the teaching of the public schools, at least in the lower grades." He is evidently ignorant of the well-known fact that a large class of those who use beer and similar alcoholic drinks do so under the delusion that they are nourishing, and that they are thereby consuming "liquid bread." This delusion they are passing on to their children, babies in the cradle as well as those who have reached the "academic" age.

Many a child is sent to school after a breakfast or lunch in which beer has played an important part. Should such children be kept in ignorance of the fact that alcohol is not a food? In all probability they will never reach the upper grades, where Mr. Ferguson grudgingly concedes that such instruction may possibly have a place.

He criticizes the statement in one of the indorsed books that "alcohol is a virulent poison, and should be classed with arsenic and mercury," as though it were given on the

authority of the book alone, instead of being, as is the case, a quotation from Dr. Carpenter of the University of London. Mr. Ferguson's sole reasons for disagreement with this statement are that druggists do not put the "Poison" label on a bottle of alcohol, and that it is a mooted point among scientists whether alcohol acts like a poison when taken in small quantities. The fact that druggists do not label alcohol a poison is no reason why they should not. It is well known that children who inadvertently drink the contents of such a bottle invariably suffer severely, even if they escape death.

Mr. Ferguson's contention that alcohol may not be a poison on the ground that in small doses it does not always act as such is only saying that substances commonly known as poisons are such only when taken in large quantities; that when taken in small quantities they lose their poisonous characteristics. Would Mr. Ferguson say that arsenic and strychnine, for instance, are not poisonous because sometimes administered by physicians in small doses? Even one and one-half ounces of alcohol have been known to produce fatal results.

In support of his assertion that "alcohol is one of the weakest and slowest of poisons," Mr. Ferguson produces only his own solitary assertion. On the other hand, Taylor, Motet, Fick, Forel, Osler, Sir Andrew Clark, Blocher, Kassowitz, Woodhead, Madden, Anders, Riche, Dujarden-Beaumetz, Destrée, Kræpelin, Bunge, Kerr, Rosenfeld and many others agree substantially with Alexander Wynter Blyth who says in the latest edition of his great work on *Poisons*, "If we were to include in one list the deaths directly due to chronic as well as acute poisoning by alcohol, it would stand first of all poisons in order of frequency."

OXIDATION OF ALCOHOL

Mr. Ferguson criticizes another indorsed physiology for giving "the impression that alcohol passes through the different organs of the body unoxidized and merely mixed with the blood, adding, "That to teach by implication that alcohol is not oxidized in the body, but always passes through it unchanged is to teach untruth."

The book in question nowhere teaches that alcohol is not oxidized in the body, neither does it teach that all of it always passes through the body unchanged. Even Professor Atwater showed* that when alcohol is taken a portion of it is eliminated unchanged, and that is exactly what the book states. Mr. Ferguson seems to assume that because alcohol is said in this book to be mixed with the blood it can not therefore be oxidized, and that consequently the book is teaching untruth. Will Mr. Ferguson explain how alcohol can injure the heart, brain and other organs of the body, as it unquestionably does, without first being carried to these organs by the blood? or how it can be conveyed to the tissues, where the best physiologists believe that oxidation takes place, unless it is carried thither by the blood?

**Sixth Memoir* of the National Academy of Sciences, p. 259.

THE TOBACCO QUESTION

The statement criticized "that tobacco has done more to cause insanity than spirituous liquors," was included in one of the books as the statement of the superintendent of a large insane asylum and was therefore supposed to be authoritative. Later investigations do not seem to support this view, and the writer is informed that the author was long ago asked to change the statement. The same recommendation has been made with regard to the opinion ascribed to Dr. Seaver concerning the invariably serious injury caused by tobacco, and the statement that "the majority of beer-drinkers die from dropsy."

There is room for other opinions than that of Mr. Ferguson as to the comparative harm wrought by tobacco and rum, and also concerning the effects of tobacco on personal habits and morals. The average teacher finds to her sorrow that tobacco is demoralizing, and that it impairs both mental and moral ability in those pupils who use it. Moreover, the statement quoted from Dr. Parker that tobacco does more harm than rum, taken in its largest sense, is confirmed by the testimony of other careful students of the question. One would be sorry to think that the sensitiveness shown in Connecticut on the tobacco question is in any degree due to the great tobacco industry in that state.

THE TEACHER AS THE SOURCE OF INFORMATION

Apparently the teacher is a more authoritative source of information than the text-book, to our critic's thinking. The new Connecticut law also seems to regard the teacher in this light since, to quote Mr. Ferguson's own words, "it does not require the use of text-books by pupils." Thus is substituted the verbal statement of any and all teachers, no matter how meagre their preparation, for that of the text-book. The teacher's word, though it may be inaccurate, can and often does escape unchallenged. Every statement in the text-book, on the contrary, is open to the critical eye of the public, and any inaccuracy is almost sure to be noted and thus can be corrected.

ADDITIONAL CAUSES OF DISAPPROVAL

But the chief cause of disapproval by teach-

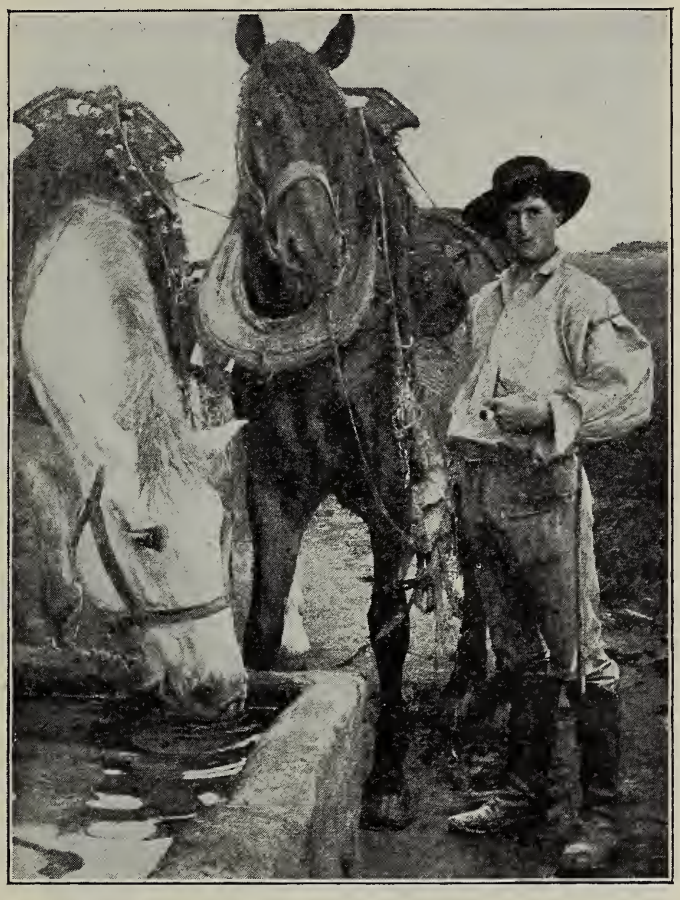
ers of the indorsed physiologies, our critic says, is due to the "spirit of exaggeration that pervades them, to the large amount and unwise distribution of the temperance matter, to the emphasis placed upon facts that appeal to fear, and to the disregard of facts that appeal to manliness and the moral nature."

THE SPIRIT OF EXAGGERATION

It is impossible to admit or deny the "spirit of exaggeration" said to characterize the books, unless specific statements of a "misleading nature" are given, and these are entirely lacking in Mr. Ferguson's article, except such as have already been noted. It is very easy to condemn when one does not feel obliged to pin himself down to definite statement.

UNDUE SPACE GIVEN TO TEMPERANCE

As to the alleged undue proportion of space given to alcohol and other narcotics, it should be noted that the books specifically criticized in this regard are those earliest written, when there was almost universal popular ignorance of the nature of alcoholic beverages or their effects on the human system. A relatively large amount of space was therefore necessary to meet this need. Neither Mr. Ferguson nor any other critic can prove that this amount, which he sweepingly calls "excessive," failed to accomplish its mission. On the other hand, there is much positive evidence that the temperance teachings of these books, so far from "killing all interest in the subject, causing disgust, and doing moral injury," have been and still are productive of widespread good. As knowledge of the scientific facts underlying total abstinence became better classified and organized, it was found that the subject could be adequately treated in a minimum of one-fifth the space in the books for lower grades and twenty pages in high school texts. Examination of later books will show that they practically conform to this estimate.



At the Watering-Trough

CHILDREN WEARIED OF THE SUBJECT

Whenever complaint has been made that children have grown tired of the subject, investigation almost invariably shows that the fault is not in the subject matter itself, but in the indifference of the teacher or her failure to present the subject properly, due perhaps to her lack of training; or to the use of books not adapted to grade, or of the same book in too many successive grades; or to the failure of school officials to provide for the teacher a topical outline showing the new facts to be taught each year.

THE APPEAL TO FEAR

Mr. Ferguson's final denunciation of the books is that their teaching is chiefly negative, appealing to fear, and that little emphasis is placed on "the beauty, nobility, and strength of a temperate life."

The injustice of this criticism is well shown by such statements as the following, quoted from the very books which he denounces:

"If well cared for, your brain will do the best of work for you for 70 or 80 years without complaining." [1]

"A body kept pure and strong is of great service to its owner." [1]

"Some people have little or no money, and no houses or lands; but every person ought to own a body and mind that can work for him and make him useful and happy," etc.[1]

"Our present study will teach us how to preserve life, and how to keep our bodies strong and healthy." [2]

"Every time one does right it is easier for him to keep on doing right, because he strengthens that part of his brain which is used by the good powers of his mind," etc.[2]

"The endeavor should be to develop all parts of the body equally well." [3]

"It is because a healthy body is such a great aid to a vigorous mind, that an abundance of exercise is so persistently urged." [3]

"As the mind grows and expands, it ought, under proper guidance, to bring forth all that is highest and best in man." [3]

1 Pathfinder No. 1.
2 Pathfinder No. 2.
3 Essentials of Health.

(*Continued on third page of cover.*)

177 DRUNKARDS A YEAR

THE law of Massachusetts requires that "all pupils in all public schools" shall be taught, "as a regular branch," physiology and hygiene with special reference to the effects of alcoholic drinks and other narcotics upon the human system. The object in requiring this study for all pupils in all schools is to secure to every child a progressive education in the laws of health, including those that teach total abstinence.

Nevertheless, the Massachusetts Committee of Twelve has proposed to recommend that this study "as a regular branch" be omitted in the fifth and seventh school years, and be put into the ninth year instead.

To find the effects of this proposed recommendation a personal letter was sent to the superintendents of public schools in all towns and cities of 1000 inhabitants and over, in Massachusetts, asking the number of pupils in each grade (year) of their schools. Official reports from 181 towns and cities, 68 per cent of the whole, were thus obtained.

These reports show how wise are the requirements of the law, and how materially its intent would be evaded by the above recommendation, because

1. There are 41 towns which have no ninth year in their school course.

2. There are 21,471 less pupils in the ninth year to get this instruction than there are in the fifth year, and 11,584 less in the ninth than in the seventh. The schools in the fifth and seventh years must be a part of "all schools," and the pupils who evidently drop out at the end of the fifth and seventh years must be among the "all pupils" whom the law says "shall be taught this study as a regular branch."

These school reports further show that there are 4,445 more pupils in the fifth year where no regular study of this subject is proposed, than in the sixth year.

Allowing that 20 per cent of this difference between the fifth and sixth years can be accounted for by the skipping of grades, the failure to pass of children who will reappear in the sixth grade, or changes in population, there are still left 3,556 children who yearly leave school for the battle of life at the end of the fifth year. Certainly one half of these, 1,778, are boys.

From existing history of the drink curse, experts estimate that one boy in ten will be a drunkard. Thus, on the plan of the Committee of Twelve, over 177 boys *yearly* would leave the fifth grade of the Massachusetts schools to become drunkards, having had no systematic instruction in that grade in the physiological reasons for total abstinence and never any books in this as they have in other studies, all of which would have warned them against beginning to drink, saving some, if not all.

In addition to these 177 boys, we may estimate an equal number of girls doomed to become drunkards' wives, mothers of drunkards' children, thus perpetuating alcoholism.

It is true that the majority of the Committee of Twelve, have advised oral instruction in the first four school years, but have also recommended that this study shall be "without the use of text-books in the hands of pupils" in the fourth year, even though such pupils have books in other subjects.

Thus the pupil will have no aid of a book as one source of information until the sixth year.

When the majority of the Committee of Twelve are pressed for a reason for wishing to exclude text-books in this study from fourth year pupils, and all regular study of this subject from the fifth and seventh years, their only reply has been, "The teachers desire it and will teach the subject with more interest if the course is made out the way they want it."

Reluctant to believe that a majority of the educators of Massachusetts so understand their legal and moral obligations to the children under their care, a letter was sent to superintendents and principals of schools throughout the state, presenting the case and asking three questions, answers to which are still coming in.

The first question in substance was,

In view of the facts, do you approve of taking the study of temperance physiology, as a "regular branch," from the fifth year?

72 per cent of the answers received say "No," many of them emphatically.

The second question was,

Are you opposed to well-graded books on temperance physiology for fourth year pupils who have books on other subjects?

56 per cent of the replies say "No."

The third question was,

Inasmuch as there are 21,471 more children in the fifth year than in the ninth, and 11,584 more in the seventh than in the ninth year, and in 41 towns and cities there is no ninth school year, do you approve putting the study into the ninth year instead of into the fifth, and, in addition, omitting it from the seventh year on the plea that the pupil will get the equivalent in the ninth?

69 per cent say "No" to this question.

Thus fails the reason given, "the teachers want them," for these most unwise recommendations; while the obligations that rest upon law-abiding citizens and upon the lovers of children who would save them from the horrors of alcoholism utter their solemn protest against such a policy.

MARY H. HUNT.

REQUISITES IN MAKING OUT A COURSE OF STUDY

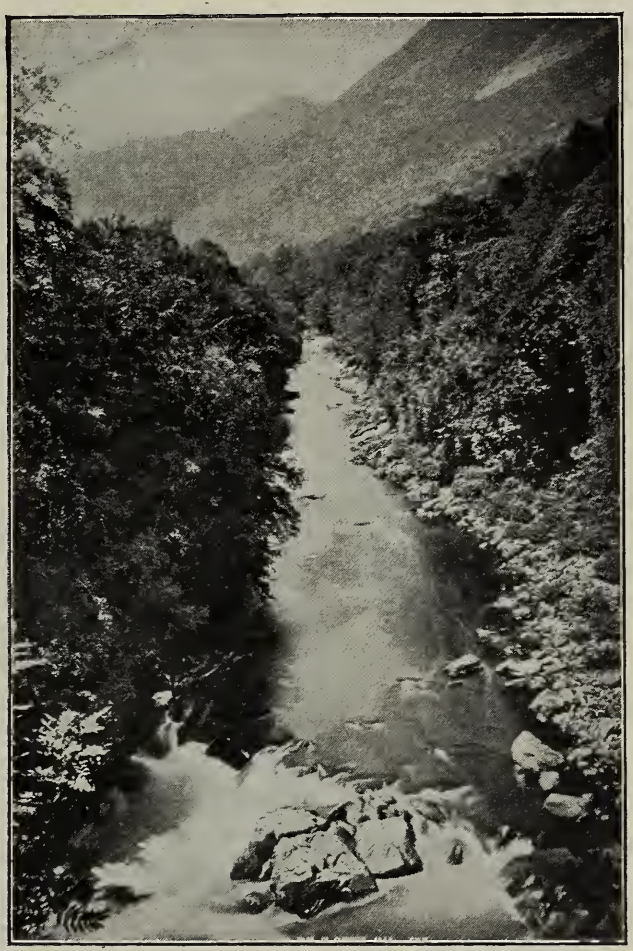
ABILITY to make out a good course of study in physiology and hygiene, as now required to be taught all pupils in the public schools throughout the United States, depends upon thorough knowledge of the subject matter, upon the pedagogic sense which can arrange and adapt this matter to the progressive needs of the child, and upon a keen sense of the relation of this instruction to individual and national welfare.

KNOWLEDGE OF THE SUBJECT

The necessary knowledge of the subject matter includes:

First, Knowledge of the anatomy and physiology of the human body.

Second, Knowledge of the hygiene, or the laws of health of the different organs, showing what is necessary, as well as injurious, to such health and thus to the effectiveness of the body as a whole; and comprehension of the fact that intelligent ideas of hygiene are impossible without knowledge of anatomy and physiology. The engineer must understand the structure of his engine in order to take intelligent care of it and run it properly. To understand how to care for the health of the body, one must know what its organs are and the functions of each. Hygiene without anatomy and physiology consists of mere dogmatic rules.



"The brooks and the rivers have broken the chain
That held them in icy thrall."

Third, Knowledge of the origin, character and effects of alcoholic drinks and other narcotics. It is axiomatic that such knowledge of the facts which the laws require taught as a part of general hygiene is necessary, in order that the facts may be properly correlated and outlined for the various grades to which they are adapted.

THE PEDAGOGIC SENSE

In addition to full knowledge of what is thus to be taught, there is also necessary

First, The pedagogic sense that comprehends the fact that physiology and hygiene, which includes the nature and effects of alcoholic drinks and other narcotics, is a progressive subject from which should be selected

a. Elementary truths simply stated and adapted to the child's comprehension, which he needs to know, and which can be taught orally in the primary years.

b. Fresh matter for every grade, to guide the pupil's habits that are continually forming, new ones each year. Thus, without unnecessary repetition, new and important information can and should each year be added to the child's store of practical knowledge, to aid him in the intelligent care of his body that it may be his useful servant.

All pupils can understand more of these truths in the fourth year than they could in the primary grades, and more in the fifth year than they could in the fourth. The same is true each successive year until the subject is covered, as it can be in thirty or a maximum of forty progressive oral lessons per year in the three primary years, and an equal number of well-graded lessons per year, with the help of books as in other studies, through the five years in the grammar and first year in the high school. Few cigarette victims will be found among pupils who have had such a full course of study in physiology and hygiene as is thus outlined. As to the value of such regular instruction as compared with mere incidental teaching, a superintendent of schools in a Massachusetts city recently said: "I agree with what you say against substituting incidental instruction for regular classroom study in this subject. The results of incidental instruction are ordinarily accidental."

Second, The pedagogic sense that recognizes the fact that the schools furnish three sources of information to the child,—the *teacher*, the *book*, and *observation* including experimental work. Where any one of these sources of knowledge is withheld, as the child progresses far enough to profit by it, there is a loss in results.

Objectors to text-books on this subject in the hands of pupils who have books in other studies give no adequate reason for their opposition. Pedagogics as well as morals demands that the pupil, instead of being denied any source of knowledge, shall have the utmost instruction in all laws of health, together with those which warn him against the cigarette, drink, and other destructive habits.

Third, The pedagogic sense that applies the facts revealed by statistics of school attendance in the United States showing that a very large proportion of pupils attend school only about five years of 200 days each. To postpone this study until the sixth year, or later, is to withhold from large numbers, and those most needing it, even in states having the highest school attendance, knowledge of the physiological reasons for the laws of health and total abstinence.

CONSCIENCE AND PATRIOTISM

Lastly, whoever attempts to make out a course of study in this subject needs a conscience that can appreciate and respond to the obligation to provide the utmost warning instruction that will guide all the children safely past the many pitfalls which beset their path. He needs also a patriotism that will gladly prosecute the work committed by the nation to the teachers of its children, namely, saving through education the republic from the corruption of its people by alcoholic, narcotic and other unhygienic habits.

MARY H. HUNT.

BOOK NOTICES

ALCOHOL AS A MEDICINE, Edited by Martha M. Allen, Superintendent of Non-Alcoholic Medication for the National Woman's Christian Temperance Union. Chas. C. Haskell & Son, Norwich, Conn., and London, Eng.

There is a large and constantly increasing class of people who do not believe that alcohol possesses the medical properties formerly ascribed to it, but who do not know how to defend their position, or what substitutes may be used successfully in its place. All such will accord a hearty welcome to this work of Mrs. Allen's. Practically all the material included in the book is new, and forms a valuable compilation of testimony from the successful practice of a large number of physicians.

A short study is made of temperance hospitals and their methods of treatment; and comparative death rates with and without the use of alcohol are recorded. On the principle that prevention is better than cure, excellent directions for bathing, exercise and diet are interspersed throughout the book, and in cases where home remedies are needed at short notice, substitutes are suggested for Jamaica ginger, brandy and other alcoholic drugs which have hitherto been used in many families through ignorance of their true nature and from want of something better.

TELLTALES

" Pussy Willow had a secret that the snowdrop whispered her,
And she purred it to the south wind while it stroked her velvet fur;
And the south wind hummed it softly to the busy honey bees,
Aud they buzzed it to the blossoms on the scarlet maple trees,
And these dropped it to the wood brooks brimming full of melted snow,
And the brooks told Robin Redbreast as they chatted to and fro;
Little Robin could not keep it so he sang it loud and clear
To the sleepy fields and meadows: 'Wake up! Cheer up! spring is here!' "

FEAR, ANXIETY AND GRIEF IN CHILDHOOD

Health in maturity is largely dependent upon proper care in childhood. The physician and the medicine chest represent one side of the care of a child; an even more important phase is the supervision of mental development. Fear is the most distressing element of childhood; fear of the dark, imaginary illusions, fear of animals and calamities, terrors engendered by alarming tales and superstitions. These, improperly controlled, do more toward wrecking the nervous constitution of the child, impairing the disposition and even the character, than anything else. Anxiety, as manifested in self consciousness, is another harmful agent. Mrs. Theodore W. Birney, in a paper in the *Delineator* for March, gives some eminently practical suggestions as to how to control these mental phenomena. The article should be of great interest to parents and teachers.

PHYSIOLOGY TOPICS FOR MARCH

PRIMARY—Needs of the Body Internally: Food, Drink. Why Not Alcoholic Drinks and Cigarettes? The Skin and the Sense of Touch. The Brain and Nerves.

INTERMEDIATE—Alcoholic Drinks. Tobacco. The Special Senses. The Sympathetic System.

ADVANCED—Digestion. Excretion. Tobacco and Physical Training.

Continued from page 109

"Men who never use alcohol bear exposure to cold much better, and do their work more easily than those who take it." [3]

These are but few of many illustrations which could be cited to show that even the earliest books emphasized the importance and advantage of building up a sound healthy body. But this very end can not be secured without also pointing out the consequences of disobedience to the laws of health, and this Mr. Ferguson himself elsewhere admits.

THE DESTRUCTIVE WORK OF CRITICS

If he and other critics had in the past devoted a tithe of the time they have spent in criticizing other people's efforts, to thinking out and formulating courses of study and other helps for the use of teachers in presenting this subject to their pupils, far greater good might have been accomplished than is even now the case Fortunately, there are still people who realize that there is abundant room for constructive work under present conditions, instead of trying to tear down all that has thus far been accomplished.

3 Essentials of Health

The School Physiology Journal

Contents

PUBLISHED AT
BOSTON, MASS.
MARY H. HUNT, EDITOR

VOL. XII. NO. 8
APRIL, 1903

School Physiology Journal

Vol. XII *BOSTON, APRIL, 1903* *No. 8*

APRIL MAGIC

BY FRANK DEMPSTER SHERMAN

FLUTE-like across the morning mist
A lyric note comes quavering
From April's young ventriloquist
To welcome spring.

Look where you will you may not see
This small magician as he weaves
Spells of sweet music while the tree
Dreams of green leaves.

Now here, now there, now gone, alas!
But just as you would call him cheat,
You glimpse the first brave blade of grass
Close at your feet.

And when the gray yields to the blue,
And tempts once more his cadence clear,
Behold a crocus! —token true
That spring is here.

THE RELATION OF SCIENTIFIC TEMPERANCE TO POPULAR NEEDS

BY MARY H. HUNT

UNDER this heading attention was called last month to the debt which the world owes to science for investigating and publishing the real nature and baleful effects of alcoholic beverages. I also discussed many of the fallacies leading directly to the drink evil which it has been my lot to encounter in nearly every state in the Union. Still others are set forth in the present article, showing misconceptions which yet exist and need to be removed.

