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The Guide to Nature

JUNE, 1920
VOL. XIII
No. 1
SOUND BEACH,
CONN.

AUG 30 1911

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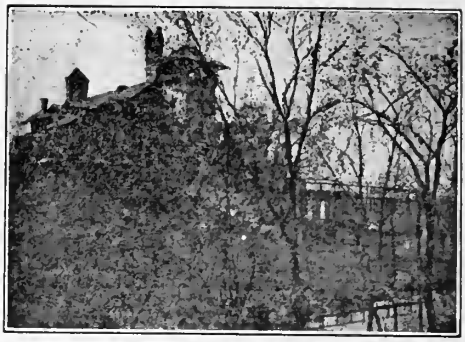

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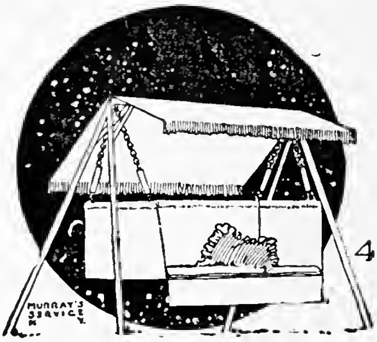

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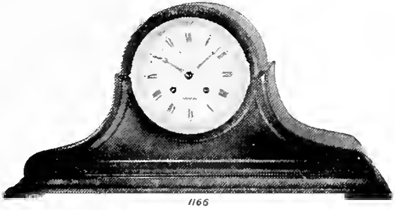

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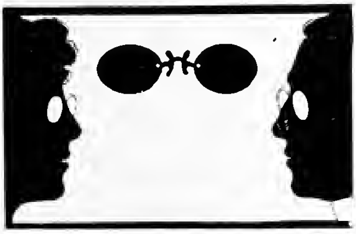

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Perturbations of Passing Planet!

A negro was trying to saddle a fractious mule, when a bystander asked: "Does that mule ever kick you, Sam?"

"No, suh, but he sometimes kicks where I'se jes, been."—The American Legion Weekly.

A Study in Evolution.

Mr. Saphedde—"Do you think men have descended from monkeys?"

Miss Caustique—"Not very far."—London Tit-Bits.

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The Last of the Race.

"It's quite a secret," said Maureen, "but I was married last week to Pat Sullivan."

Jane — "Indeed, I should have thought you'd be the last person in the world to marry him."

"Well, I hope I am."—N. Y. Globe.

The Emptiness of a Vacuum.

Judge—"Have you anything to offer the Court before sentence is passed on you?"

Prisoner—"No, your Honor; my lawyer took my last dollar."—Boston Transcript.

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The Growth of Sound Beach.

The original purpose in the establishing of the old Arcadia was not so much a natural history purpose as it was for the forwarding of the interests of Sound Beach. It was suggested in the original plan but a little later somewhat modified that our office should contain a real estate department for the purpose of attending to the numerous inquiries that naturally have resulted from the wide publicity that The Agassiz Association has given to Sound Beach during the past decade or more. We have never really lost sight of that intention. Sound Beach has become known "to the ends of the earth." We send out an enormous amount of first-class mail and from twenty-five hundred to three thousand copies of the magazine every month, and it all says, "From Sound Beach."

We are glad now to welcome Mr. Boles, who has recently opened an attractive real estate office near our ArcAdiA, directly in the business center of Sound Beach. His office will help us and relieve us too. In conversation with Mr. Boles, we learn that he shares our enthusiasm for a greater Sound Beach, and will actively assist in building new homes to provide for the many families that we are bringing into the community.

Before the establishing of ArcAdiA few people knew about Sound Beach. The town seemed almost lost under the shadow of Stamford and Greenwich, but on account of the extensive advertising that we have given it, Mr. Boles will be kept busy in supplying new homes for hundreds of new families. His announcement will be found at the top of page 1. We cordially recommend him to our readers.

A Study of Microbes.

Two microbes sat on a pantry-shelf
And watched with expression pained
The milkman's stunts; both said at once,
"Our relations are getting strained."

—The American Legion Weekly.

The green waves roll and break in foam,
Enchanting to the view:—
The billowy masses Nature's own,
The foam white meadow rue!

—Emma Peirce.