THE FALLACY THAT ALCOHOL SHARPENS THE WITS

I was to address the legislature in one of the large states of the middle west. The legislator who had courteously arranged the hearing said, "You are to speak in the afternoon to a joint session of the two houses, the president of the senate presiding. Let me advise. Eat a light dinner, and just before you speak, drink a glass of wine. I should take a stiff brace of whisky, but wine will perhaps fit a lady better."

As I mentally recalled the part that whisky has played in the passage of bad laws, I pleaded before that legislature for an education that will teach all the people in childhood and youth the solemn facts of science that

Alcohol, by injuring the brain, impairs ability to reason correctly, and hence impairs the judgment, weakens the will, and unfits the drinker for right action.

The schools for more than a decade have been so teaching, and now the glad news comes that, by actual count, nine-tenths of the men in the lower house of the legislature in a large western state are total abstainers.

THE FALLACY THAT ALCOHOL AIDS DIGESTION

In the early days of the great conflict for a good school literature on temperance physiology for the children of this country, a man in position to help or hinder said, when appealed to, "If you want total abstinence teaching in the proposed books, I am not with you. My digestion requires a little good whisky with my meals three times a day. My physician says so, and I take it." In reply, I read to him the testimony of science that

Alcohol in small doses impairs to a slight degree the action of the gastric juice; in large doses it destroys the solvent power altogether, etc. It makes the drinker feel better by benumbing the nerves that should report the injury done.

THE FALLACY THAT ALCOHOL PREVENTS RESPIRATORY DISEASE

The notion that I found well nigh universal, that alcohol is both a preventive and a cure for colds or ills of the respiratory system, led to the entry in the notebook, the people must be taught that

Alcohol, instead of preventing and curing colds, predisposes the user to take cold, and creates an abnormal condition making a favorable soil for the germs that cause lung disease.

THE FALLACY THAT BEER AIDS GROWTH

I often met the notion represented by a German woman in southern Ohio, who said, "I want my boys to be tall, big men, so I give them beer."

As she talked, I took out my notebook, told her what it was, and that I was trying to find what must be taught the people to prevent the intemperance which she abhorred as much as I. At the same time, I told her that, in addition to the power which beer has of creating the alcoholic appetite that might destroy her sons, it could not help but would hinder their growth. Then we talked long about the statement from a medical journal which I had just read:

There is good authority for saying that alcohol prevents the proper nutrition and consequent growth of the bones.

Years after, she introduced her tall, broad-shouldered, total abstaining boys to me, with grateful reference to that conversation.

THE FALLACY THAT ONE CAN DRINK LIKE A GENTLEMAN

The Woman's Christian Temperance Union ladies met me at the station in a fine old town in an eastern state where I was to speak that evening. As soon as we were in the carriage that was taking me to the home of my hostess, one of them said, "You are to be entertained at Mrs. Judge Blank's, a beautiful home. The judge died two years ago of pneumonia. He always drank, but "like a gentleman," his wife says. The whole town loved the judge, he was so good to everybody; so it is a kind of general grief to have his youngest son, who is just the image of his father, sent home from college for drunkenness. We temperance women had a quiet meeting by ourselves to pray about it, and before we went home somebody suggested that we get you here to see if you could say something that might save him."

My soul quailed before the task they had set me as I thought of the awful power of alcohol, when through hereditary and acquired force it sets the tissues of the human being calling for the destroying poison.

The young man was even more prepossessing than I had anticipated from the description. He had a tall, fine figure, abundant dark brown, wavy hair thrown back from a broad forehead, dark blue eyes, a poetic type of face, and an air of goodfellowship that was very winning. "Worth saving," I said mentally.

"I am not strong enough to hear the subject discussed publicly," said his mother, quietly, as her excuse for not going with me to the lecture as the carriage came to take us to the church.

"He was not present," the ladies afterward said, in disappointment. But he was, he told me the next day, as he sought me out in the summerhouse on the bank of the river that ran past the large grounds. "I was there last night behind some of the fellows in the back seats," he said, "and I made up my mind that as you were to stay until the afternoon train, I'd talk this thing over with you, if you don't mind."

Then began the story I was prepared to hear, of never remembering the time when he did not like the taste of the wine in the pudding sauces, and when he did not want some when he saw it poured out at the table; of small indulgences that became more open as he came to the time of being his own master; of the awful horror of mind when he realized that he had lost his self-control; of his love for good literature and learning, for he had a naturally fine mind; of his repeated resolve never to touch the "stuff," as he called it; and of the breaking of these resolutions as often as made.

"You hit my case only in part last night," he said, "when you quoted John B. Gough as saying, 'My father could be a moderate drinker, but I can be only a gutter drunkard or a total abstainer.' But the worst of it is, I can't be a total abstainer, and it is of no use for me to try to drink like a gentleman, as mother urges."

Perspiration stood in large drops on his face as he described what he called the hopeless struggle between appetite and ambition for his future, winding up with the despairing exclamation, "I've about come to the conclusion that it's no use trying, that I'm bound to go to the devil anyway."

As he talked, I mentally heard as an overtone, the "Whosoevers" of the Gospel, and was asking in my soul, "Can my faith grip for him and he for himself the promises for deliverance from the love of sin as well as the guilt of sin; not so much his own as that of those who should have given him at the start in life the normal, uncontaminated nature he had a right to?"

Then we talked of the physical hygienic laws he must obey to baffle his tempter, for we must do our part, and of the power of God to keep the trusting soul, as the final salvation in his case. We knelt, and with sobs and tears the young man pleaded to be cleansed and kept from the *love* of alcohol, as he gave his heart to Christ. There was the light of a new hope on his face when he bade me good bye.

I heard from him afterwards. He had a hard struggle, fell once, but when ten years after I heard he had died without having tasted liquor for five years, I thanked God that one more human soul had escaped the destroying power of alcohol and had entered into the promises of those who overcome.

When critics and even so-called friends have said to me, "You are too radical," I have remembered that young man who was the type of a great host. As he gave his heart to Christ, I too, kneeling beside him, made my surrender, or resurrender, of anything it might cost me, as I prayed for God's help to secure the education of every child in this country in the facts of science that teach that

Alcohol is never a food but always a poison.

A little has the power to create an uncontrollable appetite for more.

Children suffer from the consequences of the alcoholic and narcotic habits of parents.

Total abstinence is the only safety.

This teaching, we may justly hope, has helped in bringing about the result that must gladden the heart of every true American, namely, that the United States has the smallest per capita consumption of alcohol of all the great nations.

THE FALLACY THAT TEMPERANCE TEACHING IS NOT NEEDED IN THE LOWER GRADES

The temperance education law of Pennsylvania was pending, in 1885. A tremendous effort was being made to have the bill amended to confine the study to the higher grades. I was canvassing the state against that proposition, and had pleaded as best I could with a large audience in the court-house of a town in the central part of the state. Before I left the platform, a plain, poorly dressed woman came up and whispered in my ear, "I have walked three miles to hear you tonight. I read about it in the papers. My husband dri —." She hesitated to pronounce the word. It was not necessary. The quiver in her lip told the story of the iron that had entered into her soul.

"I've got three boys," she continued. They'll have to go to work before they get to the higher grades. I want them to learn not to drink. Don't you let them take the study out of the lower grades."

"The flowers appear on the earth;
The time of the singing of birds is come."

Then she added, "I washes to keep the boys in school, and here is something to pay your carfare to keep them from taking it away from the boys that have to go to work so early." As she dropped the silver into my hand her tears and mine fell upon the money, and I promised I would stand by her boys.

In the grand assize I expect to see those boys, and many like them from all over our country who had to "go to work so early," standing on the right side, because they learned in the lower grades to abhor the soul and body destroying alcohol and other narcotics.

Let no one say that I think scientific temperance education in the lower grades is all that is needed to secure entrance into heaven. What I do believe is that such education will materially diminish the probability that those who receive it will hear the awful sentence, "No drunkard shall inherit the kingdom of heaven."

At the ports of entry to our country, I have seen hosts of people from all lands pouring out of the steerage of great transatlantic steamers, at the rate of half a million and more per year. These hosts represent old world drinking habits and consequences. All too soon they are to become a part of this government of the people. The sight of them intensified the conviction that in the lower grades of our public schools, where alone we can be sure of reaching the largest proportion of the children of these people, the children must be taught all they can understand of the evil nature and effects of alcoholic drinks and other narcotics. The transforming power of this truth is the bulwark upon which we must depend to save us from this alcoholic invasion.

If we are to prevent intemperance by securing the highest physical and consequent mental and moral development of the people, the whole subject of hygiene suitable for public schools, in addition to anti-alcohol instruction, must be taught, with anatomy and physiology enough to make such hygiene intelligible.

Such is the instruction that is now mandatory in the public schools of this entire country, and almost universally for the last ten or fifteen years. The effect of this may be noted in the increase of four and one-tenth years in the average length of life in the United States reported by the last census, and also in the following testimony of two eminent Philadelphia physicians, recently published in the *Journal of the American Medical Association*:

"A large share of the increased interest in health may be attributed to the systematic study of physiology and hygiene, including the scientific temperance instruction, which has for some years been a part of the regular course of study for all pupils in our public schools."

Primary Lessons

SECOND YEAR

PARTS OF THE BODY

WHENEVER a ship leaves harbor, a special pilot goes with her who is familiar with every shoal and rocky ledge. Half a point off the true course in some places means shipwreck, hence the pilot never relaxes his vigilance until the open waters of the ocean are reached.

The same unceasing watchfulness must surround the child from the moment he leaves the protecting influence of the home until his school days are ended and he enters business for himself. Half a point from health means arrest of normal growth, if not predisposition to actual disease. The slightest deviation from the path of honesty, truthfulness, total abstinence, or any other virtue implies corresponding weakening of the moral fiber.

As soon as the child becomes aware that he has a body, he is old enough to begin to know how to take care of it; and as soon as he knows right from wrong he should be taught to choose the one and refuse the other. Only thus can the true object of education be attained, and favorable conditions provided for developing the germs of physical, mental and moral excellence which lie dormant in every human being.

PLACE IN THE COURSE

The lessons which follow are based on the supposition that the children already know that the body consists of head, neck, trunk, and limbs, and in a general way why each is needed. In this grade, they are ready for more detailed knowledge of these parts of the body, and of ways in which they may care for them and promote their healthy growth.

(1)

HOW THE BODY IS MADE UP

To avoid any tendency toward self-consciousness on the part of the child, it may be wise to begin the lessons on this topic by calling attention to the parts of the body and their uses as found in familiar birds and animals, and then leading up to the same parts in people; emphasizing in every case what the head or the arm does for its owner instead of the fact that the child or animal has these parts.

Have some live animal in the room to illustrate the first lesson talk on the parts of the body, also a picture of the same on the board, done in colored chalk. In the present case it is supposed that a pet bird in a cage has been loaned for this purpose.

LESSON TALK

We have a little visitor this morning. His name is Tito, and here is his picture. It looks just like him. It is the same size and color. Is it the same bird? Why not?

Bring out the fact that Tito is alive, while the blackboard bird is only a picture. Tell what it is to be alive.

What parts of his body can Tito move that the bird on the blackboard can not? How is Tito's head unlike that in the picture? How are his legs different? Tell something about the other parts of his body.

How are your heads like Tito's? How are they unlike his? In what ways are your arms different from his wings? How are your hands unlike his claws? Name something else alive that has a head; wings; legs; a tail.

If we were to let Tito out of his cage, and he wanted to go out doors, he could either hop or fly. How do we get from one place to another? What parts of our bodies do we use in moving about? What parts does Tito use?

Outline on the board an outstretched wing and claw, and directly underneath an arm and leg. Which of these drawings look like our limbs? Which like Tito's?

Point to the different parts of each. Give their names. Find the parts of the wing and arm that are most nearly alike. Find the corresponding parts of the claw and leg.

Touch the parts of your body that you can bend. How many such parts can you find? Give the name, joints, to these places if the children do not know it already. Point to the joints in the drawings on the board.

HOUSES TO LET

Every summer Edna and her mamma went into the country to live. This time they were going to move into a new house when they came back in the fall, so there was a To Let! sign in the front windows for days before they started.

When they reached the big country farm house, it was almost dark and Edna was tired and sleepy. She could hardly stay awake long enough to eat her supper.

But the next morning she was up with the chickens, and you know how early that is.

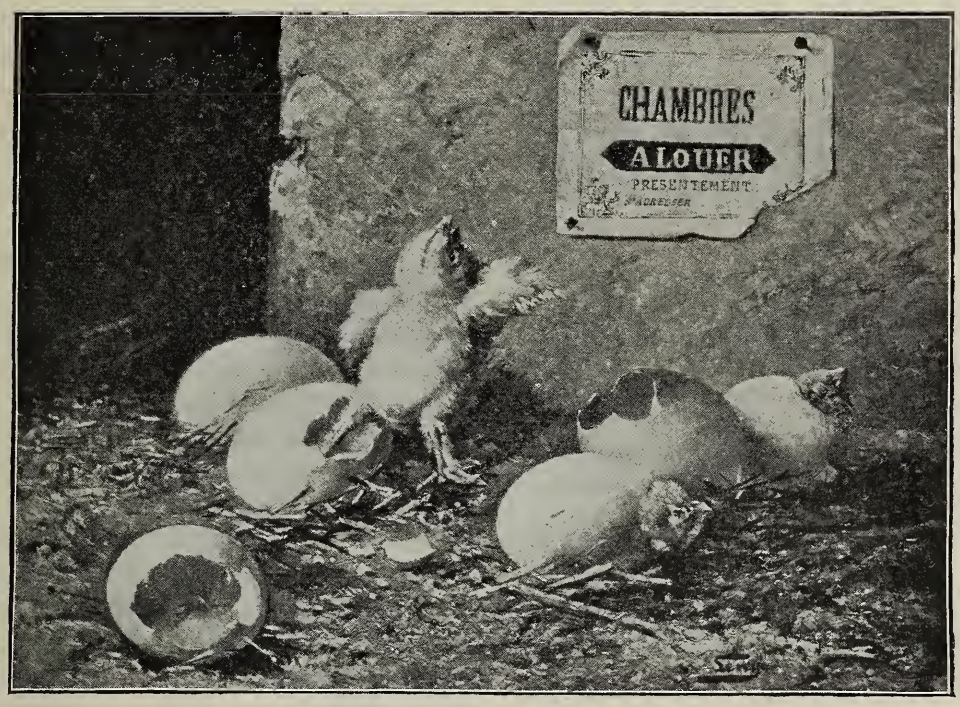
She ran out to the barn the moment she was dressed, and what do you think she found the very first thing? Some tiny chickens trying to get out of their eggshell homes.

The mother hen had grown tired of waiting for all her eggs to hatch, and had gone off with the rest of her brood to hunt for bugs. So these last little fellows had to shift for themselves.

Edna called her mamma to see the little new chicks.

"They have houses to let, just like us," said mamma when she saw the empty eggshells. "I don't know whether they will find anybody to move in or not, but at any rate they are trying to get out of them as fast as they can."

"See those cunning little ones with just their heads sticking out of the shells," said Edna. "They don't look as if they were really awake yet. Perhaps they don't know it is moving day.



"They have houses to let just like us."

"But I am sure that big fellow does. Doesn't he look glad to get out? He is spreading his wings and stretching up as tall as he can. I do believe he is trying to stand on tiptoe."

"Perhaps he thinks we want to take his picture," said mamma, "and he is posing for us."

"That's it!" laughed Edna. "He is showing off all he can. I can see every bit of him but one foot; his head, and bill, and eye, and wings, and back, and legs. Isn't he a beauty?"

"How much could he see of us if he were to turn around and look this way?" asked mamma.

"He could see our heads and hair and faces and eyes and nose and cheeks and mouth and chin and ears and neck and shoulders and arms and hands and fingers and bodies and legs and feet and—that's all, I guess."

"I am very sure he would not see as much as that," laughed mamma, "because he is only a chicken, and can not go to school as my little girl does. But I think he would see some nice yellow meal if we had it, and come running up to get his breakfast. Let's get some and see."

THINGS TO REMEMBER

Live animals and people eat and breathe and grow and move about.

Their bodies are made up of parts fastened together.

These meeting places are called joints.

The joints can bend in different ways to move the body.

Birds have wings instead of arms.

Animals have four legs instead of two arms and two legs.

(2)

THE USES OF EACH PART

In presenting a topic as comprehensive as the uses of the parts of the body, it is as important for the primary teacher to know what to omit as what to choose. It is obvious that but few ideas at once can be presented to children of this grade, but these should be so developed as to stimulate their thinking powers and lead them to fresh discoveries of their own.

Begin with things which the children know have been made or done by somebody, and show how each was accomplished. This will call attention in the natural way to the work of those parts of the body in which the child is most interested.

A bird's nest is an excellent illustration to begin with. If one is being built near the school house, the children can not watch the little workers day after day without learning to respect their faithfulness as well as to admire their skill. If no nest is going up near by, a last year's one will answer, and should be brought into class at the time of the

LESSON TALK

This was the home of a robin family. Do you suppose they found it ready made for

them, so that all they had to do was to move in? How did it come up in the maple tree where they lived all last summer?

Yes, they built it themselves. How did they do it? Tell what parts of their bodies they used. What have you seen a robin do with his bill? With his claws? With his wings?

We live in houses, too, do we not? Who builds them? What parts of the body does a carpenter use when he builds a house? In what other ways can he use his arms and hands? Tell some of the things you have done with yours today.

How did you get to school this morning? What else do we need feet and legs for besides walking? What games would you have to give up if you had no legs or feet?

Point to the part of your body that you use when you talk; when you listen; when you read; when you think. As I touch different parts of my body, tell what each is used for.

Sometimes we see a person who has lost an arm or a leg, and yet manages to get on pretty well. There are other parts of the body that every one must have to keep him alive? What are these parts?

POINTS TO REMEMBER

Every part of the body is needed, and has its own work to do.

The head and the trunk contain the parts that keep us alive.

The upper limbs are the parts with which we do most of our work.

The lower limbs carry us anywhere we want to go.

We can do many more things with our bodies than any bird or animal, but they can do some things that we can not.

(3)

THE CARE IT NEEDS

Intelligent use of any implement implies its proper care. If this is true of tools in general, it is infinitely more necessary in the case of the body, the one indispensable tool which is adapted to the performance of so many different kinds of work.

Call attention to m aers of personal hygiene as often as occasion arises; the use of overshoes in wet weather, the removal of wraps in the house, avoidance of draughts, etc.; but set apart also definite times and seasons for emphasizing the care of the body. One such opportunity comes in connection with lessons like the foregoing, and necessary rules may be put into story form.

THE WAY TO GROW

Way up in the top of a tall tenement house lived two little German girls, Elsa and Bettine Kratz, with their father and mother.

Elsa went to kindergarten every morning, and in the afternoon she and Bettine and mother had kindergarten at home.

"My little girls must use what brains they have," Mrs. Kratz used to say, "if they ever expect to have more." So Elsa read over at home everything she read at school, and pretty soon Bettine could read too.

Then they played all the kindergarten games, and mother told them new ones which she used to play when she was a girl, in her old home across the sea.

"A child that plays well will make a woman that works well," their mother told them. If you want to be as tall and strong as I am, you must give your arms and legs and bodies plenty of exercise."

"But we haven't nice green fields to play in, as you had in Germany," said Elsa.

"No, but you have the big flat roof with the awning that father put up to keep off the rain and hot sun, and the park is not far away."

"If we play all the time will we grow faster?" asked Bettine.

"No, indeed?" laughed mother. "That would wear your little bodies out faster than they could possibly grow. What else do I have you do every day?"

"We eat and wash dishes and tidy the room and run errands, and Elsa embroiders. I know how to embroider, too. Elsa shows me when we sit in the big chair, and some day I'm going to do some all myself," said Bettine, eagerly.

"I hope you will. Embroidery makes the hands skilful, but there are other parts to our bodies besides the hands, and each needs different sorts of work and play to make it strong and helpful."

"There is one other thing that is necessary, and that is plenty of sleep. You know now why I have you go to bed so early every night. You have been using different parts of your bodies all day, and when night comes these must have a chance to rest or they will not grow. Perhaps you will be more willing to go to bed now you know the reason."

POINTS TO REMEMBER

To have a well, strong body we must take good care of it.

Our bodies need food and work and play to make them grow.

We must take them out in the pure air every day where they can get plenty of sunshine.

They must have a long rest at night.

We must not hurt them by smoking cigarettes, or by any other bad habit.

School Physiology Journal

COPYRIGHT APPLIED FOR

Single Subscription.....$0.60 a year

CLUB RATES

Clubs from 5 to 50. .....$0.50 each
Clubs of 50 and over..... .40 each

Please remit by post office or express money order, draft on New York or Boston, or by registered letter.

MARY H. HUNT, EDITOR
HENRIETTA AMELIA MIRICK, Assistant Editor

Published monthly at 23 Trull St., Boston, Mass.
SEPTEMBER TO JUNE, INCLUSIVE

Entered at the Boston Post Office as Second Class matter

WHY HAVE TEXT-BOOKS

THERE is a certain phrase in the temperance education law of Massachusetts which is open to discussion and strained interpretation at the present time. The law of Massachusetts specifies that physiology and hygiene, including special reference to alcoholic drinks and other narcotics shall be taught "as a regular branch" to all pupils in all schools, but there seems to be some misapprehension in that state as to how regular branches are taught.

A little inquiry will show that the regular branches, such subjects as arithmetic, geography, reading, history, and grammar, are taught from three sources,—the teacher, experimental observation on the part of pupils, and text-book instruction. It is this last source of information which is here discussed, for certain persons at the present time are advocating the doing away with text-book instruction in temperance physiology.

Let us see whether they are justified in taking this position. Obviously, text-book teaching is impossible in primary grades, for pupils wrestling with the first principles of printed English are not able to derive benefit from books. But as soon as the child can read, that is, beginning with the fourth school year, he is given his arithmetic, reader, speller, and geography, and from that time the text-book is made as indispensable as the teacher. Eliminate the text-book element from the teaching of the regular branches, and the whole modern system of secondary education is crippled. The absurdity of eliminating text-books from geography or arithmetic is evident. It is just as destructive, or more so, to eliminate them from temperance physiology which the law also terms "a regular branch."

The teaching of temperance physiology is hedged about by difficulties met with in teaching no other school branch. Some parents of school children, being unacquainted with recent research in chemistry and medicine, still believe or pretend to believe the old-fashioned and exploded doctrine of the virtues of alcohol. While many of them are open to conviction, others, through interest in the liquor traffic, are determined to throw every obstacle possible in the way of the new teaching that denies their beliefs or that they think will injure them financially. In coping with such persons, the teacher should be given every aid possible, and text-books are invaluable to her.

Again, the instruction being new, has not yet generally been reduced to pedagogic form, and so is harder to teach than a study containing sharp divisions in subject matter *per se*, or established through many years of teaching. The average teacher can follow with great success, as many are doing throughout the land, lessons from well graded text-books in which the subject has been reduced to pedagogic form and systematically divided into years and lessons by able educators of the day, provided such books are also in the hands of pupils who have them as one source of information in other subjects. Deprived of books, instead of securing the covering of the whole field by keeping pace with the progressive development of the child, the teacher who must plan her own course will necessarily repeat, wholly omit much important matter, and slight more, through lack of system.

Moreover, the average teacher has not the educational training to make it safe for her to develop and interpret temperance physiology according to her understanding. It is to be hoped that in the near future normal schools and colleges will adequately prepare all teachers in this branch, but they do not do so now. For these reasons, teachers generally have not the large and intelligent grasp of the whole subject to enable them, even with the aid of reference books, to give what should be given.

In summary, since the subject, by touching prejudice and the interests of the liquor traffic, encounters obstacles unmet in other branches; since it has not yet been generally reduced to pedagogic form except in the best text-books; and since teachers for the most part have not been trained expressly to teach it, books that are prepared by persons who are so trained should be used. Any regular branch to be well taught necessitates text-books; temperance physiology would be a farce without them.

The law has decreed that temperance physiology must be taught thoroughly as a regular branch, and it would be a willful and irreparable violation of the letter and spirit of the law to deprive pupils of text-books in this study, which is securing a temperate citizenship to control the future of Massachusetts.

Grammar Lessons

FOURTH YEAR

TWO LESSONS ON CLEANLINESS

SEEING on a school blackboard the following topic for the next day's work in physiology,

WHY SHOULD WE BATHE

I asked if I might come in to hear the lesson.

A LESSON WITH BOOKS

The class came together the next morning with the eager look of children who have something to tell. The teacher began by saying,

"As Edward and some of the other boys were coming into school this morning, I saw drops of water on their faces. Edward, you may tell us if you boys had been washing your faces and had forgotten to wipe them."

"We had been running," Edward said, "and the water on our faces was sweat."

Teacher: "Do any of you know another name for sweat?"

Many hands went up, and the name perspiration was given.

Teacher: "How did the perspiration get on Edward's face? Where did it come from?"

"It comes from inside of us," was the best answer given, to which the teacher added the information, "It comes from the covering of our bodies. What is that?"

"The skin," was the reply.

Teacher: "Now I will tell you how the perspiration gets through the skin.

"It comes out through little holes that are in the skin all over our bodies. Look on your hands and see if you can find these holes."

"No," the teacher said, as no hands went up. "We can not find them without the microscope, they are so very small."

Turning to me the teacher said, "This is a fourth year class and I want them to learn to get information from their books." Then, addressing the class, she said,

"Please open your physiologies to page — , and find what these holes are called."

"Pores," was the quick answer, as the books were closed.

Teacher: "Is the perspiration running around loose in the skin, ready to come out of any opening it finds? Let us look in the book, page — , and see."

Hands soon went up, and the reply was given: "The perspiration is in tubes that end in the pores, and it comes out when we get warm."

Teacher: "Will may come to the blackboard. Hold up your right hand. We all see that it is clean and dry. Now hold it, palm down, on this clean blackboard while the rest of the class look in their books for the answer to the question, What is in the perspiration besides water?"

They were soon ready with the answer, "There are impurities in the perspiration."

Teacher: "How can impurities get into the perspiration?"

Not many hands went up, but one pupil who had read more carefully than the others ventured the reply, "From the blood."

Teacher: "That is right. But we learned the other day that the blood is in blood-vessels, which are tubes; and you have just said that the perspiration is in tubes. How can the impurities in the blood which is in one set of tubes get into the perspiration which is in another set of tubes?"

The class looked puzzled.

Teacher: "It could not be done if these tubes were hard like metal water-pipes, but they are so soft and thin that the impurities in the blood soak out through the thin walls of the blood-vessels, and into the perspiration tubes. Then they come out through the pores with the perspiration."

The teacher renewed and varied her questions until sure that the class understood. To deepen the impression, she showed a coil of white twine with very fine red silk twisted about it, and, using also a picture in a high school physiology of the sweat glands in the skin, she compared the twine to these glands or tubes, telling the class that as the red silk was wound around the twine so very fine blood-vessels are wound around the sweat glands. In this way the impurities can soak through the walls of the blood-vessels into the sweat-tubes and come up through the pores to the outside of the skin.

More questions followed until all could explain this process correctly.

Then, pointing to the moist impression of Will's hand on the board, she used this to illustrate the fact that small amounts of perspiration are all the time passing out of the pores of our bodies, taking with it impurities.

Teacher: "Now we are ready to ask what will happen if we do not wash off these impurities?"

Every hand went up, and the pupil called upon replied,

"If they are not washed off they will plug up the pores."

Teacher: "You are right, and if the pores are clogged so that the impurities which should pass off through the pores of the skin do not, what may happen?"

"It may make us sick."

Teacher: "Who is ready now to answer the question on the board, Why should we bathe?"

Out of all the replies, the best was written on the board:

"We should bathe to wash off the impurities and keep the pores of the skin open."

Then followed practical questions and answers about the best time and manner of bathing. A broad-browed, thoughtful boy said:

"Miss Ames, you told us, and the book says that food soaks through the walls of the blood-vessels giving each part of our bodies, the bones, the brain and muscles, and so on, just the kind of food each needs. Why doesn't the food soak into the sweat tubes and come out in the perspiration?"

For a moment the teacher looked puzzled, then said:

"There is a great deal more that you will be able to understand as you study about this subject in the higher grades, but no one can tell why the food that feeds the bones does not soak out on the muscles to feed them. What would happen if it did?"

"We could not play ball if it did, because our muscles would be stiff like bones."

"Yes, that is true. No one can tell why the food does not soak into the sweat glands. It is one of the wonderful things about our bodies that God has so made them that the right food goes to that part of the body which needs it."

The children agreed that it was wonderful, adding, "It's jolly to know as much as we can about it, anyway."

"Beautiful hands are those that do
Work that is earnest, brave and true.
Moment by moment the whole day through."

In one or two cases incorrect answers were given by the children. The teacher wrote the right statements on the blackboard without further comment than to say, "John has given one answer. I have written another on the blackboard. As you take your books to read over together the lesson, we must find out which is correct;" and the children showed the greatest eagerness and keen intelligence as they sought out the truth for themselves. They read aloud in turn the text relating to the subject which they had been discussing, thus, as their answers to the review questions showed, fixing in their minds the facts which they had learned from the teacher and observation.

THE SAME LESSON WITHOUT BOOKS

A few weeks later I happened to hear a lesson on the same subject in the same grade in another part of the country where there is just now a most unintelligent opposition to books. The teacher began by asking the children what was the first thing they did on rising in the morning; naturally eliciting almost every possible answer except the right one.

At last she told them that they should take a bath. No physiological reasons were given for bathing. The children were told that they should take a hot bath at least once a week and a cold bath every day, but the only statement that approached a reason was that the master of the school and all the teachers took daily baths. The pupils had no books as a guide, and were thus turned off with only the dogmatic statement of an unprepared teacher. Result, no logical reason lodged in the intelligence of the pupils for the truth she wished to teach.

In the first case, the pupils had the three sources of information which the school offers the child, the *teacher*, the *book*, and *observation*, and from these three sources they had learned the physiological reasons for an important act of personal hygiene.

THE NEXT STEP IN HUMAN PROGRESS

BY MARY H. HUNT

THE March number of the *Century* contains three articles which show that the great ethnic changes now going on in this country are challenging attention. According to the census of 1890, the descendants of our English ancestors are still in the majority in the United States. But that majority is being rapidly diminished by the half a million people per year from other countries in the old world who are passing through the gateways of this nation to become American citizens. In commenting on this fact, one of the *Century* writers, Gustave Michaud, says, "What the newcomers are, is in a large measure what the nation will be."

Professor Giddings throws light on this prospect by reminding us that our English ancestors were the product of the admixture of the same three great racial types that are now coming to our shores, the achieving Baltic, the conservative, philosophical Alpine, and the artistic, leisure loving Mediterranean or romance races. From that point of view, there is certainly reason to hope that the blending, amid the boundless resources of this new world, of the English, Teuton, Celt, Latin and even the Slav may result, as intimated by Bayard Taylor in his Centennial Ode, in "a people stronger and yet more sensitive, nobler and yet more impressionable" than any whose story is told on the pages of history. It will depend on the development here of the highest possibilities of these invading multitudes. To them "America spells opportunity," says Jacob A. Riis, another of the *Century* writers referred to, and we have, he says, in "the schoolhouse, clean and bright as the flag that floats over it, the making of the tomorrow" which these people are bringing to us.

Dr. Frœlich, of the University of Vienna, Austria, recently said to the writer:

"Three curses, militarism, ecclesiasticism, and alcoholism, are weighing down southern Europe from which you now are getting your largest immigration. If these immigrants bring you the blight of alcoholism for the civil and religious liberty you give them, it will be a disastrous exchange for you."

When he was shown the temperance education map of the United States, all white, with every black patch removed because no state is now without a temperance education law, and the pen with which the governor of Georgia signed the last law requiring the public school children of this land, home and foreign born, to be taught with other laws of health the physiological reasons for total abstinence from alcoholic drinks and other narcotics, he exclaimed, "Most wise! most wise! That will save you."

Contemporaneous with this invasion from the lands of the vine has been the enactment of these laws which require the children of the new-comers as well as our own to learn in our public schools the perilous character and effects of alcohol. Is not this one of the many providences which have furnished the succor for the times of special need that may be noted in our national history?

Alcohol destroys capacity for self-government which is the corner stone of our free institutions. Do the men and women engaged in public school education in this country realize that the lofty mission thus committed to them in this matter is nothing less than the perpetuity of this government by the people?

Dr. Harris, United States Commissioner of Education, attributes the disparagements of this study found in the reports of some school superintendents to the fact that they have not yet reduced it to what he terms "pedagogical form." Such form in the case of the study of other regular branches has been the result of centuries of study and educational planning. In the latest manuals of instruction in physiology this subject has been so graded. Although the first temperance education law was enacted twenty years ago, the study is yet so comparatively new that there is still in some quarters lack of comprehension of the fact that it is a science, with a body of truth to be taught that must be adapted to the progressing capacities of pupils from year to year, as are the facts of such studies as arithmetic, geography, history, and grammar. The object of this study, as already implied, is to teach, as a progressive branch to all future Americans, the physiological reasons for right physical habits, including especially those relating to alcoholic drinks and other narcotics, and to do so as these habits are being formed, new ones each year of the child's life, that thus he may be intelligently guided to the best physical and consequent best mental and moral life.

Ability to make out a course of study that will secure this object or to recognize such a course when properly made out implies:

1. Knowledge of the subject of anatomy and physiology.
2. Knowledge of the laws of health, or general hygiene.
3. Knowledge of the nature of alcoholic drinks and other narcotics, and of their harmful effect upon the various organs of the body and mind and therefore upon character.
4. The pedagogic sense that will select the simplest truths for the youngest classes, and so progressively develop the subject that new and interesting matter will be added each year from

grade to grade until the subject is covered, as it can be with a minimum of thirty or forty lessons per year from the first primary through the five grammar years and the first year in the high school.

5. The pedagogic sense that will recognize that in this as in every other study the school furnishes to the child three sources of information—the *teacher*, the *book*, and *observation* including experimental work. Where any one of these sources is withheld, as the child progresses far enough to profit by it, there is a loss in results.

6. The pedagogic sense that takes into account the statistics of school attendance which show that a very large proportion of pupils attend school only about five years of two hundred days each (see Report of Commissioner of Education). To postpone this study until the sixth year, or later, is to withhold from large numbers, and those most needing it, especially the foreign born, even in states having the highest school attendance, knowledge of the physiological reasons for the laws of health and total abstinence.

Lastly. To make out a course of study in this subject, a conscience is needed that can appreciate and respond to the obligation to provide the utmost warning instruction that will guide all the children safely past the pitfalls which beset their paths, and a patriotism that will gladly prosecute the work committed by the nation to the teachers of its children, that of saving, through education, the republic from corruption by alcoholic, narcotic, and other unhygienic habits.

As Dr. Harris implies, pedagogical criticism of the study reveals the pedagogical lack of the critic. The schoolman who says this study for all pupils is "an unnecessary repetition of the same matter year after year" has not, in the selection of topics and manuals of instruction, graded the subject to the progressive capacities of the pupils, taking care that new and important matter which the pupil can comprehend is added each year. Let him do that and the trouble he complains of will vanish. The doubter needs to read further who thinks the indorsed school physiologies are not teaching the truth about alcohol and other narcotics.

The critic who would have this study put into the higher at the expense of the lower grades should study the statistics of school attendance which show how many of the pupils, especially those who most need it, would thereby lose this instruction. Is it "an unimportant matter of mere pedagogics" whether fourth year pupils who have books in other subjects shall have them in this? If they do not, the school will never furnish the foreign born future American, who seldom goes to school beyond the fourth year, the written page as one source of information regarding that sobriety which is essential to his becoming a good citizen.

Every step of progress in human liberty in our land has been not for ourselves alone but for the world as well. If we ask, at what cost? we find the answer in the story of the bleeding feet of our soldiers at Valley Forge, and told again in the graves in every cemetery over which are floating the weather-stained flags that on Memorial Days we change for fresh ones to mark the last resting places of those who gave their lives for liberty on this western hemisphere. At an untold cost of blood and treasure, religious and civil liberty has become our heritage that, like the beacon in our greatest harbor, is beckoning the world to our gates. For these new-comers, as for us, the next step in human progress is liberty from alcohol slavery.

Some one has said "The age of the saber is finished and that of the thinker has come," and that progress henceforth is not to be a blood-stained pathway. It will not be, my countrymen and women engaged in public education, if you, recognizing the supreme demand of our times, rise to meet it with the thoughtful study and wise teachings that are both your legal and moral obligation.

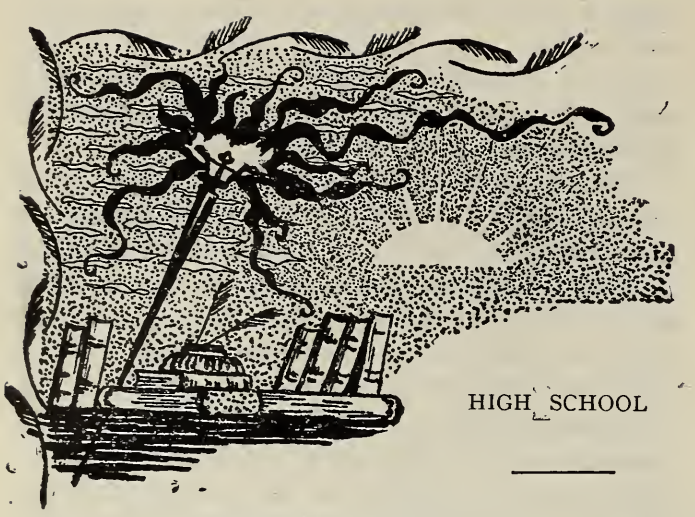
The fact that the United States has the smallest per capita consumption of alcohol of any of the great nations; that the better knowledge of hygiene which you have been teaching is one cause of the increase of four and one-tenth years in length of life reported by the last census; that the children have carried home from school the story that alcohol injures working ability until abstinence is largely required of employes by the business of the country; and that where the study is pursued as herein outlined, cigarette smoking is decreasing,— all show how large is the debt this country already owes to its teachers.

The countless heroes of the past, pointing to the priceless sacrifice through which liberty has thus far come, the present with its perils, the future with its hopes, all appeal to you to be increasingly loyal to your magnificent opportunities to train the great army of future Americans to a sobriety that will dethrone alcohol.

EASTER AWAKENING

BY MARGARET SANGSTER

Never yet was a springtime,
Late though lingered the snow,
That the sap stirred not at the whisper
Of the south winds sweet and low;
Never yet was a springtime
When the buds forgot to blow.



HIGH SCHOOL

ASSIMILATION

TRAVELERS who have visited Oberammergau tell us that in one of the art stores there is a wonderful series of pictures of the German peasant Meyer who for thirty years took the part of the Christ in the great Passion Play.

Those taken when he first assumed the role show merely a rough, rude fellow, but as time goes on, and he is imbued with the character he has been chosen to represent, his coarse features soften and become spiritualized until no one would imagine him to be the same man. He has grown into the likeness of him whom he has portrayed so long.

In lesser degree, perhaps, but no less surely, every human being is acted upon and transformed by the thoughts he entertains, the habits he indulges in, even the air he breathes and the food he eats. He is defiled or ennobled by whatever he takes into his life and makes a part of himself.

The same law obtains in the making of the physical nature. The youth who means to have a strong, capable body must see to it that he uses only the best materials. No one knows how the different tissues select the particular nourishment that each requires, or the process by which the food becomes living tissue, and such knowledge is not essential to health. What is necessary is to supply the right conditions. Nature can be trusted to do her part.

THE ORGANS INVOLVED

Unless study of assimilation follows directly upon that of circulation, the latter should be thoroughly reviewed before considering the further changes by which food, after getting to the blood, is absorbed into the body.

Have drawings put on the board showing a section of tissue permeated with capillaries. From these explain how food and oxygen pass through the walls of the capillaries into the surrounding lymph which takes them to the tissue cells. Review the lymphatic circulation in this connection, finding how the excess of lymph thus formed is removed, and what becomes of it.

Ascertain the structure of the capillaries and lymphatics, and find how each is adapted to its work. What is lymph? What purpose does it serve in the body?

Since the blood is continually bringing food and oxygen to the tissues there would soon be an overplus of material unless some outlet for its removal were provided. What is this outlet? How does waste matter get from the tissues into the blood? What becomes of it? How is the waste matter picked up by the lymph and disposed of?

SELECTION OF MATERIAL

Make with the class as careful a study of the composition of important body tissues as possible. Then make a similar study of common foods, finding which contain materials needed by the bones; by the muscles; the brain; the nerves; and other tissues of the body. What other purpose must food serve in the body, besides repairing and building up tissue?

Call for lists of foods suitable to be eaten together, and others which should not be taken at the same time, with reasons in each case. Select menus from the daily papers or other sources, and let the class decide whether each fulfils the proper conditions of a healthful diet.

Alcoholic drinks should be studied in this connection. Find the composition of alcohol which is the dangerous ingredient in each. Is it oxidized or broken up into other substances in the body as food is? How does it differ from a food?

Beginning with the digestive system itself, find how alcohol affects each of the important tissues of the body. Condense the most important of these effects into short sentences for the blackboard and opposite the long list thus obtained write the possible advantage, that of providing energy for heat or work. Compare this to the use of gunpowder for heating. Both will burn. Why then are they not wise fuel?

From the action of tobacco on the different tissues of the body show why it, too, should not be included in one's diet.

AUTHORITATIVE QUOTATIONS

INJURIOUS EFFECT OF ALCOHOL ON ALBUMEN

Alcohol does not remain in the stomach; it traverses the mucous membrane as the walls of a porous vase, and thus reaches the blood. It is here above all, that its injurious action appears in all its horror. The liquid serves as

a vehicle to the albumen which ought to nourish all the viscera, and which is dissolved by the process of digestion. Alcohol diminishes its solubility, and thus renders it unfit properly to fulfil its function. Drink, taken even in small quantities, leads rapidly to a peculiar bodily fatigue, similar to that produced by inanition.—Dr. Bienfait of Liege.

ALCOHOL RETARDS DIGESTIVE FERMENTATION

It is claimed that alcohol aids digestion. On the contrary it coagulates albuminous matter and thus renders it more difficult of absorption. By its action the sugary materials become with difficulty soluble. It retards or embarrasses digestive fermentation. It provokes nausea, indigestion, and causes the gastric catarrh that troubles all drinkers.—Dr. de Vaucleroy, Professor of Hygiene in the Belgium Military School.

DANGER FROM WOUNDS IN DRINKERS

In the drinker all wounds are dangerous. His blood is vitiated and the reactive power wanting. Hemorrhages are frequent and complication inevitable.—C. R. Drysdale, Consulting Physician to Metropolitan Hospital, London.

HARMFUL ACTION OF ALCOHOL ON THE BLOOD

Alcohol in the blood diminishes the oxygen-carrying property, destroying the hemoglobin. The waste products are retained and become sources for the growth of pathogenic germs. Both the liver and kidneys are subjected to increased activity with diminished nutrition.—T. D. Crothers, M. D., Hartford, Conn.

DEGENERATION OF TISSUE DUE TO ALCOHOL

Degeneration of the heart muscle and of the arteries is commonly seen in alcoholics; this means that there is a failure in the proper supply of blood and in its adequate removal. The tissues suffer from anæmia or congestion.—Dr. E. Claude Taylor, M. R. C. S., England.

"Each day a chance may come to fight heroic battle for the right;
And so you may become, I deem, the hero of your own brave dream."

DECAY OF TEETH DUE TO ALCOHOL

When the stomach is disordered by alcohol, the pulp, or what is commonly known as the nerves of the teeth, becomes congested and liable to inflammation. This, being aggravated by the irritated and unhealthy state of the mouth, soon culminates in disease and death of the pulp. The teeth being robbed of that which supplies their nourishment and vitality, decay with great rapidity.—Dr. McEhlewney.

DELETERIOUS ACTION OF ALCOHOL ON THE LIVER

The extensive anatomical changes wrought in the liver by chronic alcoholism must necessarily interfere with its activity in producing bile, and must impair its glycogenic function and its power to destroy ptomaines.—J. W. Grosvenor, M. D., Buffalo, N. Y.

INTERFERENCE OF TOBACCO WITH GROWTH

Children who use tobacco before reaching maturity have their growth interrupted, as nothing more definitely interferes with the equilibrium of tissue-building, digestion, assimilation, elimination, metabolism, than tobacco, and for these reasons its use favors gouty diseases, atheromatous degeneration, premature senility and decay.—I. N. Love, M. D., Professor of Diseases of Children, Clinical Medicine and Hygiene, Marion-Sims College of Medicine, St. Louis, Mo.

FOOD AND POISON

BY MAX KASSOWITZ

Professor of Physiology, University of Vienna

Read before a Society of German Physicians, Carlsbad, September, 1902. Published in the *Internationale Monatsschrift*, November, 1902.

"SINCE food serves as heat material for the processes which go on in the body, upon the principle of transformation of energy, the theoretical deduction was made by an investigator named Mayer that alcohol must serve the function of a food since it burns in animal or human bodies. This deduction is not true unless foods *simply* burn in the body, and that they do has never been demonstrated. On the contrary, we know that food besides burning in the body serves also, at least in part, to build it up, and there is nothing to warrant our asserting that any food burns in the body without first having been used to build it up, that is, without having contributed to make protoplasm. The question now to be answered is whether the immediate destruction, direct burning, is possible before it has served to build up living, assimilative protoplasm. That alcohol is a narcotic poison and can destroy living protoplasm is an acknowledged fact. In the view, dogmatically believed since the time of R. Mayer's experiments, that alcohol, which is a poison, is at the same time a food, we see a paradox which no one would think of asserting about any other poison. No true food destroys protoplasm as experiment will show.

"Chauveau tried recently certain experiments with a dog. He fed the dog on a specified diet and recorded how much work he could do every day. He found that during the experiment the dog gained in weight. Then the food of the dog was so altered that, while all else remained unchanged, a certain amount of carbohydrate [starchy food] was replaced by alcohol which was equal to the starch omitted, upon the hypothesis that direct burning of food is possible in the body without a previous building up of tissue. If, then, the alcohol had been true food there would have been no change noted. However, the dog not only accomplished less in the time during which he was fed alcohol, which is to be accounted for by the narcotic effect of the alcohol, but he also grew thin. Yet with less work accomplished and equal nourishment he would of necessity have increased in weight. The experiment shows, therefore, that alcohol as poison can not feed the body, but only injure it. Knowing this, we ought to desist from attempting to strengthen the weak and sick with alcohol, and from spending for alcohol in hospitals large sums of money which could better be devoted to real improvement of the condition of the food.

"Science can go astray; and the proclamation that alcohol is food and a source of strength has been an error involving heavy consequences. But science itself in its progress will correct its errors, including the error in regard to alcohol."

In the discussion following the reading of this paper, Prof. Hueppe of Prague said that no such fundamental contrast exists, i. e., between a food and a poison, since the most important foods taken, in unsuitable form, are severe poisons; here belong peptones and fatty acids which nevertheless every one takes plenty of, daily. Theoretically it is true that the body can manage small quantities of alcohol as it can of peptone; practically, however, although it can in a measure take care of poison, it is not proper to make too much of a claim out for alcohol on that account, since the danger lies in not keeping within bounds and thereby allowing the poisonous action of alcohol to gain the front. The speaker said that he had noted that both he, himself, and other people can do more work when they abstain from alcohol.

Prof. Rosemann, of Greifswald, said that even though alcohol must be given a food function theoretically, practically it is no food, since, in the necessary quantities to make its food value appreciable, it acts primarily as a poison.

Dr. Lenzman, of Duisberg, said that there is a difference between materials like peptone and alcohol which ought to be explained. The body makes of peptone a substance which serves to build it up, but it makes no such of alcohol. Small quantities of alcohol injure undoubtedly, for example, not the coarser liver cells, but, in a very marked way, the most finely organized nerve cells of the brain.

Professor Kassowitz came back in his conclusion to the fundamental difference between peptone and alcohol. Peptone is changed during the absorption in the digestive organs, in the blood there is no peptone; but alcohol is absorbed unchanged and so is in the blood as poison. His belief that nothing can be at the same time food and poison could not be overthrown by empirical statement.