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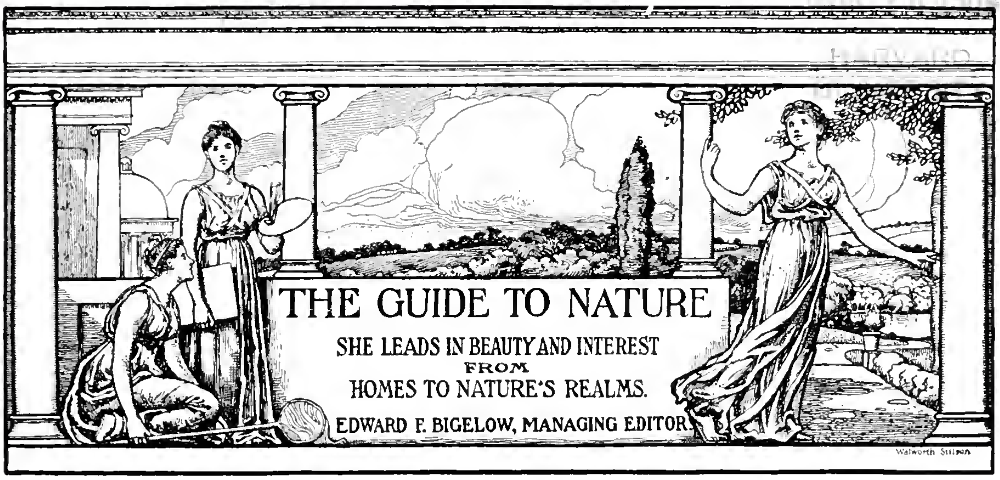

THE GUIDE TO NATURE

SHE LEADS IN BEAUTY AND INTEREST
FROM
HOMES TO NATURE'S REALMS.
EDWARD F. BIGELOW, MANAGING EDITOR

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Small Whales Stranded on Beach.

Sea Pines School,
Brewster, Massachusetts.

To the Editor:

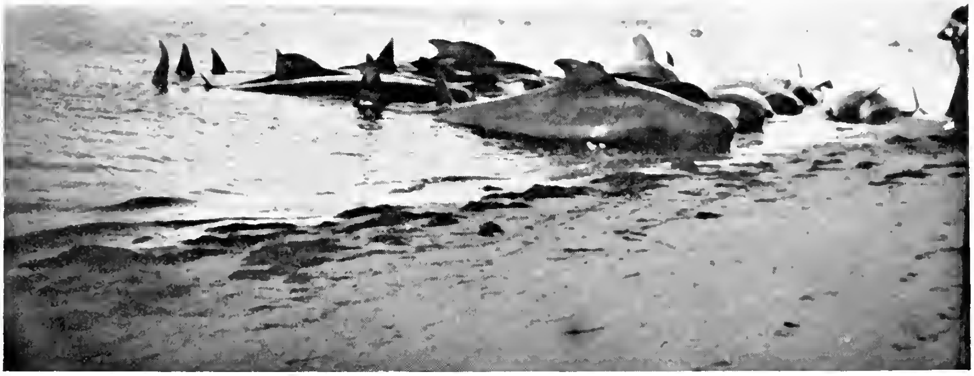
Miss Faith, our principal, asked me to tell you about the time we were visited by a select school of "blackfish." Of course we were all greatly excited when we heard that a school of "blackfish" whales was stranded on the beach, for it is not very often that we have the opportunity of seeing them at close range. I overheard one girl say that it must be very interesting to travel in schools, and that she wondered what the fish learned.

Those which came here must have been "socially inclined and gregarious," for about thirty-eight were left high and dry on the sand.

Anna Petrunkevitch.

From the school publication we quote the following from an extended account of this interesting observation:

"Thirty-eight huge and shiny blackfish were writhing and moaning on the sand, left by the retreating tide. Among them was a baby fish near its mother. Out of pity several of the girls took long poles and tried to push it farther out into the water, but had to give up after many at-



THE SMALL WHALES ON THE BEACH.

Copyright 1920 by The Agassiz Association, ArcAdiA: Sound Beach, Conn.

tempts, as other fish were in the way, snorting and slashing the water with their enormous bodies. One large fish lying farther up on the sand than the rest measured eighteen feet, yet there were others still longer and larger. All of these huge bodies, in their frantic efforts to free and lift themselves from the sand, made indescribable sounds at each intake of breath.

"The second morning after they were stranded, fishermen from Provincetown were busily at work securing from their heads the valuable sperm oil which is the only article of commercial value obtained from these mammals. In former days when the fish made their occasional appearance, the event was hailed by fishermen as a stroke of good fortune; for not only the sperm oil, but also the two-inch-thick mass of fat enveloping their bodies, furnished many gallons of lamp and machine oil. In those times the cry of 'Blackfish in the Bay' was just occasion for the minister to excuse his congregation, that all the men in boats might help to drive them ashore."