EASTER PROMISES

BY CHARLES EUGENE BANKS

"There is no death," the flowers say,
"In faith, we hide our souls away,
While tempests desolate the earth,
And patient wait the promised birth."

The south wind chants, "There is no death
I come and winter is a breath;
Against his falling walls I set
The snowdrop and the violet."

A PLEA FOR THE BIRDS

BY HON. GEORGE F. HOAR

To the Great and General Court of the Commonwealth of Massachusetts:

WE, the songbirds of Massachusetts and their playfellows, make this our humble petition. We know more about you than you think we do. We know how good you are. We have hopped around the roofs and looked in at the windows of the houses you have built for poor and sick and hungry people, and lame and deaf and blind children. We have built our nests in the trees and sung many a song as we flew about the gardens and parks you have made so beautiful for your own children, especially your poor children to play in.

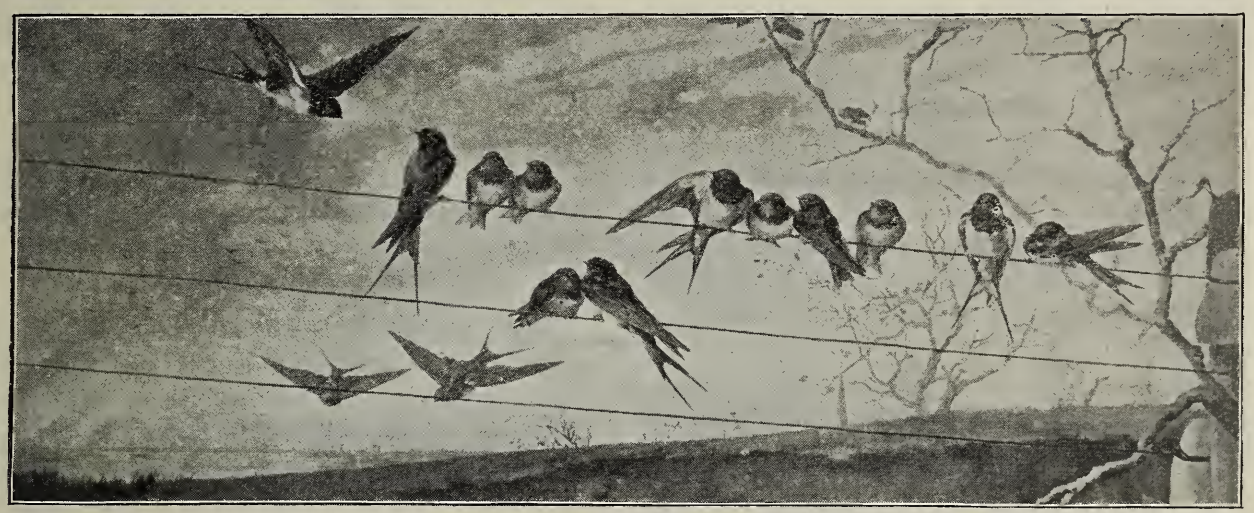
Every year we fly a great way over the country, keeping all the time where the sun is bright and warm; and we know that whenever you do anything, other people all over this great land between the seas and the great lakes find it out, and pretty soon will try to do the same thing. We know; we know. We are Americans just as you are. Some of us, like some of you, came from across the great sea; but most of the birds like us have lived here a long while; and birds like us welcomed your fathers when they came here many years ago. Our fathers and mothers have always done their best to please your fathers and mothers.

Now we have a sad story to tell you. Thoughtless or bad people are trying to destroy us. They kill us because our feathers are beautiful. Even pretty and sweet girls, who we should think would be our best friends, kill our brothers and children so that they may wear their pretty plumage on their hats. Sometimes people hunt and kill us from mere wantonness. Cruel boys destroy our nests and steal our eggs and our young ones. People with guns and snares lie in wait to kill us, as if the place for a bird were not in the sky, alive, but in a shop window or under a glass case. If this goes on much longer all your song birds will be gone. Already, we are told, in some other countries that used to be full of birds, they are almost gone. Even the nightingales are being all killed in Italy.

Now we humbly pray that you will stop all this, and will save us from this sad fate. You have already made a law that no one shall kill a harmless song bird or destroy our nests and our eggs. Will you please to make another that no one shall wear our feathers, so that no one will kill us to get them. We are told that it is as easy for you to do it as for Blackbirds to whistle.

If you will, we know how to pay you a hundred times over. We will teach your children to keep themselves clean and neat. We will show them how to live together in peace and love and to agree as we do in our nests. We will build pretty houses which you will like to see. We will play about your gardens and flower beds,—ourselves like flowers on wings,—without any cost to you. We will destroy the wicked insects and worms that spoil your cherries and currants and plums and apples and roses. We will give you our best songs, and make the spring more beautiful and the summer sweeter to you.

Every June morning when you go out into the field, Oriole and Blackbird and Bobolink will fly after you and make the day more delightful to you; and when you go home tired at sundown, Vesper Sparrow will tell how grateful we are. When you sit down on your porch after dark, Fife Bird and Hermit Thrush and Wood Thrush will sing to you; and even Whip-poor-will will cheer up a little. We know where we are safe. In a little while all the birds will come to live in Massachusetts again, and everybody who loves music will like to make a summer home with you.



"They'll come again to the apple-tree, Robins and all the rest;
And the prettiest thing in the world will be the building of the nest."

RESOLUTIONS

ADOPTED AT A MEETING OF THE AMERICAN ASSOCIATION FOR THE STUDY OF INEBRIETY, HELD IN BOSTON, MASS., DECEMBER 18, 1902

Resolved, That it is the sense of this association that the indiscriminate sale and use of patent medicines and so-called "cures" for the alcohol and opium habits are not infrequently the cause of the formation as well as the continuance of these habits.

Therefore be it resolved, That this association memorialize the proper authorities not to issue any patent or proprietary right to any one desiring said patent or right for any remedy or medicine or "cure" or any compound whatever containing alcohol, opium, or other narcotic drug in which there is danger of habituation from its use.

Resolved, That all proprietary or patent medicines for which a patent is issued have a label on which are distinctly printed the ingredients of said preparation; said label being placed or affixed to the bottle, box, or wrapper in which said preparation is dispensed; and furthermore, that a heavy penalty or fine, or imprisonment, or both, be imposed upon any one who may manufacture, prepare, buy, or sell, or have for sale in stock, all such preparations not duly patented and labeled under conditions specified.

Resolved, That we reaffirm and indorse a resolution passed at a meeting of this society held March 23, 1893, in reference to the licensing and proper inspection of all institutions for the care and treatment of inebriates, morphia habitués, or other form of narcomania.

Resolved, That a copy of these resolutions be published in the medical and secular press.*

*These resolutions were read by Dr. Crothers, seconded by Dr. Rodbaugh, and unanimously carried by vote of the association.

BOOK NOTICES

PLANTS AND THEIR CHILDREN, By Mrs. William Starr Dana, Author of How to Know the Wild Flowers, Illustrated by Alice Josephine Smith. American Book Company, New York.

Mrs. Dana says in her preface that "A child's reading book should secure for the child three things,—practice in the art of reading, amusement and instruction." "Plants and Their Children" fulfils these conditions and more, for it furnishes all the guidance that a teacher of lower grades needs for her classes in nature study. The arrangement of the book is admirable. The opening lessons are upon the fruits and seeds of autumn, while succeeding lessons advance with the seasons through a winter study of "Schoolroom Garden" products to the buds and flowers of spring. Mrs. Dana possesses the graceful faculty of being able to take the reader into her confidence in a way that delights the grown person as well as the child. As a reading book "Plants and Their Children" is well suited to intermediate grades.

SHORT STORIES OF OUR SHY NEIGHBORS, By Mrs. M. A. B. Kelly, Author of "A Volume of Poems," "Leaves from Nature's Story Book," etc. American Book Company.

This little supplementary reader contains between fifty and sixty lessons in Natural History told partly in prose and partly in verse. The stories are for the most part simple and interesting, though their value as natural history is slight. The book lacks a logical plan. The author treats of the frog, then the brown thrasher, next the "Vain Little Moth" and then the cray fish, without giving any clear impression of any one of these animals, or any reason for this peculiar sequence of subjects. Perhaps the book's faults are best summed up in the word "commonplace." The same material could be made into an equally interesting and far more instructive school book.

TEN COMMON TREES, By Susan Stokes, Department of Biology, High School, Salt Lake City. American Book Company.

With the good aim of giving children "a real acquaintance with common trees," the writer of this book shows in her first pages that she can not hold to the language adapted to little people; in fact her diction varies from the "once upon a time" type to such sentences as "The cherries are borne in umbels, or in racemes, that is, on an elongated axis." Such posers would phase the ordinary grown person who had not a botany at hand. Yet no attempt at explanation is made in this book for children.

The chapters on the oak and the evergreens are good, and the introduction of traditions adds interest. The book contains inaccuracies which children would be the first to detect; for instance the statement that "the flowers of the pear tree are without scent." The book as it stands must be taken with a pinch of salt and is therefore unfit to be placed in the hands of young children without revision.

PHYSIOLOGY TOPICS FOR APRIL

PRIMARY — Care of the Body. Cleanliness. The Body as a Whole; its Parts and Uses. Special Senses.

INTERMEDIATE — The Skin and Cleanliness. Heart and Blood. Tobacco. Bones.

ADVANCED—Assimilation. Organs of Respiration. Fermentation.

SCHOOL PHYSIOLOGY JOURNAL

CONTENTS

PUBLISHED AT
BOSTON, MASS.
MARY H. HUNT, EDITOR

VOL. XII. NO. 9
MAY, 1903

IMPORTANT BOOKS ON NATURE STUDY

NATURE STUDY AND LIFE

By Clifton F. Hodge, Assistant Professor of Physiology and Neurology in Clark University, Worcester, Mass. With an Introduction by Dr. G. Stanley Hall. 12 mo. Cloth. 514 pages. List price, $1.50.

"Nature Study and Life" is intended to assist teachers in directing their pupils in nature-study work, and to be used by the children themselves as a reference book. It has twice formed the basis for nature study courses in the Clark University Summer School; it has further stood the more practical test of teachers' institutes in various states; and, finally, its most important suggestions have been tried thoroughly in the schoolroom.

	List Price
Atkinson's First Studies of Plant Life	$ .60
Ball's Star-Land (Revised Edition)	1.00
Beal's Seed Dispersal	.35
Bergen's Glimpses at the Plant World	.40
Burt's Little Nature Studies for Little People, from the Essays of John Burroughs. Vols. I. and II., ea.	.25
Gould's Mother Nature's Children	.60
The Jane Andrews Books—	
Seven Little Sisters	.50
Each and all	.50
Stories Mother Nature Told Her Children	.50
My Four Friends	.40
Lane's Oriole Stories	.28
Long's Ways of Wood Folk	.50
Long's Wilderness Ways	.45
Long's Secrets of the Woods	.50
Morley's Seed-Babies	.25
Morley's Few Familiar Flowers	.60
Morley's Flowers and Their Friends	.50

	List Price
Eddy's Friends and Helpers	.60
The Finch Primer	.30
The Finch First Reader	.30
Hale's Little Flower People	.40
Stickney's Study and Story Nature Readers—	
Earth and Sky	.30
Pets and Companions	.30
Bird World	.60
Jefferies' Sir Bevis (from 'Wood Magic')	.30
Newell's Outlines of Lessons in Botany—	
Part I. From Seed to Leaf	.50
Part II. Flower and Fruit	.80
Newell's Reader in Botany—	
Part I. From Seed to Leaf	.60
Part II. Flower and Fruit	.60
Porter's Stars in Song and Legend	.50
Strong's All the Year Round Series—	
(Spring, Autumn, Winter,) each	.30

GINN & COMPANY, PUBLISHERS

BOSTON NEW YORK CHICAGO SAN FRANCISCO ATLANTA DALLAS COLUMBUS LONDON

SPECIAL OFFER

To any teacher above the Fifth Grade who will give the paper a trial in her school there will be sent **for five weeks free of charge** as many copies of THE LITTLE CHRONICLE as she has pupils; also free desk copy and booklet, "Suggestions on the Use of Current Events in Teaching."

Every course of study leaves something to the discretion of the teacher and if you will devote a little time during the week to the use of THE LITTLE CHRONICLE in some of the various ways suggested, you will become as enthusiastic about it as other teachers who re now using it.

ADDRESS DEPT. Q,

THE LITTLE CHRONICLE
CHICAGO

THE SUFFOLK
ENGRAVING AND ELECTROTYPING CO.
Illustrators, Engravers, Electrotypers,
234 CONGRESS ST. and 275 WASHINGTON ST.
BOSTON, MASS.

"KEYS TO SUCCESS" is the subject of an address by Mr. Edward Bok, Editor of the Ladies' Home Journal.

The Publishers will send a copy of this address in booklet form to any reader of "What To Eat" who will ask for it, enclosing 6 cents in postage stamps to cover mailing expenses.

"*Keys to Success*" is one of the many inspiring speeches contained in MODERN ELOQUENCE, a ten-volume library of the best After-Dinner Speeches, Addresses and Lectures of the Nineteenth Century, edited by Ex-Speaker Thomas B. Reed. The Publishers believe that these complimentary copies of "*Keys to Success*" will prove effective advertising for the sale of MODERN ELOQUENCE; hence this offer.

Address:

John D. Morris & Co.
Suite 129 Commonwealth Bldg., Philadelphia

School Physiology Journal

Vol. XII *BOSTON, MAY, 1903* *No. 9*

A CLOVER MESSAGE

I KNOW a place where the sun is like gold,
And the cherry blooms burst with snow,
And down underneath is the loveliest nook,
Where the four leaf clovers grow.

One is for hope, and one is for faith,
And one is for love you know;
And God put another one in for luck—
If you search, you will find where they grow.

But you must have hope, and you must have faith,
You must love and be strong—and so,
If you work, if you wait, you will find the place
Where the four-leaf clovers grow.

—*Ella Higginson.*

A PREVENTIVE OF ALCOHOLISM

SCIENTIFIC TEMPERANCE EDUCATION IN THE PUBLIC SCHOOLS*

SEVENTY-FIVE years ago, M. Guizot in the opening paragraphs of one of his great historical works said, "For my own part, I am convinced there is a general destiny of humanity, a transmission of the aggregate of civilization; that the nations hand down from age to age something which has never been lost, which must increase, form a larger and larger mass, and thus pass on to the end of time." If the student of civilization could say as much in the first quarter of the last century, still more may we of the twentieth century be sure that progress is written on the banners of the world, that the human family is keeping step with hope, that the star on the horizon is the morning, not the evening star.

Great were the gains for human progress during the last half of the nineteenth century. Not many miles from where we are now gathered, at The Hague, the claims and disputes of nations that once could have been settled only by brute force, with the clash of arms and the outpouring of human blood, can now be referred to a court of peace for adjudication. Thus progress is being made against war, that grim monster that has cost some of us so much.

The horrors of famine are mitigated by the altruistic Christian helpfulness that modern intercommunication makes possible, by taking the plenty of one section to the famine-stricken on perhaps the other side of the globe. Every mail and every steamer from my country, and doubtless from yours, to Scandinavia and Finland is today carrying money and food to the hunger-smitten.

The discovery of the bacilli of disease points to the time when, even if we are not able to kill the microbe of pestilence without killing the patient, we may yet prevent it from making the acquaintance of its victims as of old. Thus, the three great scourges of the human race, war, famine, and pestilence, are now held in leash as compared with the past.

The air is still vibrant with the Czar's proclamation of religious liberty and other reforms for the people of Russia.

Human chattel slavery is abolished throughout Christendom.

THE NEXT STEP IN HUMAN PROGRESS

It is, therefore, in the order of human progress, while the councils of peace at The Hague are ready to prevent war, and modern intercommunication is relieving famine, and the disciples of the infinitely small are holding pestilence at bay, that we, representatives of many nations, from two hemispheres, should be assembled here to consider the possibility of the overthrow of the worst of all bondages that ever enthralled any portion of the human race, —the alcohol slavery. It is the worst because it becomes a willing bondage that enslaves the soul as well as the body of its victim, while it mortgages his children and children's children to the enslaver. It must be overthrown, if our race is to move on through generation after generation up the heights of its utmost possibilities. How it can be overthrown is the supreme question of the hour.

We are here to find, if possible, an answer to this question that can have worldwide application. It is significant that for such purpose we have met in Bremen, Germany, the very heart of Europe, the section which was the fatherland of the ancient Teutonic peoples who were the ancestors of so many of us in this presence,—the German, the Dutchman, the Dane, the Swiss, the Belgian, the Frenchman, the Briton and the American.

*An Address delivered before the Ninth International Anti-Alcohol Congress held in Bremen, Germany, April 14-19, 1903, by MRS. MARY H. HUNT, World and National Superintendent of the Department of Scientific Temperance Instruction of the Woman's Christian Temperance Union; Life Director National Educational Association; Member American Association for the Advancement of Science.

Historians tell us that those ancestors of ours were adventurous men, hard fighters and many of them heavy drinkers. Concerning that heavy drinking, we, their descendants, have made some progress, for we know today that alcohol is a destroyer. Thus, although we come from many lands whither we have dispersed since the days of our ancient sires, and speak different tongues, we are ready to strike hands against this common foe.

Captain Mahan, an American writer, says, "All history is the aggressive advance of the future upon the past, the field of collision being the present." This being true, coming generations with clear brains and untainted blood are aggressively advancing on the alcoholic past of our inheritance, and are demanding of us a wise selection of weapons for this "collision" and unfaltering loyalty in their use. What shall these weapons be? Neither the spears of our ancestors nor the Gatling guns of today can avail in this collision, which is primarily a battle against ideas inciting to the drink habit which enslaves the drinker. This collision is the clash of the new teaching of modern science, that alcohol is a poison ever at war with human well-being, against the old notion that alcohol is a good creature of God for human sustenance.

An English historian says, "The progress of mankind depends on the success with which the laws of phenomena are investigated, and on the extent to which a knowledge of these laws is diffused." Here we have the weapons for this warfare:

First, Scientific investigation as to the truth about the character of alcohol and its effects upon the human system.

Second, the widest diffusion of that truth.

The education through the schools of all the people in the plastic period of childhood, before appetite for alcohol is formed, in the physiological reasons for obedience to all the laws of health, especially those which teach total abstinence from alcoholic drinks and other narcotics, is the sane and sure method for the dethronement of alcohol. It is sane and sure, because history shows us that in the ultimate contest truth is the strongest of all forces. God has so made the human mind that it can not be forever inhospitable to truth which, sooner or later, overthrowing ancient error, sits enthroned in conscience, guiding human action.

Do you say this educational method is a shot at long range? We admit that time is an important factor in the problem, but the child is soon the man or woman. Do you know any short range method by which an evil like alcoholism, as old as time, can be overthrown?

I trust you will not consider it intrusive for a representative from one of the youngest of the nations to ask your attention to the practical working of this educational method in the republic beyond the seas.

With the first settlers of our land came alcohol. The consequences of its use are the same in all lands. Thus the story of its evil is cotemporaneous with our history.

Some one has said, "When misery finds a voice, there is a beginning of better things." With the opening of the last century, the misery that always follows in the wake of alcohol found a voice in the awakened moral sense of the people of America. This took the usual form of first trying to prevent the evils of intemperance by substituting for distilled spirits the moderate use of light wine, cider, and later, beer. Trial of that experiment proved that wine and cider intemperance are as bad as any other, and that the brandy or whisky drunkard does not stay reformed if he continues the use of cider, beer, or wine. Thus, through disappointing experience, the temperance cause reached the total abstinence basis in the United States about the middle of the last century. Then followed thirty years of effort to check the evil through moral and legal suasion, each doing much good. This brings us up to 1880, when appeared a new agency for which all that had gone before had prepared the way. This new agency was the voice of science. We have quoted Buckle as saying that the progress of mankind depends on the success with which the laws of phenomena are investigated and the extent to which a knowledge of them is diffused.

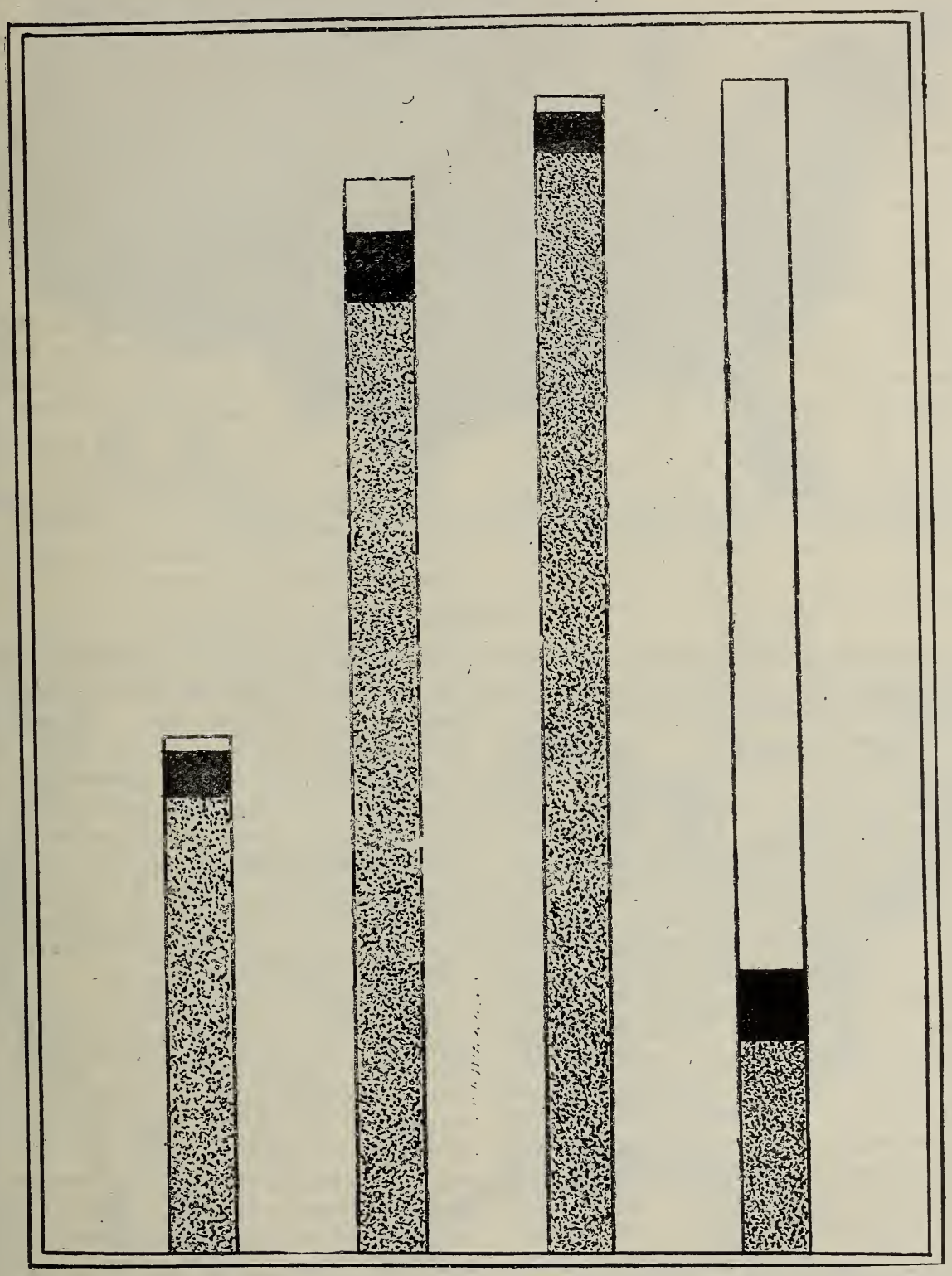
AMERICA'S DEBT TO THE LABORATORIES OF EUROPE

Here let me pause to pay a just tribute. It was the success of the investigation of the laws of phenomena concerning alcohol, conducted in Europe, that made it possible for us to enact the educational statutes which have given wide diffusion to the truth concerning alcohol,—a diffusion which has made your discoveries a part of the personal knowledge of the children in the public schools of the United States, and through them of their parents also.

When the story of the scientific discoveries concerning the nature and effects of alcohol made by Sir Benjamin Richardson, of London, were first published, I knew the time had come to ask for the passage of temperance education laws in the United States, because those discoveries furnished well sustained data as to the truth concerning alcohol that should have the widest possible circulation. The need was urgent, for it was self-evident that the people would not stop drinking as long as they believed in the drink; hence we could not wait for men of science in our own country to reaffirm the findings of the laboratories of Europe.

THE PER CAPITA DRINK-CONSUMPTION OF FOUR GREAT NATIONS IN 1900

Spirits : Solid Black *Beer : Dotted Portion* *Wine : White Portion*



Country	Population	Beer Consumption (per capita)	Wine Cons. (per capita)	Spirits Cons. (per capita)	Total
United States	76,303,387	13.3 gallons	.3	1.1	14.7
Germany	56,367,178	27.5 "	1.5	1.9	30.9
United Kingdom	41,605,323	31.7 "	.4	1.1	33.2
France	38,641,333	6.2 "	25.4	2.	33.6

Science in America, facing a continent to be subdued, has chiefly occupied itself with searching for the hidden and elusive forces of nature which, chained to wheels and levers, have enabled man to accomplish the otherwise impossible and thereby serve human advancement. Modern science in America has thus contributed not only to its own but to the world's betterment in electrical and mechanical discoveries and inventions, but it has spent little time in scientific investigations of the alcohol question.

Professor August Forel, of Zürich, in an article published after visiting America, in 1899, justly rebuked the men of science in our universities for this neglect.

That deserved reproof will not be lost. The American is credited with being quick to learn, as well as alert in applying knowledge as soon as acquired. Nevertheless, if the temperance cause had waited for our men of science to move, disastrous would have been the consequences to the cause of sobriety; and it is doubtful whether the United States would have today the glad distinction of the comparatively small per capita consumption of alcohol indicated in the diagram on the preceding page.

ENACTMENT OF TEMPERANCE EDUCATION LAWS IN AMERICA

But the temperance cause did not wait for our brothers in the universities to act. A new force providentially appeared. Most incomplete is any history of the moral and mental development of the United States that omits the work of its women. The broad-browed, clear-eyed, warm-hearted American women saw in the power of alcohol to destroy individual capacity for self-government, not only the destruction of brothers, husbands, and sons, but of their country with its government by the people, unless those ravages could be stayed. Out of this conviction the Woman's Christian Temperance Union was born. Under the leadership of the late Frances E. Willard, a woman with great ability to rally and organize women for aggressive work in many lines against alcoholism, this became a mighty organization with auxiliaries in every town and city in all the land, pledged to total abstinence and to the elimination of the alcohol curse. This great army was ready to co-operate in carrying out the plans of the speaker for securing, through the public schools, a scientific temperance education for the children of the whole people.

The first law requiring this study was enacted in 1882. By 1902, through the action of Congress and the legislatures of every state, physiology and hygiene, which must include special instruction as to the nature and effects of alcoholic drinks and other narcotics, had become a mandatory study for all pupils in the public schools of the United States. (See temperance education map on the opposite page.)

Although, under our system of home government in education by the states, these laws were the individual acts of forty-five separate state legislatures, and of Congress for all military, naval, and other schools under Federal control, and although it took twenty years to secure their enactment, this legislation has been but a small part of the work of engrafting this study upon the public school system of the United States. Every important requirement of the laws, and every essential doctrine taught in the text-books, has been a battle-ground that has had to be fought over in the domain of reason. These battles I briefly refer to, in the hope that, as your scientific investigations have helped us, our experience in applying these investigations to popular needs may not be valueless in your efforts to educate the coming generations of Europe as to the dangers of alcohol.

At the beginning of this, which is sometimes called the utilitarian age, it is said that mathematicians launched a malediction against those who would degrade pure mathematics by applying it to any practical purpose. So, certain of our physiologists objected to what they called the "degrading of the noble science of physiology to being a medium for teaching temperance." "If temperance must be taught, let it be in lessons by itself," they said. But the craving for alcohol is often induced by physical conditions resulting from unhygienic habits. Hence, if we are to prevent alcoholism, the people must be taught why they should obey all laws of hygiene, as well as those that call for total abstinence from alcoholic drinks and other narcotics. Some physiology is essential to the comprehension of these reasons.

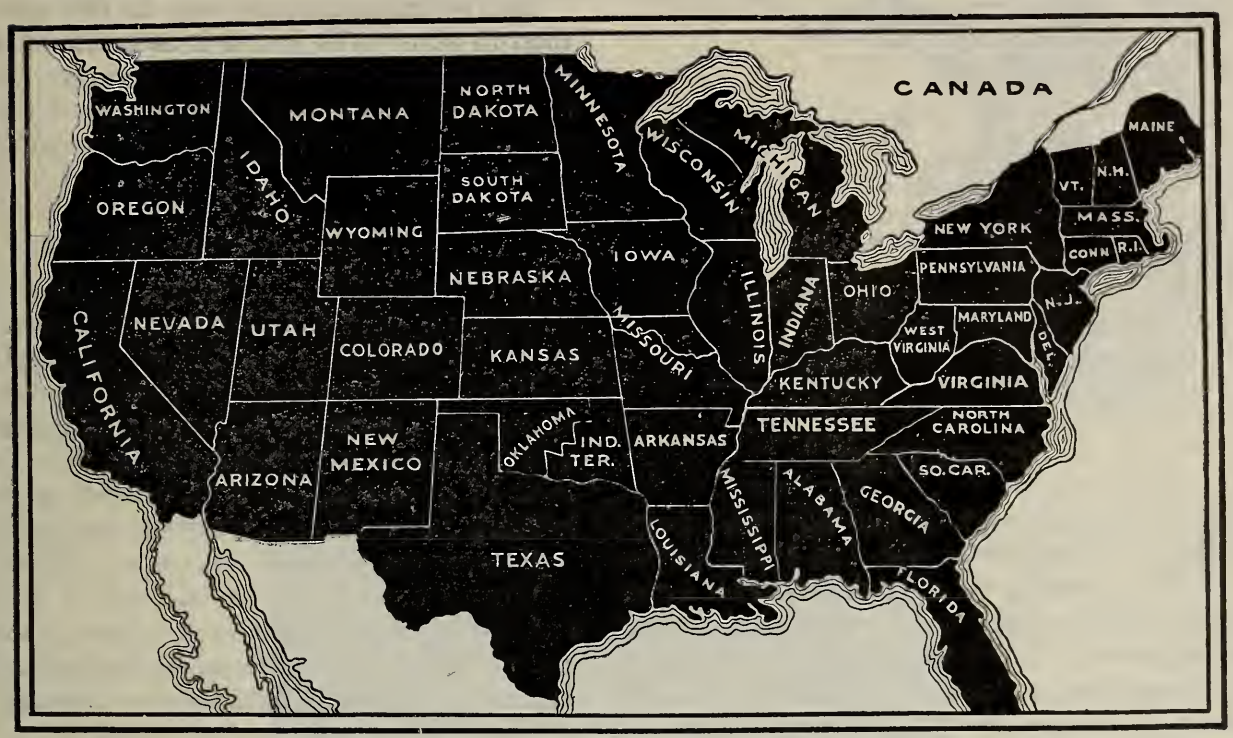
Anything like force makes small appeal to the average American. He merely stands on the Declaration of Independence and waves the Stars and Stripes; but if you can convince his reason, you have him. Another characteristic of this same average American also helped. He believes in his home and in the mother of his children; hence, when the mothers of the land explained to its representative men in Congress and in the state legislatures why they wanted their children taught physiology and hygiene, including the effects of alcohol and other narcotics, laws requiring this teaching were enacted. Results justify these enactments.

(*Continued in June Journal*)

"It is not to the dreamer, but to the achiever that the world is indebted for its progress."

1882

TEMPERANCE EDUCATION MAP OF THE UNITED STATES AND TERRITORIES



States in Black have no Temperance Education Laws

1902

TEMPERANCE EDUCATION MAP OF THE UNITED STATES AND TERRITORIES

States in White have Temperance Education Laws

EXPLANATION OF MARKS.—X The cross signifies that Scientific Temperance is a mandatory study in public schools.
* The star signifies that a penalty is attached to this statute.
† The dagger signifies that the study is required of all pupils in all schools.
‡ The double dagger shows that the study is required of all pupils in all schools, with text-books for all pupils able to read.
‖ The parallel indicates that the study is to be taught in the same manner and as thoroughly as other required branches.
§ The section indicates that the physiologies for primary and intermediate schools must give one-fourth or one-fifth their space to temperance, and those for high schools at least twenty pages.
¶ The paragraph indicates that no teacher who has not passed a satisfactory examination in this subject is allowed to teach.
═══ Three lines indicate that text-books on this topic shall give full and adequate space to temperance matter.
β The beta signifies that a definite number of lessons for each school year has been made compulsory.

There are more than 22,000,000 children of school age in the United States, under Temperance Education laws.

Primary Lessons

THIRD YEAR

CIGARETTES

"KEEP your eye on the boy who drops his cigarette the last thing before entering the schoolhouse and lights it again the first thing on getting out," says a keen observer. "You will find him in mature years occupying a place in the lower strata of society, or perhaps learning a trade under the tutorage of a prison master."

Educators as well as business men are sounding the alarm over the cigarette habit, which they denounce as the most pernicious factor we have among boys. It is also one of the most universal, since the manufacture and sale of cigarettes have so increased that no boy can now escape the temptation to their use.

"It is a pity," said one schoolman, "that boys must grow up and go through this thing in order to understand it. There ought to be some way to have them realize what they are doing before their brains become numb, their lungs permanently congested, and chronic bronchitis is fastened on them."

There is such a way, and it lies through education. Not after the child has begun to smoke,—it is too late then; but before the first cigarette has touched his lips. Even the primary school is too late thus to reach some boys, but it can and should have the right of way with by far the largest numbers.

The cigarette curse ought to be stamped out by the strong arm of the law, but public sentiment on the subject is not yet strong enough to cope with the great moneyed interests involved. It will be, when a generation of lawmakers has grown up who are themselves free from the cigarette bondage. The possibilities of such a generation are in our public schools today. To realize them, we must begin with the children where we find them; and by every means in our power, with all the tact and skill of which we are capable, and in the way best suited to individual need, make sure that every child under our care knows why cigarettes are harmful in themselves, and how they injure body, mind and character.

The millennium is not yet in this any more than in other evils, but it is as surely on its way as that right will ultimately triumph. It must be our concern to get in step with its onward march and hasten the day of its appearing.

(1)

WHY CIGARETTES ARE HARMFUL

Our lesson today is about a little paper-covered roll, not more than three inches long, and about as large around as a lead pencil.

It is covered with clean white paper and is very nice looking on the outside, but if we were to cut it open we should find it filled with a kind of coarse brown dust, not at all nice to look at, and which has a strong, bad smell.

What is the name of this queer little roll?

When I was your age I had never seen one, and there were none to be found anywhere. But all of you know that I am talking about a cigarette, and you probably saw a great many of them before you were old enough to go to school at all.

This is one reason why we are to have a lesson about cigarettes; because they are for sale in so many places, and because every boy, and perhaps a good many of the girls, will sometime be coaxed to smoke them.

If you are all to meet this temptation you must all know why cigarettes are harmful; then how they can hurt the health, and the brain with which we think; and how they can make people do wrong instead of right.

Do you remember the vine with the pretty red leaves that we saw in the woods one day last fall? Why did I tell you not to touch it?

Yes, it was poison ivy, and you remember that, although we all hurried away, John's eyes began to smart and little red blotches came out on his hands and face. There was something in the ivy that had poisoned him.

What is a poison?

John thinks it is something that makes your skin red and swell up.

Kate says a poison will kill you.

Ned says a poison makes people sick.

You are all partly right. There are a great many different kinds of poison, and they affect people in different ways.

Just being near poison ivy made John's hands and face red and swollen. Bad air poisons those who breathe it, by making them feel dull and sleepy. Then there are other poisons that hurt people or even kill them if they are swallowed and so taken into the stomach.

It takes a very wise person to know just what all the different kinds of poison will do to any one; but we can all remember this, that a poi-

son is something that hurts people. So the only safe thing to do when we know that anything is a poison is to let it entirely alone. We should neither touch it nor taste it, and we should keep as far away from it as we possibly can. Then we shall know it can not hurt us.

The little paper-covered cigarette does not look as if it could do any harm; but it does, because it, too, contains a bad poison. I will write the name of it on the board. Here it is:

The name of the poison in cigarettes is nicotine.

This is the reason why we ought never to smoke a cigarette.

This bad nicotine is not the same kind of poison that is in ivy, nor the same kind that is in bad air. It is a kind all by itself. If we were to take even a very little pure nicotine it would kill us, but as it comes in cigars and cigarettes it does not usually kill people.

What does it do to them? That is something for us to find out in our next lesson. Today we will try to remember that

We must let cigarettes alone because they contain the poison, nicotine.

A poison is something that can hurt us.

There are many different kinds of poison.

Each kind hurts people in a different way.

We must keep away from all kinds of poison. Then none of them can hurt us.

"There were just three of them."

(2)

HOW CIGARETTES HURT THE HEALTH

Did you ever know a boy, or a girl either, who did not want to know why he had to do certain things, and why there were other things that he could not do?

You found out yesterday *why* you ought not to smoke cigarettes,—because in every one there is a little of the poison, nicotine.

Today we are going to talk about some of the ways in which this kind of poison hurts people, if they are foolish enough to let it get into their bodies. Part of our talk will be a story about

THE THREE R'S

There were just three of them, two boys and a dog, and they were always together.

The boys' names were Ray and Rob, and the dog's name was Rover, but everybody called them the three R's, because all their names began with that letter.

One day somebody gave Ray a package of cigarettes, and both boys thought it would be fun to smoke them. There were five cigarettes in the package, so Ray kept two himself and gave two to Rob. Then he offered the other to Rover, because they always shared everything with him.

Rover coughed and shook his head. He did not like the strong bad smell. He gave it one lick, then he shook his head again. He did not like the taste any better.

Ray and Rob got some matches and went down by the brook to try their cigarettes.

You can guess what happened. They had taken only a few whiffs before they began to feel sick. They thought they were going to die.

It was almost dark when they felt able to go home, and neither of them wanted anything to eat. Rover had not tried to smoke, so he was ready for a good supper.

"You knew more than we did, old fellow," the boys said to him, "but we won't be so foolish again."

Ray never was, but by and by Rob forgot how sick he had been, and one day, when some one gave him another cigarette, he tried it once more.

It did not make him so sick this time, and in a week or two he found he could smoke as well as anybody.

Before he was ten years old he could smoke four packages a day, and there was a yellow stain on his fingers which he could not wash off.

People began to notice that he was not growing so fast as his brother, and when it came to a race, Ray and Rover could beat him every time.

After awhile he stopped playing ball, because it made his heart beat so fast, and because, when he was at the bat, he could not always see the ball. Something seemed to be the matter with his eyes.

He did not get on well in school either, and twice he failed to make his grade. He did not like to study. It made his head ache and was too hard work.

When both the boys were men, Ray went into partnership with his father and built a nice house of his own.

Rob thought he would be a dentist, but he could not pass the examinations. He tried other things, but there was nothing he could do well, so one after another he gave them up. Now he spends his time lounging about town, doing nothing.

Tell this story (a true one) as graphically as possible. Have the children reproduce it in their own words. Ask which of these boys they would rather be. What made the difference in them? How was Rover wiser than either?

What could Ray do that Rob could not? What can we do if we are well and strong which we can not if we are weak and sick? What kind of health will a boy be likely to have who uses tobacco?

Make a blackboard list at the children's dictation of the ways in which cigarettes hurt Rob's health. Add others which have come under your own observation, or are well authenticated, until you have something like the following to be remembered:

Cigarettes can keep a boy from growing tall and strong.

They can give him a tobacco heart.

They sometimes injure the eyesight, and may even make him blind.

They can make a boy's hand tremble.

They can give him a stupid brain.

They can hurt almost every part of his body.

(3)

CIGARETTES A CAUSE OF OTHER BAD HABITS

I once read a kind of fairy story about a wonderful magician who was to give an exhibition in a town. The hall was full of people, and the magician called for boys from the audience to come to the platform for him to experiment on.

He selected one and waved his wand over the boy's head.

At once the boy began to change. His good clothes turned to rags; his bright eyes grew dim, his hands began to tremble; he looked sick and old.

People were amazed at the magician's power.

"Now change him back to our bright, happy boy again," cried his parents.

"That," said the magician, "I can not do. I can turn a boy into an invalid or an idiot, but no one can change him back to what he was before."

What would you do if this story were true, and if that magician were to come to this town and call for boys to experiment on? I think you would all give him a pretty wide berth. But there are just such magicians as that, right here in our stores, ready to turn healthy boys into invalids, to make bright boys dull, and to change good boys into bad ones. Can you guess the name of these magicians? It is the Cigarette family. We have found how they can injure a boy's growth and health and make him stupid; now we are to learn how they lead him into bad habits.

When you leave school you will want to go to work. How many business men will take you into their employ if you smoke cigarettes? Ask all those you know, and your fathers and uncles, and see what they say.

They will tell you they want the boys who work for them to tell the truth. Cigarette smokers are very likely to lie and deceive.

They want boys who are honest. Cigarette smokers often cheat and steal.

They want boys who are good workers, quick in their movements, and prompt to the minute. Cigarette smokers are slow and lazy and behind hand.

They want boys who are neat and clean. Cigarette smokers seldom care how they look.

They want boys who let liquor alone. Cigarette smokers are just the ones who drink.

Very likely they will give you other reasons, but these are surely enough to make any one resolve that he will never get into the power of such a bad magician as this.

Every time we are urged to smoke a cigarette, and every time we see them on sale, let us think of the long list of bad habits they can lead the user into, and refuse to spoil our health, our brains and our characters in any such way.

AUTHORITATIVE QUOTATIONS

THE POISON IN CIGARETTES

All the species of tobacco contain a liquid, volatile, poisonous alkoloid, nicotine, varying in amount from .612 per cent to 8.9 per cent. Nicotine is rapidly fatal to all animal life—

from the lowest to the highest form. Poisoning by nicotine, pure and simple, is rare. Tobacco-poisoning is very common, and has probably been experienced in a mild degree by every smoker in first acquiring the habit.—A. WYNTER BLYTH, in *Poisons*.

TOBACCO ALWAYS USELESS

Tobacco is always useless, often harmful, and sometimes homicidal. It is, of course, a poison. As for cigarettes, the filth sold as such is beyond description.—*London Lancet.*

TOBACCO STUNTS GROWTH

It is easy to see the effects of large amounts of tobacco in the stunted growth of adolescents, in functional cardiac disorders, loss of appetite, neurosis of motion, intellectual sluggishness, loss of memory, color-blindness, marked blunting of various functions of sensation.—T. H. MARABLE, M. D., Clarksville, Tenn.

TOBACCO IMPAIRS DIGESTION

The use of tobacco causes such a waste of saliva that digestion is certainly impaired by it. It impairs the appetite and lessens the eliminative powers of the body. —WM. M. MASON, M. D., Brooklyn, N. Y.

CIGARETTES A MENACE TO HEALTH

Judge Caldwell says: "Cigarettes are wholly noxious and deleterious to health. Their use is always harmful, and never beneficial. They possess no virtue, but are inherently bad, and bad only. Their every tendency is towards the impairment of physical health and mental vigor. It is a part of the history of the volunteer army in the United States during 1898, that large numbers of men, otherwise capable, had rendered themselves unfit for service by the use of cigarettes, and that among the applicants who were addicted to the use of cigarettes more were rejected by examining physicians on account of disabilities thus caused than for any other, and perhaps every other reason."—*Journal of Inebriety.*

"Sweet lilies, from thy dreams awake,
Behold 'tis Spring!"

CIGARETTES AND MENTAL ABILITY

Dr. H. F. Fisk, Principal of the Northwestern University Preparatory School, has, according to *American Medicine*, put a ban upon cigarette smoking in the institution. Any boy who refuses to give up the habit will be obliged to leave, and his tuition will be refunded, as experience has proved to Dr. Fisk that "boys who smoke are no good to the school, learn nothing themselves, and set a bad example to the other students." Statistics prepared by him, covering a period of several years, show that of the boys who smoke only 2 per cent are among the 25 per cent of students who stand highest in class scholarship. On the other hand, 57 per cent of the smokers are among the 25 per cent lowest in class scholarship. —*British Medical Journal.*

DEWEY'S LESSON

Success tells how Dewey enforced a lesson on neatness and cleanliness. "While in a foreign port he ordered the heaviest hoisting tackle gotten out of the hold without delay. Nobody knew what it was for. After two hours' hard work the tackle was ready, and Admiral Dewey then ordered that a large 'chew' of tobacco which had been thrown under the guns should be hoisted and dumped overboard into the sea."

A SONG OF WAKING

The maple buds are red, are red,
The robin's call is sweet;
The blue sky floats above thy head,
The violets kiss thy feet.

The sun paints emeralds on the spray,
And sapphires on the lake;
A million wings unfold today,
A million flowers awake.

Their starry cups the cowslips lift,
To catch the golden light;
And like a spirit fresh from shrift,
The cherry tree is white.

The innocent looks up with eyes
That know no deeper shade
Than falls from wings of butterflies,
Too fair to make afraid.

—KATHERINE LEE BATES.

Grammar Lessons

SEVENTH OR EIGHTH YEAR

THE ORGANS OF SECRETION

CERTAIN American scholars find it surprising that at the Anti-Alcohol Congress just held in Bremen stress was laid on such a well-known fact as that the drinking man has not the same chance in life as the total abstainer.

Such discussion would have been unnecessary if people in general were as familiar as scientists with this fact. Unfortunately they are not. The ordinary man, and especially the ordinary youth, does not trouble himself with mortality statistics. Hence, he does not know that the drinking man is at a disadvantage in all diseases involving the brain, lungs, liver and kidneys. He does not find out until he tries to get his life insured that the habitual drinker is seldom accepted at any risk, if the company knows it. Nor does he realize until perhaps he has failed in business, or at his chosen profession, that even the moderate user of liquor is handicapped in mental acumen and brain power, in comparison with the total abstainer.

Such open discussions as were held at the Bremen Congress popularize these facts, take them out of the laboratory and the study, and bring them home to the people who stand so sorely in need of them. They reach the teacher and vivify her work in the schoolroom. They raise the standard of intelligence throughout the country and the world, and are thus helping to shape conduct and habits.

Something of this thought may well be suggested to pupils in upper grammar grades, who perhaps are occasionally tempted to belittle the study of temperance physiology. If they know that eminent scholars are giving time to the discussion and solution of health problems they will be encouraged to study the findings of these scientists and more willing to put the same into practice.

FUNCTION OF THE ORGANS OF SECRETION

Sooner or later every normal youth is interested in construction and eager to make something himself. Take advantage of this period to present the body as a manufacturer.

The class will know already that the different parts of the body are continually growing, or building themselves up anew, but there are also certain organs that have the power to make new substances, unlike themselves. These are the Organs of Secretion, and their work is so wonderful as to be of absorbing interest to young students.

Begin with the most important class of these organs,—that which has to do with the process of digestion. Have the class open their books and find the names of the digestive organs which thus make new substances.

When they have made a full list, the next thing to find is why each is necessary. Why, for instance, could not the salivary glands alone supply all that is necessary to digest our food? or the gastric, or the pancreatic glands?

This will lead to comparison of the different kinds of fluid secreted or made by these organs. Have the class find how the saliva, the gastric and intestinal juices, the bile and the pancreatic juice are unlike, and the kinds of food which each digests best. What kinds of food would pass through the stomach undigested if the gastric glands failed to work properly? What process of digestion would be interfered with if there were no salivary glands in the body?

In a similar way, study the secretions of other organs of this class,—the oil and perspiratory glands of the skin, the lachrymal glands of the eye, the glands of the ear which secrete wax. None of these glands help to digest food, but they are all of great importance. Show why in each case.

There are membranes as well as glands which act as organs of secretion. Find which these are, and have each pointed out from a chart. Compare the fluid secreted by the synovial membrane to the oil used to make a door move easily on its hinges. Where in the body do we find synovial membrane?

Find the difference in function between the periosteum, the membrane which covers the bones, and the synovial membrane of the joints. How is the periosteum of special value when a bone is broken or injured?

Think of reasons why mucous is all the time being secreted in the throat and nasal passages. Why is there more of this fluid when one has a cold?

ADAPTATION TO WORK

Examine with the class all pictures of glands and membranes shown in their physiologies. Why are not these organs, which do the same kind of work, exactly alike in size, shape, and general formation?

In helping them to answer this question, call attention to the varying amounts of room which can be given to these organs in the body. This will explain many differences between the liver and the pancreas, for example, and between other glands. It is just as necessary for the organs of secretion to adapt themselves to the place where they have to do their work, as it is for the bones or muscles to be long or short, thick or thin, straight or round, according to their position in the body, and the kind of work they do.

In some instances the organs of secretion are themselves a part of other organs, as in the case of the gastric glands of the stomach. Show by diagram how these are adapted in size and shape to their place in the stomach.

By similar diagram explain how the perspiratory glands of the skin are so arranged as to allow the greatest possible size in the smallest amount of space. Why are both size and economy of room necessary here?

Find a gland which has more than one kind of work to do. How does the structure of the liver fit it to act as an organ of secretion, as a storehouse for any excess of sugar that there may be in the body, and as an organ first of assimilation and then of excretion?

Find other organs of secretion which must act as excretory organs as well. How does the way in which each is made fit it for this double work?

"Bright flower faces,
With their coy and dainty graces,
Lure us to their hiding places."

NECESSARY CARE

Every workman knows that he must take care of his tools if he expects to do good work with them. If we think of the organs of the body as the tools which one must use in doing all kinds of work, it will be easy to understand why they too must be kept in perfect repair.

How can one take care of the tools we have been studying about in these lessons, the organs of secretion? The way to find out is to think first what they are to be used for, and then what will help them to do their work.

The organs of secretion which help digest our food must have enough to do, hence we must eat the kinds of food which each can act upon. Name foods which will give work to the salivary glands; to the glands which secrete the pancreatic juice; to the liver; to the glands which secrete intestinal juices. Why should starchy foods be well cooked, while eggs should not?

Rest is needed by the organs of secretion as much as work. Why is this a reason for not eating between meals? How does chewing gum or tobacco overwork the salivary glands? If it is a part of the work of the liver to store up sugar, why is it not a good thing to eat much candy? Why is it better to eat oatmeal without sugar?

Other organs of secretion, such as the glands of the skin, the eye, and ear, and the membranes which surround bone and muscle, and line the air passages, work in different ways, so need different kinds of care. Have the pupils find by reference to their books what this should be in each case.

INJURY DONE BY ALCOHOL AND TOBACCO

Unless one is a physician or chemist it is not easy to find out by actual experiment just how alcohol or tobacco injures such parts of the body as the organs of secretion, most of which are out of sight. For this reason we must take the word of scientific men who have performed such experiments.

Many of their investigations are given in the school physiologies for these grades. Have all such which relate to the organs of secretion read aloud, a paragraph at a time, by different ones in the class, and explain any word or expression which may not be readily understood.

Have the class make a list of all the ways mentioned in which these organs are themselves injured by alcohol or tobacco, and also ways in

which their work is hindered or made less effective by either substance. Call for reasons for each statement given, to make sure that these are thoroughly understood. For instance, if some one finds that chewing tobacco causes indigestion, have all the steps explained which lead up to this result,—the excessive flow of saliva caused by the act of chewing; the dryness of the mouth and throat which follows, as the salivary glands become temporarily exhausted; then, if food is taken, the lack of saliva to soften and help digest it; and, finally, the fermentation of food thus imperfectly digested, and its consequently disturbing effect on the digestive organs.

Supplement the statements of the text-books by the authoritative quotations which follow, using the same method. Ask the pupils also to bring to class statements from other authorities which they may notice in papers and magazines.

The final summing up should bring out the thought that it is especially necessary to protect these hidden parts of the body from possible harm, because they can not easily be got at to be repaired when injured, and because each is so intimately connected with the welfare of the body as a whole that it can not suffer alone, but must needs react disastrously upon the health of the individual.

AUTHORITATIVE QUOTATIONS

NICOTINE IRRITATES MUCOUS MEMBRANE

Nicotine acts as a mechanical irritant to the mucous membrane of the bronchial tubes, and if a bronchitis be present it maintains an irritable state of the membrane and keeps up a cough. Thus, by the lessening of the bodily vigor, the person is unable to withstand disease, and, if he inherits weak lungs, he may easily become a prey to tuberculosis.—*Journal of Inebriety.*

NICOTINE A PRE-DISPOSING CAUSE OF CATARRH

Regarding glandular activity, it may be said that nicotine stimulates secretion in general, as is illustrated by the influence upon the mucous glands of the mouth and general alimentary tract. This overstimulation of the mucous area would naturally lead to the development of catarrhal affections.—J. W. Seaver, A. M., M. D., New Haven, Conn.

TOBACCO A CAUSE OF INDIGESTION

When tobacco and chewing-gum are placed in the mouth and kept there until time for a meal, the salivary glands are not only unable to secrete enough amylolytic ferment to aid in the digestion of the starch, but are also unable to secrete enough fluid to soften and disintegrate the food thoroughly, and, as a result, the indigestion of all articles of food ensues, since the pabulum, when swallowed, is not in a fit condition for gastric or duodenal digestion.—*Dietetic and Hygienic Gazette.*

ALCOHOL WEAKENS DIGESTION

Alcohol excites the mucous membrane of the stomach and causes it to secrete gastric juice. Later, by overaction, it impairs the secretion, weakens digestion, and finally induces organic changes in the stomach structure.—I. D. Mishoff, M. D., Milwaukee, Wis.

ALCOHOL PRODUCES DISEASED LIVER AND KIDNEYS

Alcohol produces diseases of the liver and of the kidneys, because these glands are most concerned in the elimination of any poison, and are always, until they are structurally deranged, engaged in removing it from the body.—G. H. McMichael, M. D., in *Journal of Inebriety.*

WORK OF LIVER IMPAIRED BY ALCOHOL

The extensive anatomical changes wrought in the liver [by alcohol] must necessarily interfere with its activity in producing bile, and must impair its glycogenic function and its power to destroy ptomaines.—J. W. Grosvenor, M. D., Buffalo, N. Y.

ALCOHOL DISTURBS EVERY PHYSIOLOGICAL PROCESS

For the system to rid itself of alcohol requires an expenditure of force which should be used for the nutrition of the body, as it disturbs every physiological process. At its very entrance the foe is met by nature with water. Three pounds of saliva is secreted in twenty-four hours. As this is largely water, alcohol begins to burn with a quenchless flame as soon as it enters the mouth, continuing on its destructive way to the stomach, causing by its irritating action an excess of gastric juice, but one not so strong in digestive power.—M. A. Gillette, M. D., in *Bulletin of American Med. Tem. Ass'n.*

THE DAISIES

At evening when I go to bed
I see the stars shine overhead;
They are the little daisies white
That dot the meadow of the night.

And often while I'm dreaming so,
Across the sky the moon will go;
It is a lady, sweet and fair,
Who comes to gather daisies there.

For, when at morning I arise,
There's not a star left in the skies;
She's picked them all and dropped them down
Into the meadow of the town.

—Frank Dempster Sherman.

School Physiology Journal

COPYRIGHT APPLIED FOR

Single Subscription.....$0.60 a year

CLUB RATES

Clubs from 5 to 50. .....$0.50 each
Clubs of 50 and over..... .40 each

Please remit by post office or express money order, draft on New York or Boston, or by registered letter.

MARY H. HUNT, EDITOR
HENRIETTA AMELIA MIRICK, Assistant Editor

Published monthly at 23 Trull St., Boston, Mass.
SEPTEMBER TO JUNE, INCLUSIVE

Entered at the Boston Post Office as Second Class matter

Apple blossoms, budding, blowing,
In the soft May air;
Cups with sunshine overflowing,
Flakes of fragrance, drifting, snowing,
Showering everywhere.

—LUCY LARCOM.

EDUCATION DOES EDUCATE

A SCHOOL superintendent calls attention to the fact that Vermont passed a law twenty years ago requiring the study of "stimulants and narcotics" in all the schools of the state, with text-books in the hands of all pupils who could read, and asks how it happens after all these years of temperance teaching, when all the boys to whom these books were first given are voters, that that state has now reversed her policy of fifty years of prohibition by passing a local option law which opens the saloon in six cities and more than eighty out of the two hundred and forty towns.

Is it true, as some fear, that education does not educate, and that we are on the wrong track in teaching temperance physiology to all pupils in all schools?

It would seem so, in Vermont at least, to judge merely from a superficial examination of present results, but a wise judge will reserve decision until all the facts are in.

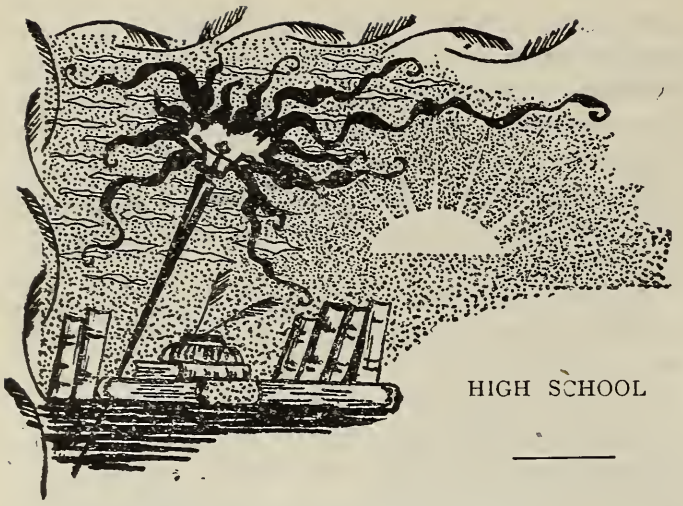
What are the facts? It is true that Vermont, in 1882, passed the first law ever enacted requiring the public school study of the nature and effects of alcoholic drinks and other narcotics as a part of physiology and hygiene, but it was a very weak law, and instead of reaching all pupils, practically resulted in putting the study into high schools only, thus reaching hardly more than five per cent of the pupils.

Four years later, the Woman's Christian Temperance Union of that state, realizing that the temperance education of a mere fraction of the coming voters would not lead to personal prohibition in the majority, nor strengthen legal prohibition in the state, petitioned for and secured, in 1886, a stronger temperance education law, requiring temperance physiology to be taught orally to all pupils unable to read, and with graded text-books in the hands of all pupils who had books in other subjects, with a penalty for non-enforcement.

If such a law had remained in force for any length of time, results today might have been far different, but, in 1888, the legislative bill for the consolidation of the school laws of the state, through mistake or otherwise, failed to enumerate the new scientific temperance instruction law with those to be retained with the other codified laws, and specifically cited it, by number, as one of those which "are hereby repealed." Thus this strong law was in operation only two years, hardly long enough to be got into practical working order, and certainly not long enough to admit of practical results.

The next legislature restored the first old law with no requirements for the study in the lower grades, no text-books for pupils' use, and no penalty for non-enforcement. The sequel is recorded on the ballots cast last February which gave the towns and cities of the Green Mountain State, the right, if they so choose, to make "covenant with sin and death in licensing the sale of the greatest of all causes of degeneracy and crime." New York, on the other hand, has had a strong temperance education law, reaching all pupils in all schools, in force for seven years; and in spite of her enormous yearly immigration from wine and beer drinking lands, and her great wealth invested in wine and brewing industries, that state has already so increased the license fee that liquor sellers are threatening to go into other business or cut in two every glass of beer they sell.

Blackstone says, "Law is embodied sentiment." Prohibitory law is embodied sentiment against alcohol. Such sentiment must be made by education, before it can be embodied into statutes, and when once secured must be maintained by teaching each succeeding generation that alcohol is by nature an outlaw which must be driven out. Only thus can prohibitory statutes be perpetuated. A stream will not rise higher than its source. The chief source of anti-alcohol sentiment in the twentieth century is the schoolhouse. The states that year after year teach, as a progressive study, all their children, especially in the lower grades where alone the largest possible numbers can be reached, the physiological reasons for obeying the laws of health, including those that teach total abstinence from alcoholic drinks and other narcotics, are the nearest to the overthrow of the awful dominion of alcohol within their borders.



HIGH SCHOOL

ORGANS OF THE BODY

LORD Kelvin's summary of the progress of inventions applies equally well to almost every other field of intellectual attainment. He said: "What yesterday I should have declared impossible I have today seen realized."

Man is able to achieve ever greater results, because his health and physical capacity for work have kept pace with his mental growth. Every year more attention is paid to hygiene and sanitation in the schoolroom, the home and the community, and, in consequence, epidemics are disappearing and the death rate is continually being lowered.

Increased knowledge of the dangers inherent in alcoholic drinks, tobacco, and other forms of narcotics, and of their power to lessen human endeavor, will as surely lead to total abstinence as another of the pre-requisites to health. The successful man of the future can not afford to drink, because he must have a sound body, and even moderate drinking weakens nearly every organ; he must have mental vigor, and wine scatters the wits; he must be of unblemished character, and alcohol is a known perverter of morals.

NEED OF AN ORGANIC SYSTEM

Among nations the number of employments increases with civilization. A savage builds his own house, gets his own food, makes his own clothes, supplies all his wants. In the most progressive countries, on the other hand, there are hundreds of different occupations, and by doing only one kind of work a person is able to do it infinitely better than would be possible if his energies were scattered over many kinds.

In a similar way, compare the one-celled amœba, which has only a single organ with which to move, breathe, feel, eat, and digest its food, with man who has a separate set of organs for each of these functions. Lead the class to see how this difference in structure accounts for man's pre-eminence.

Study the organs of the human body from two points of view,—that of the work which each does by itself, and that of the way in which this work is made of use to the body as a whole. For example, the organs of circulation are arranged to keep a constant supply of blood flowing through every part of the body. What has this circulation to do with the bones? the muscles? the skin? The special work of the lungs is to act as breathing organs. How is this function related to that of the muscles? to that of the nervous system? In the same way, explain the individual work of all the organs, and show their interrelation.

When this work has been thoroughly done, call attention to the fact that, although made up of so many different organs, each with its own peculiar function, the body always acts as a unit, not as a collection of parts. When we think of a person we think of him as a whole, not as a being made up of arms and legs, a trunk and head. What is the great co-ordinating system which makes this unity of action possible?

FACTORS IN ITS DEVELOPMENT

Unlike all other machines, the human body is a growth, and as such every organ must be constantly supplied with proper building materials. This means knowledge of the selection and cooking of foods and of the kinds to be used together; of adaptation to climates and seasons, and individual needs including the amount of money which can be used for this purpose; so that wherever one may be or whatever his condition he may know that he is putting into the building of his body that which will tend to its highest development.

After thorough study of foods with these points in mind, call attention to other particulars in which the care of the body differs from that of any other organism. First, it needs stated periods of exercise and rest. What determines how much of each should be taken and what kinds? Most machines keep in better condition and last longer if kept out of the sun. Why is the opposite true of the body?

To promote the growth of the body, one must know how to avoid what is harmful as well as to choose what is necessary. Probably every youth nowadays of high school grade knows in a general way that among such harmful substances are to be classed all narcotics, including tobacco and every form of alcoholic drink. In addition to this bare fact, he should know how each organ of the body may thus be injuriously affected and kept from its best development, and how the injury of any one part of the organism may react disastrously on the whole.

Use the latest and most carefully revised textbooks, the indorsed physiologies, as a basis for

this study, supplementing these by reference to current medical journals and such other literature as may be found in the libraries at hand. Get the opinion of the healthiest and most perfect physical specimens of men and women as to the effects of narcotics upon the human system, and finally take the concensus of opinion of all the ages, that even the moderate use of any narcotic drug leaves a scar on the nerves.

"Each of them, if used to excess, brings on insanity, incapacity and death. With each of them the first use makes the second easier. To yield to temptation makes it easier to yield again, and the weakening effect on the will is greater than the injury to the body. He is the strong man who can say *no*. He is the wise man, who for all his life, can keep mind and soul and body clean."

"Wake, Nature, wake, thy slumber time is o'er. Spring's gentle tread
Adown the forest aisles draws softly near; 'tis dawn o'erhead!"

ANTI-ALCOHOLISM IN FRANCE

AS a result of the recent agitation in France over the question of alcoholism, the government has instructed the Academy of Medicine to determine among the alcoholic essences in use those which ought to be absolutely proscribed and those which should be regulated by law. The Academy of Sciences also published a decree that instruction be given as to the dangers of alcoholism. The following is a bill placarded under the auspices of the Society of Temperance of Paris and given wide publicity:

VERDICT OF SCIENTISTS CONCERNING ALCOHOL

M. Berthelot, a member of the Academy of Sciences and of the Academy of Medicine:

"Alcohol is not a food because it is combustible. . . Atwater, himself, did not conclude from his experiments that alcohol is a true food, that is, that it is capable of becoming a part of the substance of the organism."

M. le docteur Charles Richet, of the Academy of Medicine:

"If one could completely abolish alcoholic drinks, one would perhaps destroy a very small amount of food, but one would render an immense service to humanity."

M. Metchnikoff, chief attendant, Pasteur Institute:

"I am convinced, as far as I am concerned, that alcohol is a poison."

M. le docteur Lancereaux of the Academy of Medicine:

"Alcohol is dangerous, not only for its effects upon the nervous system, but particularly for the *denutrition* which it produces in the organism that indulges in it to excess."

M. le docteur Hericourt, director of the *Revue Scientifique*:

"Alcohol, even in the dose which some persons like to call hygienic, may be a cause of death, by diminishing the resistance of the organism to infectious diseases."

PHYSIOLOGY TOPICS FOR MAY

PRIMARY—Care of the Body. Right Position. Review of the Senses. Cigarettes.

INTERMEDIATE—The Special Senses. Physical Exercises. Muscles.

ADVANCED—Secretion. The Skin and Cleanliness. Organs of the Body.

THE BREMEN CONGRESS

DURING Easter week fourteen hundred delegates, representing both hemispheres and fifteen different nations, and distinguished for their achievements in science or in the service of humanity, university professors and men of hereditary rank assembled in Bremen, Germany, for the ninth biennial session of the International Anti-Alcohol Congress.

Among the subjects discussed were the teachings of science concerning the moderate use of alcohol and the effects of such use on every phase of human progress. Two schools of thought were represented,— the moderates, calling themselves "the temperate school," and the total abstainers, or "the abstinence school." No resolutions were passed, by common consent, but the applause for the testimony of science and experience in behalf of total abstinence showed the "moderates" to be in the minority.

The statement of Dr. August Forel, one of the foremost authorities in the world on brain and nerve diseases, that neither science nor experience furnishes evidence to justify calling alcohol a food, called out prolonged acclamations. Professor Berens, director of the German School of Art at Düsseldorf, in an admirable paper on "Alcohol and Art," showed that alcohol, by dulling the spiritual aspirations essential to the greatest work, is an enemy of the highest attainment in art. The papers read by notable members of the Congress during the six days of the session will fill two or three volumes and soon will be printed for wide distribution.

As the American representative, Mrs. Mary H. Hunt addressed the Congress on "The Significance of Scientific Temperance Instruction in Public Schools as a Preventive of Alcoholism," which led to a discussion in which twenty speakers took part, nearly all of whom commended the extension of the American method for the prevention of intemperance. Mrs. Hunt's address will appear in full in this and the following issue of the JOURNAL. It was enthusiastically commented upon by the press as one of the features of the Congress, and Mrs. Hunt herself was honored by being asked to preside at Saturday's session.

Readers of the JOURNAL will be interested to know that the officers of the Congress, recognizing the pre-eminent fitness of Mrs. Mary H. Hunt, the World and National Superintendent of Scientific Temperance Instruction, to speak authoritatively concerning temperance education in the United States, sent an urgent request to President Roosevelt asking for her appointment as the representative from this country. This request was sent out over the signatures of the Secretary of the Home Department of the German Empire and the Mayor of Bremen, the honorary presidents.

In response to this solicitation, special letters of introduction were issued to Mrs. Hunt by the Department of State, signed by Secretary Hay; and the courtesies of the Congress were also bespoken for her by Baron von Sternberg, the German Ambassador at Washington.

MISTAKEN CRITICISM

THE *Buffalo Courier* of recent date reports an address on "Alcoholism" by Dr. Ernest Wende, a former Health Commissioner, in which the school text-books that contain teachings on the subject of alcohol are criticised as "in the main untrue" and tending to breed falsehood, because they teach that alcohol is a poison.

If the indorsed physiologies are referred to, they do teach exactly this fact, and in so teaching they are amply supported by many of the most eminent scientists of the day. In every instance, however, care has been taken to preface such statements with a definition of the term, poison, which explains that while a poison by nature injures the body that absorbs it, it need not and does not necessarily destroy life. There is thus no danger that the child, fresh from the physiology class, will expect to see his father drop dead upon drinking a glass of beer.

Again, in the article referred to, it is denied that alcohol is not a food in any sense. On this point also the books are in accord with the latest scientific investigation, in teaching as they do that alcohol is not a food, in the general acceptance of the term. A food is a substance which will nourish the body without injuring it. When alcohol is taken in sufficient quantities to make any food value it may possess appreciable, its poisonous action predominates.

It is also the opinion of the writer quoted, that the books should teach the varying degrees of harm wrought by different liquors. He would have the children taught that since beer is less harmful in its immediate effects than gin or whiskey, the person inclined to drink should take beer. To assume such a position is to fail to grasp a fundamental principle of true temperance teaching, namely that pupils must not be taught to choose among different alcoholic beverages, but to let all liquor alone; not to be moderate drinkers, but total abstainers. Moderate drinking paves the way for immoderate drinking, and the beverage of even the most moderate drinker contains alcohol which is always a protoplasmic poison, whether it comprises one or fifty per cent of the containing liquor.

The School Physiology Journal

Contents

PUBLISHED AT
BOSTON, MASS.
MARY H. HUNT, EDITOR

VOL. XII. NO. 10
JUNE, 1903

School Physiology Journal

Vol. XII *BOSTON, JUNE, 1903* *No. 10*

THE FIRST LYRIC

What keen, sweet rapture must have thrilled
The heart of Nature when she heard
The first glad lyric of a bird!
When that impassioned music spilled
From out the deeps of dawn—ah me,
'Twas then God fashioned Ecstacy!

—HERBERT BASHFORD.

A PREVENTIVE OF ALCOHOLISM

SCIENTIFIC TEMPERANCE EDUCATION IN THE PUBLIC SCHOOLS

NEW YORK STATE, with a population of 8,000,000, has one of the best temperance education laws. In 1902, that law having been in force seven years, a committee of citizens, in co-operation with the Woman's Christian Temperance Union, made a careful canvass of that great state, inquiring of parents in every county as to the effects of this study upon their children.

RESULTS OF TEACHING GENERAL HYGIENE

The results of the investigations were published in a sixteen-page pamphlet. The Committee says:

"Parents testify that, as a result of this study, the children practice and bring home the truths of general hygiene learned at school. They insist upon proper ventilation of sleeping and living rooms, and tell how to get it. They comment on the danger of drains or pools of stagnant water in cellars, dooryards or near wells, and urge the necessity of using pure water. The importance of eating slowly, and at regular intervals; the proper selection and cooking of food; its adaptation to season; suitable dress; the danger of draughts; are facts learned at school and put to practical use by the children. They ask for tooth-brushes and individual towels, and object to public drinking-cups. They become little rebels against dirt and disorder in the home, and help to secure better conditions. Mothers say, 'Take any other study out of the schools, but *leave this*.' Their testimony in this respect is almost uniform.

"One mother says, 'I have been surprised and delighted for years with the information the children in my large family have gained in hygiene as well as in temperance in the schools. The work is thorough and real and is influencing the home.'

"Another says, 'Even if the temperance part were left out, the rest would be absolutely essential. With the temperance instruction, it becomes the most important study pursued in the common schools.'

"Still another says, 'This teaching is helping some children to observe certain laws of health which their parents do not know about and can not teach them.'"

The Committee further says:

"No one who looks over the voluminous testimony from all parts of the state can fail to see that there is a growth of widespread, intelligent practice of general hygiene, including total abstinence, in the lives and homes of our young people resulting from this study; and that the statute requiring it is accomplishing what it was destined to accomplish. . . . These results will increase in number and influence as the years go by and methods of teaching are perfected. . . .

"Even if nothing more has been accomplished than is told in the reports in the hands of the committee, which we believe give but a faint idea of the good actually being done throughout the state, the people of New York would have abundant reason for gratitude to the law-abiding teachers of our public schools for the faithful work most of them have done in teaching this branch, in spite of opposition and hindrances encountered, where they should have had help."

This education has been nearly universal in the United States for between ten and fifteen years. The last census shows that during that time there has been in our country a gain of four and one-tenth years in the average length of life, and physicians who are familiar with the facts admit that the instruction in physiology and hygiene in the public schools, by increasing popular knowledge and observance of sanitary laws, has helped to secure this end.

METHODS WHICH SECURED THESE RESULTS

The question, in what grades this study shall be pursued, has been another field for debate. Exhaustive study of statistics of school attendance, to find where in the school course this

subject should be pursued to insure that "all pupils in all schools" shall get it, shows that, including the children of the colored population of the south, and of the immigrants from other lands who are pouring into the north of our country, the average school attendance is about five years of two hundred school days each.

Hence, we have learned that, to reach the largest numbers, this instruction must begin with the children in the lowest primary classes and proceed progressively through the grammar grades until the whole subject, suitable to be taught in the public schools, is covered.

But it may be urged that scientific temperance is a technical study that little children can not understand. The little child who is taught that one and one are two has taken his first lesson in mathematics. Just as simply may he get the first lessons in hygiene, including total abstinence, which will help shape the physical habits he is constantly forming, new ones each year. For these reasons, almost all our laws require the study to be taught all pupils in all public schools. This ORAL LESSON BOOK for the primary teacher's use, which I hold in my hand, contains an adequate number of illustrated lessons for each of the three primary years, showing what to teach and how to teach it.

The subject matter to be taught comprehends the physiological reasons for obedience to the laws of health, including total abstinence from alcoholic drinks and other narcotics, with physiology enough to make all intelligible. Careful study shows that the subject is large enough to furnish new and important material for three lessons per week for ten weeks of each school year through the three primary years, and four lessons per week for ten weeks per year through the five grammar years and the first year of the high school, with no more repetition than is necessary for reviews. This makes in all but 330 lessons in the whole subject, distributed through nine years, while from 600 to 900 lessons in geography are usually given in the same time. Our best laws, like those of New York and Illinois, specifically require such an amount and arrangement of lessons. Thus, without crowding other branches, a progressive development of this important study is secured for the pupils for an adequate time during each of the years in which, especially, habits are formed. Where, in addition to oral instruction in primary years, this study has been pursued for five years with good, well-graded books in the hands of pupils who have books in other studies, a revolutionizing effect is manifest in a community. Who can estimate the ultimate results of continuously instilling such saving truths into the minds of the children of a state and nation?

Scientific temperance as taught in the public schools of the United States has been, not a creation of facts—you helped furnish those—but a collection and arrangement of truths for school use, for which there was no precedent to follow. When the first temperance education law of New York was enacted, in 1884, for which, by the way, President Roosevelt, then a member of the New York legislature, voted, there was not in all the world a school text-book teaching the nature of alcoholic drinks and other narcotics and their effects upon the human system in connection with physiology and hygiene, as our laws require.

If the average American had not believed that if he did his part for the children in this matter the mothers would do theirs, our lawmakers would never have enacted statutes requiring a study, the school literature of which was then unwritten. The Department of Scientific Temperance of the Woman's Christian Temperance Union, of which it is the fortune of the speaker to have been superintendent from its inception until now, has, from the first, kept up an exhaustive investigation of the findings of science on the alcohol question, all of which have been topically classified and kept on file. Thus there is, at the department headquarters, an invaluable and constantly increasing collection of the results of modern scientific investigation on the physiological effects of alcohol in any quantity. This is ready of access for the writers who put these truths into the school text-books for all grades, and which millions of children in the schools of the United States are now studying.

The general supervision of these books in the United States is in the hands of the Text-Book Committee of the Department of Scientific Temperance Instruction. There are, on this Committee, six physicians, three of whom are professors in medical schools of our universities, and four other members, specialists in education and ethics. All criticism of this literature is referred to this Committee who carefully consider the same, securing correction in the texts, if facts require it. This labor is performed without remuneration of any kind.

Sometimes a man in our colleges or elsewhere who has not studied this science objects to the study, on the ground that the text-books are not accurate. All such are politely requested to point out the claimed inaccuracies. This furnishes the opportunity to refer such critics to the testimony of investigators which we have on file as to the truth questioned. Thus, the testimony of Professor Fick of Würtzburg, Professor Kassowitz of Vienna, Professor Bunge of Basel, Dr. Forel of Zürich, Professor Kræpelin of Heidelberg, Dr. Bienfait of Liège, Dr. G. Sims

Woodhead of England, with that of Doctors N. S. Davis, W. S. Hall, John Madden and others of the United States, has furnished ammunition for our battle against alcohol in the republic, for which we are profoundly grateful.

PROFESSOR ATWATER

In 1899, when all seemed to be going well, total abstinence principles and habits increasing, the per capita consumption of alcohol falling a little, and the brewers and saloon keepers were complaining of loss of profits, Professor Atwater threw a bomb into the otherwise peaceful camp, in the shape of an announcement, reported in practically every newspaper in the land, that he by actual experiment had proved that two and one half ounces of alcohol, the equivalent of one bottle of Rhine wine, or three glasses of whiskey per day, is a food "protecting the material of the body from consumption as effectively as corresponding amounts of sugar, fat and starch." Not until five months after this newspaper promulgation of Professor Atwater's so-called experimental discoveries, was the formal report of the same published with tabulated data, making it possible for any one to see just what did happen to the men shut up in the calorimeter and fed with alcohol.

Rathaus, in which a breakfast was given to prominent guests of the Ninth International Anti-Alcoholic Congress, by the Senate of Bremen.

Meanwhile the drink traffic and the bibulous had improved the time by promulgating as widely as possible this food theory in advocacy of moderate drinking. Professor Atwater openly denounced the teaching in the schools and the text-books containing it. But when his report was finally published, scientific men quickly pointed out the fact that, instead of proving alcohol to be a food, the tables of the Atwater experiments proved it to have acted on the man experimented upon as a protoplasmic poison. This fact the friends of total abstinence made generally known, and thus the Atwater attack became a help rather than injury to the cause, verifying the saying of Carlyle, "Bitter denials and contradiction of truth always furnish the most luxuriant soil for its growth."

The advocates of the Atwater theory tried to defend their position by juggling with the definition of the word, food; claiming that alcohol is "a technical food," "a food in an academic sense." Meantime, the definition of food, intelligible to the laity on our side of the water, as rational, inclusive and exclusive, is "Any substance whose nature it is, when absorbed into the blood, to nourish the body and repair waste, and furnish heat, without injuring any of its parts." Tried by that definition, alcohol is certainly not a food. The definition of a poison in all our indorsed text-books is substantially that of Alfred Swaine Taylor, M. D., of England, in his work on Medical Jurisprudence. Our books therefore teach that "A poison is any substance whose nature it is, when absorbed into the blood, to injure health or destroy life." This definition fits the story of the effects of alcohol on the human system.

The agitation over the Atwater theory had largely subsided in the United States until it echoed back to us a few weeks ago from France. But if France will examine his tables she will learn, as has the United States, that Professor Atwater did not prove that alcohol is a food, in the sense in which the people understand the meaning of the word. As the question of whether alcohol is a food is sure to be a part of the further conflicts for total abstinence, a clear-cut, non-technical definition of the word food, generally understood and accepted by the advocates of that abstinence will help in the battle before us.

RESULTS OF TEACHING TOTAL ABSTINENCE

The reports of the results for total abstinence of this teaching, gathered from the parents of the children in great States like New York and Illinois are most inspiring. The habits of the children are not only being shaped against the use of alcoholic drinks and other narcotics by this study, but the children are persuading their parents to abandon such use when already begun.

Perhaps some American tourist who knows little or nothing about the work, for some such may still be found, will respond to your inquiry about temperance education with the remark "It is a woman's movement," accompanied with a shrug and a rising inflection on the word, woman. Nevertheless, it is a movement that has taught industry and commerce that, by injuring working ability, alcoholic liquors of any kind are the greatest enemy of both employer and employe—a lesson that has been to the enormous financial profit of both capital and labor.

It has put the hand of a total abstainer on the throttle of nearly every engine, and total abstaining conductors, trainmen, switch-tenders and employes of all kinds in places of responsibility in all the great railroad systems of our nation of 79,000,000 people. It has made total abstinence a condition of employment in almost all lines of business, and thus has made the American workman a better producer because a sober one, furnishing an important factor in the commercial competition of the United States with other nations. It has helped create the public sentiment that has abolished even beer from the United States soldier's canteen, while his rations are otherwise improved. It has taught the people, who are the source of power, that the men who are to defend their flag must be sober men, strong to defend the right. It has diminished the sum total of diseases resulting from the use of distilled drinks, although those consequent upon beer-drinking are increasing, due to the immigration of beer-drinkers from other lands. But even here there is hope of better things, for our public schools are teaching the children of these new-comers to abhor beer, and we have just prohibited its sale at the stations at which they first land on our shores. Furthermore, the last report of the Internal Revenue Department at Washington shows that during the last eleven years, during which the laws requiring temperance education in the public schools of the United States have been quite generally in force, the per capita gain in the use of alcoholic liquors throughout the country is three times less than it was in the eleven preceeding years when there was little or no public school study of this subject.

Let none say that I give no credit to other temperance efforts. They have been wonderful factors in the battle; but without scientific temperance education in the public schools they did not and could not secure all the gain we now rejoice over.

Do you say that in prescribing the educational method I have not referred to the inevitable conflict before us with the moneyed interests involved in the production and sale of alcoholic drinks? If so, I quote to you, as I have to my own countrymen, a text of Holy Writ paraphrased to meet this condition: "Seek ye first the temperance education of the children, and all other temperance blessings shall be added unto you." When a majority of the people are too intelligent to want alcoholic drinks, the trade in the same will be forced to seek other avenues of profit.

But some one may say, "Such education would injure a great industry; my country is the land of the vine, or of the brewer." In pleading for this education before committees in Congress and in legislatures of different states, I used to show from facts and figures that every dollar of tax on fermented and distilled liquors paid into the municipal, state, or national treasury cost the people thirty dollars to take care of its consequences, in cost of crime, poverty, misery, madness, loss of time and working ability. The facts show a greater financial profit on the side of total abstinence. As stated before, these laws have been quite generally in force in the United States for more than ten years. When the last census of the United States was taken, the brewers and saloon keepers were bemoaning their diminution of profits; but estimates of careful statisticians show that there has been in the country at large a gain of wealth during the ten preceding years of from $25,000,000,000 to $29,000,000,000.

An industry whose products injure, as alcohol does, the mental, moral and physical ability of the people, in proportion to the amount taken, can never be anything but a source of loss to a nation. The victories of the future in all fields will be with the total abstaining nations. The people who cling to the beverage use of alcohol in any form are clinging to a force that in the nature of things will make them a decadent people. The hearthstone is the cornerstone of any nation. Alcohol blunts the tender affections that make the home the dear refuge of civilized beings. The unspeakable woes inflicted by alcohol upon helpless children in the home cry to heaven for prevention.

At your request, and with letters from the Department of State of the United States government, I have come 3,000 miles across the ocean for this hour.

In presenting the greeting of the republic which has most fraternal relations not only with Germany, the nation which is our host, but with all the nations here represented, I bear also the official good wishes of the Department of State of the United States for all manner of success to this Congress.

In doing so, may I trust that you will not consider it intrusive if I venture to hope that this may be a time of decision for many nations?

This Congress, I am informed, is to pass no resolutions, but there is no statute in force to prevent any individual from personally resolving, here and now, that he will on his return use his utmost endeavor to secure for the children of all the people of his country the blessings of scientific temperance education. All great movements have had their initiative in the conscience of some individual who has read on the pages of history the blazing words :

Whatever needs to be done for human progress can be done, if there is the faith and courage to undertake and untiringly push it.

" Wisdom is in knowing what to do, virtue is in doing it."

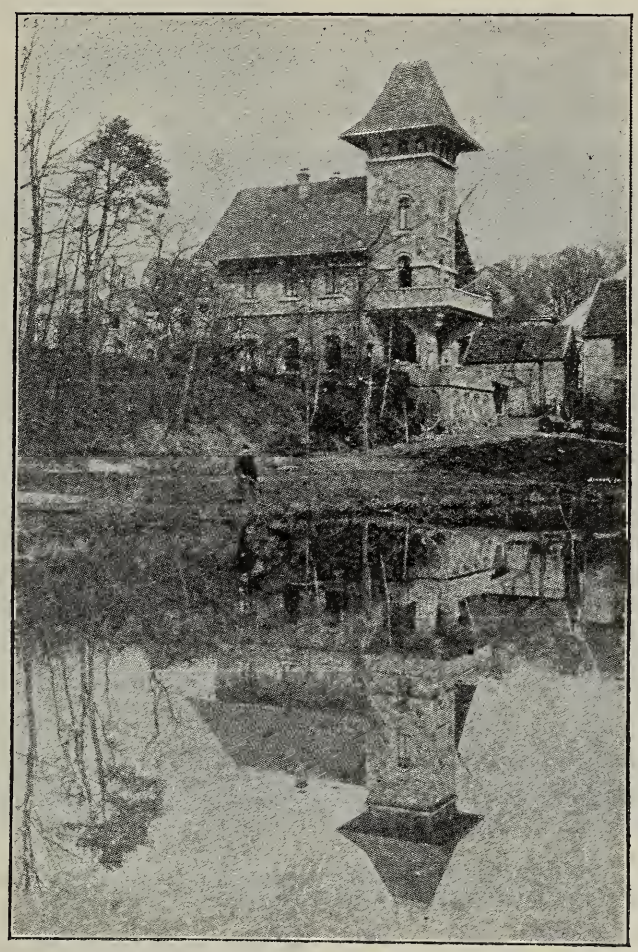
It is the testimony of modern science that, by a law of nature as fixed as gravitation, alcohol has the power when taken even in small quantities, with any degree of continuity, to create an uncontrollable and destructive appetite for more. Hence, a moderate use of wine, beer, or cider will tend to the immoderate and uncontrollable use of more and more ; in other words, to the slavery of alcohol.

If the nation is to be saved from this curse of alcoholism, its schools must teach :

1. The nature of alcohol, the power of a little to create an uncontrollable appetite for more, and therefore the danger of beginning to drink, even moderately ; and the effects of alcohol, as shown by modern science, upon the various organs of the human body, especially upon the brain and nervous system, and therefore upon character and ability.

2. The reasons for obeying other laws of health with physiology enough to make these laws intelligible, because unhygienic habits often cause the drink craving.

This study must begin with the first years of school, and continue as a progressive branch with a larger development each year, with a place in the course of study for thirty or forty lessons per year until the subject is covered ; the object being to guide in the formation of right habits.



On the Weser River, near Bremen, Germany

There must be text-books or manuals of instruction for pupils' use, graded to their progressive capacities.

The lack of preparation of teachers in this comparatively new science makes the preparation and use of good, well graded text-books for pupils of the highest importance.

When the above conditions have been secured and are maintained in a country which has a good public school system, instrumentalities have been set in motion that will revolutionize the drink habits of that nation.

A letter dated a month ago from Leipzig, received by the speaker in Boston, contains this statement :

" I hear, sounding through all disputations, ' we have no school text-books for scientific temperance education in the German language.' "

Does not that lamentation set forth the need of other nations represented in this presence? Why may not the supplying of that need begin from this hour? The future is beckoning us to be men and women of action in this matter. The world's need is supreme. Posterity can now see that, because it was out of harmony with the advancing age, the fall of human chattel slavery was impending from the first.

The fall of alcohol as a beverage is foredoomed by the discoveries of modern science showing it to be an enslaving poison to human tissues. How soon will it fall? That depends upon your loyalty and mine to the duty of the present hour, to which I am sure we shall all respond. If we do, with listening ears we may hear the advancing steps of a young host from all nations, who will, ere many decades, come up to this Congress to celebrate the freedom of our race from the alcohol slavery.

An Address delivered before the Ninth International Anti-Alcohol Congress held in Bremen, Germany, April 14-19, 1903, by MRS. MARY H. HUNT, World and National Superintendent of the Department of Scientific Temperance Instruction of the Woman's Christian Temperance Union ; Life Director National Educational Association ; Member American Association for the Advancement of Science.

Primary Lessons

REVIEW WORK

THE CHILD IN VACATION

ONLY a few years ago the by-products of an industry were considered a nuisance and every effort was made to get rid of them. But gradually it was discovered that such refuse could be purified and made into a long line of useful articles which in many cases determined the entire profits of the business.

In similar fashion, nothing of educational value was formerly looked for from the vacation season. It was even taken as a matter of course that the child would lose a good part of what he had acquired during the ten months of the school year.

But in this respect also the world has grown wiser, and through the play schools which are rapidly spreading over the country, it has already been shown that, instead of being wasted, the vacation season can be utilized with happiest results. In keeping with this new idea, plan the closing lessons of the year in physiology and hygiene with the summer vacation especially in mind. The children already know that if they are to enjoy any kind of game or play, or be able to do work of any sort, they must have strong, active bodies. They have learned also that they are building every day the bodies they are to have when they are grown up. What kind of building material are they going to put into these bodies after school is out, and there is no teacher to remind them if they forget or make mistakes?

Review the work of the year from this viewpoint, making sure that each child can put to practical use what he has learned about food and drink, sleep, work, play, and the best ways of standing, walking, and sitting. If he has also gained a clear idea of the reasons why he must let cigarettes alone, as well as every kind of drink which has even a little alcohol in it, he will be forewarned concerning some at least of the dangers he is sure to meet, and thus forearmed against them.

FIRST YEAR

Why does every boy and girl need to play?

What game that you like gives good exercise to the arms? to the legs? to some part of the head? to the body?

Name kinds of work in which we use one or more of these parts.

Show how to sit properly; to stand; walk; run.

How do we get rested from work and play?

Why should children go to bed early?

Name foods that will make one grow.

What is the best drink for everybody?

Why are wine, beer, and cider bad drinks?

What have you seen today that you would like to remember?

How do we know when a person is speaking to us if we can not see him?

Tell three other ways in which we can find out things.

AUTHORITATIVE QUOTATIONS

At first it is a matter of will to drink or not to drink; but alcohol in the system has some influence over the physiological functions of the body, which sooner or later becomes stronger than the will, and then a pathological condition commences which to all intents and purposes fastens a disease upon the drinker that requires more than the will, and in many cases, more than time and total abstinence to eradicate.—N. S. Davis, M. D., Chicago.

The taste [for alcohol] once established takes care of itself.—David Starr Jordan in *Popular Science Monthly.*

Whether a person drinks beverages containing four or forty per cent alcohol does not matter, for if he drinks the former he will probably take ten times as much as if he took the latter.—J. Petersen, editor of *Die Enthaltsamkeit.*

The disastrous effects from the use of alcoholic drinks and tobacco upon sight are well known, producing gradual loss of vision unless their use is discontinued.—A. D. McConachie, M. D,, in *Dietetic and Hygienic Gazette.*

Alcohol tells us at once that it is bad for us; yet we manage so to dress it up with flavoring matters and dilute it with water that we overlook the fiery character of the spirit itself. But that alcohol is in itself a bad thing has been so demonstrated in the history of mankind that it hardly needs any further proof. Taste tells us that it has no place in our systems.—M. L. Holbrook, M. D., in *Health.*

SECOND YEAR

What are some of the things that we need every day?

Why should we breathe through the nose instead of the mouth?

Why do we need pure air in every room of the house?

What are some of the best kinds of food?

Why is it not a good thing to eat between meals?

What should we do at night with the clothes that have been worn during the day?

Name the parts of the body. Why is it made up of different parts instead of being in one piece? What are some of the things that each part does for us?

How can one have a well, strong body?

How can cigarettes hurt a boy?

If a boy gets in the habit of drinking cider why will he be likely to want stronger drink when he is a man?

AUTHORITATIVE QUOTATIONS

Alcohol is no more a "food" than is morphine, cocaine or any other narcotic poison.—Evan O'Neill Kane, M. D., in *American Medicine.*

"O joy to be out in June, to be out alert and free!
For life is a precious boon with the world in harmony."

Even the home-made wines are often stronger with alcohol than the imported, depending upon the amount of sugar added to the fruit. That made from raisins is even stronger than port, and elder wine is as strong with alcohol as cider or the strongest malt liquors; hence, home-made wines are far from being the innocent, harmless beverages some of our mothers were apt to think when they told us there was nothing in them to hurt any one, as they knew they had put nothing in the wine but the juice of the fruit and the sugar to sweeten the juice.—William Hargreaves M. D., in *Alcohol and Science.*

The habitual use of fermented liquors, to an extent far short of what is necessary to produce intoxication, injures the body and diminishes the mental power. The drinker is not conscious of this loss, but those who know him best are painfully aware that his perceptions are less keen, his judgments less sound, his temper less serene, his spiritual vision less clear, because he tarries every day a little too long at the wine.—*Medical Pioneer.*

In the old vine-growing and wine-drinking countries of France and Italy the consumption of proof or distilled spirits has not only increased faster than the increase of the population, but it has brought these nations to the head of the list of consumers of alcohol in Christendom. Could there be any more conclusive proof of the fallacy that cheap native wines and beer promote temperance by supplanting the use of distilled spirits?—*Bulletin American Medical Temperance Association.*

Most drunkards commence on beer and wine and finally drink the stronger beverages.—L. D. Mason, M. D., in *Medical Pioneer.*

The moral aspects of beer-drinking may be studied in the proceedings of coroners' courts and police-courts where death and crime and brutality are often associated with excesses in beer.—*London Lancet.*

Through the brewing of beer, nutritive substances are spoiled and living made expensive. Therefore, in order to secure for the people better, cheaper food, the use of beer must be energetically fought against.—N. Blocher, editor *International Monthly.*

Milk is a food thirty times as reasonable, and meat is from ten to fifteen times as reasonable as the best beer.—H. Pettenkofer, in *International Monthly.*

It has been truly said that alcoholic beverages are the only ones on God's footstool which have no power of self limitation. The more this liquid-absorbing ingredient is swallowed, the dryer one literally becomes.—M. A. Gillette, M. D.

THIRD YEAR

Name three foods that are made from grains.

Why does the body need such food?

If beer is made from grain, why is it not just as good for a boy as oatmeal is?

How can beer hurt the one who drinks it?

Name the part of the body with which one thinks; moves; the parts with which one breathes; speaks; stands upright.

How should we take care of the outside of the body?

Why does every one need a strong, healthy body? What can one do to get it? What are some of the things that one must not do?

How does it hurt a boy to smoke cigarettes?

Why is it hard for a cigarette smoker to learn his lessons?

What other bad habits do cigarette smokers often have?

AUTHORITATIVE QUOTATIONS

Alcohol used continuously retards growth, diminishes vitality, and prevents development. T. D. CROTHERS, M. D.

The German authorities at Bonn had an investigation upon alcoholism among pupils in the primary school which showed a startling state of affairs. Out of one hundred children, sixteen did not drink milk and absolutely refused to drink it because it had no savour. Of two hundred and thirty-seven pupils, seven to eight years of age, there was not one who had not drunk wine, beer or whiskey. As a result of these investigations it was proved that the children most accustomed to alcohol showed the least intelligence; children who had their morning glass of whiskey and found no savour in milk showed it by great inattention during the morning hours.—*Philadelphia Medical Journal.*

About the time [in the child's life] when the most strenuous mental application is begun and when the opportunities for outdoor recreation are decidedly curtailed, the tobacco habit is usually begun if at all. As a machine that is obstructed to a certain extent can nevertheless apply a part of its energy to the sweeping away of the obstruction, so the organic machine can divert a certain amount of its energy to the elimination of this poisonous element, but only the residuum is available for normal processes of growth and functional activity.—J. W. SEAVER, M. D.

If oxygen is used to burn up alcohol, some tissues which ought to be removed from the system will fail to be so removed, for want of that oxygen.—M. A. WILLARD, M. D.

Alcohol causes a greater activity of germ growth, and has a paralyzing effect upon the respiratory and cardiac nerves. Because of this action its deleterious effect upon pneumonia patients is well recognized.—E. O'NEILL KANE, M. D.

Alcoholism is the most terrible factor in the propagation of tuberculosis. The strongest man is powerless against it, if he drinks intoxicating liquors.—PROF. BROUARDEL, Academy of Medicine, Paris.

Alcohol causes a depressant effect on the depth of the respirations and the amount of air passing through the lungs.—DAVID CERNA, M. D.

The use of a social poison is in itself an abuse. Hardly any drunkard wishes to be or to become such. Imperceptibly and unconsciously he is led into it by the weakness of his own brain and the example of others. Every glass lessens his power of reasoning and resistance.—A. FOREL, M. D., Zürich.

Commonly, alcohol attacks the weakest point of the organism, and at its weakest time, whether the weakness be due to heredity, critical points of life, overexertion, injury, or disease. Thus a man may have stood a moderate amount of alcohol well and had no uncontrollable craving for it till he has a severe attack of influenza; yet after that he may become a drunkard and rapidly develop alcoholism.—A. E. T. LONGHURST, M. D.

THE HOUR OF JUNE

When the clover is deep in the orchard,
And the grass waves fresh and free;
When the strawberry sweet, in sunny retreat,
Waits for the robin or me;

When the bobolink down in the meadow
Is singing his rollicking song;
When skies are blue and clouds are few,
And the days are happy and long;

When the butterfly woos the white rose,
And everything seems in tune,
Oh, then you may hear the clock of the year
Striking the hour of June.

—*Boston Transcript.*

School Physiology Journal

COPYRIGHT APPLIED FOR

Single Subscription.....$0.60 a year

CLUB RATES

Clubs from 5 to 50.....$0.50 each
Clubs of 50 and over.....40 each

Please remit by post office or express money order, draft on New York or Boston, or by registered letter.

MARY H. HUNT, EDITOR
HENRIETTA AMELIA MIRICK, Assistant Editor

Published monthly at 23 Trull St., Boston, Mass.
SEPTEMBER TO JUNE, INCLUSIVE

Entered at the Boston Post Office as Second Class matter

Cease, cease to *think* and be content to *be*;
Swing safe at anchor in fair nature's bay;
Reason no more, but o'er thy quiet soul
Let God's sweet teachings ripple their soft way.

Call not such hours an idle waste of time,
Land that lies fallow gains a quiet power;
It treasures from the brooding of God's wings
Strength to unfold the future tree and flower.

—HARRIET BEECHER STOWE.

AFTERMATH OF THE NINTH INTERNATIONAL ANTI-ALCOHOL CONGRESS

IN the early part of the nineteenth century the King of Prussia and the Emperor of Austria, at an international meeting of two, entered into an alliance, afterwards joined by the King of England, for the overthrow of Napoleon, the menace and terror of all Europe. Tradition says they sealed that compact at midnight over the sarcophagus of Frederick the Great, in a vault under the pulpit of the Church of the Garrison at Potsdam. Although one year later Napoleon scratched an "N" in the dust upon the same tomb, his overthrow was foredoomed. As Hugo says, "The great man had to go, that the great age might come."

A few hours' ride by rail from that spot, another international meeting, but of larger numbers, has just been held in Bremen, the Ninth International Anti-Alcohol Congress, which met to consider how the greatest menace of the twentieth century, alcoholism, can be overthrown.

Indications point to this Bremen Congress as a factor destined to be as influential in the future history of Europe as was the compact against Napoleon made in the Church of the Garrison, nearly one hundred years ago. An idea often expressed at this Congress was that what Germany and other European nations have now most to fear is not so much armed forces from without as the waste of the physical, mental and moral fiber of the people through alcoholism. The fact that this conclusion has been derived from the experimental investigations, by men of science in Germany and other European countries, which show that it is the nature of alcohol to demoralize the drinker, counts for much in the pending effort for greater sobriety in these countries.

The difficulty in Germany, and practically throughout Europe, seems to be a lack of the widest possible application to popular needs of the knowledge thus secured. The Good Templars and German Woman's Abstinence Society to a limited extent have disseminated these findings of science, which otherwise have been filed away on the shelves of scientific libraries; while we in the United States have put them into popular language in the school text-books on physiology and hygiene which are being studied by the twenty-two million children in our public schools.

There are many evidences that the interest shown is not merely ephemeral. A prominent man in Berlin said to the writer this morning:

"We are coming to see the relation of drink to the future. Without instruction in our schools as to the reasons for abstinence, Germany can never compete successfully in commerce nor in other respects with the United States with its great system of public school temperance education that is making that country the most abstinent of the nations and therefore the most profitable producer."

The Prussian Minister of Education has already issued an order recommending all teachers to teach temperance, but without any requirement of systematic study of the subject as a part of physiology and hygiene, or of manuals of instruction. Hence little or nothing is done. In fact, there is not a school text-book in temperance physiology in the German language,—a need as great if not greater than that of the strong navy to which the Emperor has so promptly responded. A person in a position to know said to the writer today that His Majesty, the Emperor, is deeply concerned about the widespread drinking by the people and the great number of public houses, or drinking saloons. The same high authority said with great earnestness, "The drinking in the universities of Germany is most alarming. Members of students' societies are obliged by the requirements of their organizations to drink an incredible amount of beer, to their own great injury." A relative of the late Chancellor's family quoted to me yesterday a saying of Bismark's that "A reformation of the drinking habits of the people would settle all the other social problems of Germany."

(*Continued on third page of cover*)

Grammar Lessons

REVIEW EXERCISES

PREPARATION FOR WORK

ONE of the conditions imposed upon every candidate for the Cecil Rhodes' fellowships which admit two students yearly from every state and territory in the United States to the University of Oxford, is that he must rank as high in morals as in physical and mental development. Character counts as much as learning and athletics together.

The same two-fold standard is in force in every successful business, and the youth who expects to make his own living must be trained to meet it. Many will leave even the lower grades of the grammar school with the close of this spring term, to begin some kind of work. If they are to succeed, it will be because of what each one is as well as what he can do.

All work in physiology and hygiene should tend directly to the formation of right personal habits in the child. In so far as it does this, it is a success; wherein it fails, it too has come short of the mark. As the closing days of the school year are upon us, it is time to take account of stock and reckon results. Are the pupils in each grade more thoughtful in matters of the toilet, such as the care of their teeth, hair and nails? Do the lunch baskets show that what the child has learned about foods is being practised at home? Are all in the class increasing normally in size, height, and weight? Do they stand erect and breathe properly? Are they entirely free from the cigarette habit, and do you know that they would refuse a glass of beer or cider if it were offered them?

The teacher who can answer "Yes" to each of these questions may rest assured that she is on the right track, and that the habits her pupils are thus forming will help them to realize their hopes and plans in the world of work.

FOURTH YEAR

Why must all parts of the body be kept clean?

When is the best time to take a full bath?

What parts of the body hold it in shape?

What is the use of the joints?

Why is it more important for children always to sit and stand well, than for grown people?

Why is the boy who smokes cigarettes often shorter and smaller than one who does not?

Why is wine not just as good to drink as grapes are to eat?

What becomes of the food that we eat?

What kinds of food are needed by the body?

Why do those who take alcoholic drinks suffer more both from the cold and heat than others?

How can we train our senses? How should one take care of his eyes?

AUTHORITATIVE QUOTATIONS

If a quarter of a liter of beer a day is sufficient notably to retard our perception of impressions on our senses and to last twenty-four hours, certainly three glasses of beer a day must be regarded as an abuse leading sooner or later to serious impairment of health.—*Bulletin American Medical Temperance Association.*

Any child can see that it would be absurd to say that any particular kind of mistake he has made, for instance, eating too fast, or any particular unsanitary condition or custom, such as bad ventilation of the bed-room, is proved to be harmless by the fact that some people have lived to be old who have done or suffered these things. Old people are to be found in all our slums among the great unwashed. Nevertheless, good habits and cleanliness are conducive to health and long life. So the mere fact that people have been accustomed to take a little alcohol proves nothing. It is because the human body is more or less capable of resisting the evil effects of noxious things and these people have exceptional powers of that kind.—*Medical Temperance Review.*

Roberts has shown that beer and wine destroy starch digestion in the stomach.—J. W. GROSVENOR, M. D. in *Journal of Inebriety.*

Various disturbances of the digestive organs are found not infrequently among children consequent upon the use of alcohol; but it is still more common to find slight digestive troubles noticeably increased by giving children alcohol to cure them.—DR. AD. FRICK, Zürich.

Perfect health can not be enjoyed with even a moderate use [of alcohol], while it is certain that the highest possible health may be enjoyed without its use. WILLIAM PEPPER, M. D., in *Journal of Hygiene.*

In France, the difference between the students in the polytechnic schools who smoked

cigarettes and those who did not, in scholarship, as shown by their respective class standings, was so great that the Government prohibited absolutely the use of tobacco in all government schools.—E. STUVER, M. D., *Journal American Medical Association.*

Habitual cigarette smokers are barred from positions in the operating department of the New York, New Haven and Hartford railroad. H. A. Ives, who has charge of the examinations, says:

"In signals, the green stands for safety and the red for danger, and confusion of these colors has caused many accidents. This test is also a sure indication of whether a man is a cigarette smoker or not.

"If an applicant is a habitual cigarette smoker, he is almost sure to be more or less color-blind."—*Journal of Inebriety.*

It is in the hours of idleness that smoking is indulged in, and in proportion as it is indulged in the craving for it grows. — R. MARTIN in *London Lancet.*

"Once again the streets are gay as a gypsy's holiday;
Once again has life begun, fresh and fair beneath the sun.
Vacation's come!"

The material of the cigarette is often refuse tobacco from old cigar stumps, and moistened by the maker's tongue which may be syphilitic. The prepared cigarette is too vile for defense.—*Journal American Medical Association.*

The whole nervous system is affected to some extent by even moderate doses of nicotine.—J. E. SEAVER, M. D., in *Journal of Inebriety.*

FIFTH OR SIXTH YEAR

What does the body need in order to make it grow?

How is the waste of the body from work or play made good?

What are some of the things that hinder growth and repair, and that should be avoided for this reason?

Explain one good way of ventilating a room?

Why is thorough ventilation necessary to health?

How does the oxygen that is breathed get to the blood? What changes does it produce in the body?

Why is the total abstainer less likely to die from pneumonia or tuberculosis than the moderate drinker?

How does cigarette smoking often affect the nerves of the hand? of the eye? How does it affect a boy's brain? To what other bad habits does it often lead?

AUTHORITATIVE QUOTATIONS

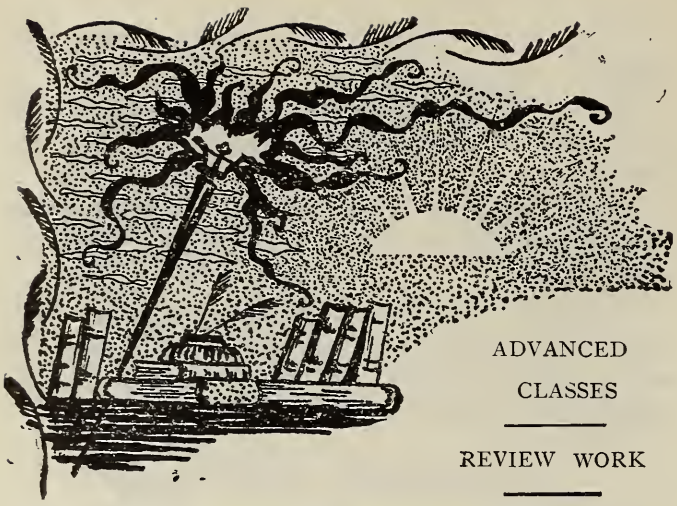
Without doubt the protoplasmic nerve cells of the organs of special sense are as sensibly affected by alcohol as the cells of any other tissues of the body.—*Bulletin American Medical Temperance Association.*

Alcohol, tobacco, or whatever other drug may be regarded as a toxic agent, or else the toxin that it liberates in the system, may sometimes, and, probably, usually, affect primarily the fibers of the optic nerve. — *Journal of Inebriety.*

Defective color sense may possibly be a product of civilization, and the use of tobacco a factor in it.—*London Lancet.*

Wines, in even a small proportion, almost paralyze saliva, and thus have a highly inhibitory effect on gastric digestion. Beer and ale act in the same manner, retarding gastric digestion, especially of bread or farinaceous food.—CHAS. H. SHEPARD, M. D., in *Journal of Hygiene.*

As far as alcohol is an irritant it provokes an increase in the secretion of the gastric juice; but this secretion is abnormal and does not possess the properties of the gastric juice.—DR. DE VAUCLEROY, Prof. of Hygiene in Belgium Military School.



ADVANCED CLASSES

REVIEW WORK

OPPORTUNITIES OF TODAY

NOT long ago a millionaire was refused accommodations at the most exclusive and desirable hotel in London because of his profanity during a previous visit.

This is but one of many indications that success in life is increasingly dependent upon one's personal habits. While opportunities of all kinds were never so frequent as now, competition too has increased so rapidly as to shut out the unfit and unworthy from all hope of advancement.

"No one is born into the world whose work is not born with him," something which he can do better than any one else if he will, but only by developing his possibilities to the utmost. Other things being equal, the profane man has no chance in comparison with the reverent, the vicious in comparison with the pure, the cigarette fiend or the moderate drinker in comparison with the total abstainer. In every business it is the sound man or woman that is wanted, rather than one whose life is specked or marred by even minor vices.

This thought may well be chosen for special emphasis in reviewing the work of the year in temperance physiology with advanced classes.

Get a good definition of health, in the first place.

Then sum up its necessary conditions, or as many such as time allows, for instance

Cleanliness of the person and every part of the home; the proper disposal of garbage and other kinds of waste matter; the need of ventilation, and some of the most practicable ways of ventilating houses and public buildings.

Find also in what ways each person is responsible for his own health, in respect to what he eats and drinks; in the kind of clothing he wears and in the way it is made; in matters of exercise; in the time given to sleep; in the way one breathes, and in the kind of air he takes into his lungs.

Above all, show that even moderate use of tobacco or any alcoholic beverage is likely to be inconsistent with perfect health; first, because each leaves its scar, however slight; but especially, because in multitudes of cases the moderate use of any narcotic, in the very nature of things, leads directly to its immoderate use and thus to ruin.

AUTHORITATIVE QUOTATIONS

All narcotics by their paralyzing action on the sensitive nerve centers, poison, starve, and exhaust them, and thus destroy the power of the higher centers to recognize the actual condition and relation of their surroundings.—T. D. CROTHERS, M. D.

Prout, Smith, Harley and others proved conclusively that alcohol lessens the absorption of oxygen by the blood corpuscles and the exhalation of carbon dioxide.—*Journal American Medical Association.*

Most people believe that a glass of wine, a little caraway, liqueur or cognac is good after a heavy meal, because it furthers digestion. It is true that spirituous liquors excite the gastric mucous membrane so that it secretes more digestive fluid; but this action lasts but a short time and ultimately weakens the stomach. Larger quantities of alcohol hinder digestion or stop it wholly, as the following experiment shows:

Into each of five test-tubes, filled with 5 ccm. of distilled water, white-wine, red-wine, port-wine and cognac respectively, were poured 5 ccm. of artificially prepared gastric juice.

Then there was carefully placed in each test-tube a piece of the white of an egg the size of a pea, this being taken from a hen's egg which had been cooked four minutes. The apparatus was then warmed to 40°-50° C and kept at this temperature for over half an hour. The test-tubes were frequently shaken.

At the end of forty-five minutes, it was noted that in the glass containing only gastric juice and distilled water, the egg had completely disappeared; while in the other tubes, the more alcohol there was in the solution, the less the egg had changed. Indeed, in the tube containing cognac, the egg was still almost unchanged, and even after three days there was almost no perceptible loss.—A. BERGMANN, chemist, in *Die Enthaltsamkeit.*

Nicotine is one of the most violent poisons known to chemistry, and in doses sufficiently large its action is very similar to that of hydrocyanic acid.—G. W. CROOK, M. D.

It [tobacco] is the bane of the school, and

more boys break down in health and are sent home from its influence than from any other.—J. W. SEAVER, M. D.

That tobacco acts upon the protoplasmic activity is shown by its influence in retarding both the physical and the mental development of boys or youth in the higher schools of France and some of those of our own country. This effect in lessening the protoplasmic, or vital, activity in both vegetable and animal growth is so fully proved that all intelligent writers agree in prohibiting to the young the use of both alcohol and tobacco until maturity is reached.—N. S. DAVIS, M. D.

Tobacco makes its largest inroads on those who have not reached maturity. At every stage of life tobacco makes less instead of more of a man.—A. P. REED, M. D., in *Dietetic and Hygienic Gazette.*

"Very hot and still the air was, very smooth the gliding river,
Motionless the sleeping shadows."

Anæmia is a constant accompaniment of chronic nicotine poisoning. But this is due to the disastrous results of the poison upon the digestive system, which does not prepare abundant nutriment for the blood current, and the anæmia should therefore be referred to starvation.—*Journal of Inebriety.*

It is strange that wines have received such marked recognition as therapeutic agents, for experiments point to the fact that their power to inhibit digestion, salivary, gastric, and pancreatic, is out of all proportion to the amount of alcohol they contain.—HENRY MARTIN BRACHEN.

Even in small quantities, alcohol is not only useless but harmful.—H. BLOCHER, in *International Monthly.*

"How would you define 'exercise,' as distinguished from 'work'?" asked the teacher. "Exercise," answered Johnny, "is work you like to do, and work is exercise you don't like to do."—*A True Republic.*

DICK'S FLOWER

The teacher asked, one soft spring day,
When slowly drag the study hours,
And healthy children long for play,
"My dears, what are your favorite flowers?"

Said Marion slowly, "I suppose
My favorite flower is the rose."
"Mine is the lily," answered Sue.
"I love," said Bess, "the violet blue."

"And I," laughed Jim, "the hollyhock."
But Dick replied, with roguish look,
Tossing aside his slate and book,
"Give me the four-o-clock."

MARY L. C. ROBINSON.

Conditions favorable or unfavorable to good character may be inherited; the thing itself, good character, cannot be inherited. It is a product, a beautiful fabric woven upon the looms of personal activity, constructed out of aspirations and prayers, visions of the ideal and high resolves, dreams of a juster relation to men and a happier communion with God; it is these turned into solid reality and shining like cloth of gold through the continuous effort of the faithful and successful will.—REV. GEO. A. GORDON, D. D.

TEDDY'S QUERY

One brother was tall and slim,
The other chubby and short—
Teddy sat looking at them one night,
Apparently lost in thought.

"Mamma," he asked at length,
"Which would you like the best,—
For me to grow north and south, like Tom,
Or like Willie from east to west?"

A. F. CALDWELL.

BOOK NOTICES

THE PLACE OF INDUSTRIES IN ELEMENTARY EDUCATION, by Katherine Elizabeth Dopp. The University of Chicago Press, Chicago; P. S. King & Son, London, 1903.

A most intelligent and practical contribution to educational literature. The author, who bases her book upon several years of practical experience, as well as upon research work done under the guidance of men like Professor Dewey and Professor W. I. Thomas, aims to show that the changes wrought in the industrial world by the application of modern science to industrial processes should be paralleled by as remarkable an advance in education. Child development proceeds along paths beaten out by the race. Just as the science of ethnology makes it plain that the great steps in the evolution of industry have been marked by the discovery of new motive powers like fire and steam and new methods of applying these forces, so, in the educational world, study of the child in his environment will show underlying motive principles that will teach us how to utilize the enormous waste in current educational methods. The principles set forth in this book tend to unify the various branches of elementary education and obviate the drudgery of school work. They aim to make clear to the child that the industrial processes of today are the outgrowth of simpler processes, thus accustoming him to the idea of evolution and racial progress.

OFFICIAL REFERENCE LIBRARY OF UNITED STATES HISTORY, by General Marcus J. Wright, Government Statistician at Washington, John Clark Ridpath, LL. D., Historian, James P. Boyd, A. M., L. B., J. W. Buel, Ph. D. Official Company, publishers. 1901 Edition. Two volumes.

This work supplies a need which has been felt by the ordinary student of United States history of an official issue, in concise form, of the facts and statistics of this country's development. The great ability of its compilers, as well as the fact that their statements are drawn from original sources, many of them practically inaccessible to the public before, makes the work authoritative. Six epochs are treated, the epochs of discovery, of planting, of independence, of nationality, of war, and greatness. Especially valuable sections are the *resume* of events of the last decade, the chapters upon the war of the Rebellion, and the war statistics given, particularly those in regard to the Southern Confederacy. The work is well bound in half calf and will be welcomed by students everywhere. It is particularly useful as a reference book for schools.

BOBOLINK CHIMES

A whir of wings o'er clovered meadows,
The gleam of a harness and crown,
And low on the swaying maple
A bobolink settles down.

A chime as if from bells of silver
Over the clover soft doth float,
E'er yet the rapturous song-burst
Outpours from the feathered throat.

A whir of wings, a gleam of yellow,
Faint-heard notes, and into the throng
Of clover heads gently nodding,
Drops softly the bird and song.

Journal of Education.

OBEDIENCE AND PUNISHMENT OF CHILDREN

There is no diversity of opinion as to the necessity of obedience, to a child's well-being, but in the methods whereby obedience is secured there is a wide difference in the practises, at least, of parents. In a paper in the June *Delineator* Mrs. Theodore W. Birney gives some eminently sane advice on obedience and punishment. Mrs. Birney is not partial to the rod, and she holds that incorrigibility in children is more often due to a "lack of self-control and knowledge of temperament and child nature" in the parent than to any abnormality in the child. There is, doubtless, an element of truth in that, though some may disagree. However, there are other points in the article that many parents will do well to take to heart. The author shows a wide knowledge of the nature and needs of children.

Martha's Vineyard Summer Institute announces its twenty-sixth annual season, in a twenty-four page circular which will be sent on application to the President, William A. Mowry, Hyde Park, Mass. Complete courses in methods, academics, supervision, and oratory are offered, by an able corps of instructors. The unrivaled location of this oldest summer school for teachers in the United States, which combines the attractions of a favorite summer resort with the professional advantages which are naturally sought by the progressive teacher, insures a full attendance with each recurring season.

Readers of the JOURNAL will remember that the issue of this periodical is for the ten months of the school year only, from September to June inclusive. Accordingly, the next number to appear will be that of September. Renewals and new subscriptions should reach us on or before the middle of August to insure promptness in mailing.

CONTENTS OF VOLUME XII

SEPTEMBER 1902—JUNE 1903

AUTHORITATIVE QUOTATIONS

BOOK NOTICES

EDITORIALS

ILLUSTRATIONS

LEADING ARTICLES

MISCELLANEOUS

POEMS

SUGGESTED LESSONS

(*Continued from page 153*)

While members of the higher classes here and there are being roused by the testimony of science to a sense of the danger from drink, the Social Democrats are saying, as they did most vehemently in the last session of the Reichstag just closed, "It is poverty that makes the people drink." Others in their ranks, seeing that only through abstinence can the working classes rise, are organizing against alcohol. "Abstinence education" is their watchword.

In the midst of all this an election is pending in which the Social Democrats, constantly increasing in numbers, are destined to play an important part.

The fourteen hundred delegates to the Bremen Congress have gone home to the fifteen different nations from which they came with renewed enthusiasm and encouragement in their battle against alcohol. One rarely sees such a body of great men and women as were these, great in attainment, in rank, and in service. The results of their deliberations are sure to be written on the pages of that future of Europe which, following universal scientific temperance education in the schools, will find alcoholism remembered only as a dark page in the history of the past.

—M. H. H., LETTER FROM GERMANY.