The above letter and quotation were referred to the Bureau of Fisheries at Washington, and the following reply has been received:

"The blackfish referred to are not fishes, but small whales, ordinarily reaching a length of from fifteen to eighteen feet but occasionally as much as twenty-five feet. They swim in large schools sometimes numbering several hundred, and are abundant on the middle Atlantic and New England coast and on the coasts of Canada and New Foundland.

"There are records of schools of them stranding on the shores from early colonial times, and if my recollection serves me accurately about sixteen hundred were at one time stranded within a small area.

"These animals breathe through the medium of lungs, coming to the surface at intervals to 'blow' like other whales.

"They are of some economic importance for their oil, a limited product of high value being obtained from the jaws, and a much larger quantity of a lower-priced commodity from the blubber which envelops the body in a layer from one to four inches thick. The flesh also is edible, somewhat resembling a coarse beef, but having a darker color."

A Forest Idyl

BY EARLE CORNWALLIS, DWIGHT, NEBRASKA.

Tread gently, Friend, amid Dame Nature's frills,
For here and there among these grassy knolls and hills
Grow darling little elves—the Wildwood flowers
Waiting day by day for summer's showers;
And o'er these rural dells—behold!—a guarding crew
Of Johnny-jump-ups looking quite suspiciously at you!

"ITS PETALED ROBE."
Photograph by I. W. Lee.

THE WATER LILY.

By Mellicent Humason Lee, Berlin, Conn.

What is this lovely flower that lightly springs
Out of the mud and slime of ghoulish things,
And lies in languid beauty on the lake,
Bidding the flower-flies and bees partake
Of its sweet chalice, fragrant for their sake?

Though it is nectar-filled and dazzling white,
It has no love for creatures upon its nest,
But ere the sun descends upon its nest,
It wraps its petaled robe around its breast:
While in the dusky pool, the shy deer browse
Upon the leaves which by their lily drowse.

From a Snake Enthusiast

New York City.

To the Editor:

I am more than glad to avail myself of your invitation to write a short letter in regard to my experience with snakes.

There always has been so much nature faking—through ignorance of the subject, or by an author-editor's striving to inject features of "human interest" into a snake story—that the average reader naturally dislikes snakes. It is exceptional to see a snake story that is not exaggerated or absolutely untrue.

The trouble is that the writers, the artists, the editors and the story-tellers are ignorant of the subject, and pass their ignorance and misinformation on to the trusting public.

When I was a boy I heard the same kind of twisted tales, and snakes became a mystery to me. But as I was naturally a lover of the out-of-doors, my hunting and fishing trips gradually brought me into contact with the reptilian life of the country, and I gradually learned its economic value, its physical limitations and its personal individualities.

In New York, New Jersey, Pennsylvania, Massachusetts and Connecticut, there are only two species of venomous snakes—the banded (or timber) rattler and the copperhead. These are easily recognized and neither will attack. Each will either remain where it is, or will try to escape, and the chance is it will get away as fast as it can. These snakes cannot strike, nor make the so-called "jump" further than a distance equalling about two-thirds of their own length, though usually it is less, seldom more. You must not expect always to be warned of their presence by sound or by smell. Rattlesnakes may strike without sounding their rattles. Although there may be many rattlers or copperheads in your vicinity, you may not notice any peculiar odor, unless one has ejected its pungent secretion. The odor is then noticeable, and is like a mixture of cucumber, banana oil and the smell of an inhabited osprey's nest.

All other snakes in the above mentioned states are harmless. Most of them are gentle, or become quiet shortly after being captured or as soon as they learn that you intend no harm. There are exceptions to the rule. The racing black snake, which is of a nervous nature, is always savage. It is one of the few snakes that will attack or threaten, if it thinks itself cornered, but you may stand your ground and laugh, for although its scientific name is *Zamenis constrictor*, it is not a constrictor. In fact, there is no constricting snake native to the United States that a normal eight year old boy could not control, and as for biting, the racing black snake could not bite through your thinnest summer trousers. The bite at its worst is merely superficial. I seldom capture a racer without being bitten. It is one of the rapidly moving species and the best way to capture it is to seize any accessible part of the body.

I have caught many timber rattlesnakes and copperheads in the North, and cottonmouth moccasions in the South, that were gentle in temper and would not show anger unless unduly provoked. One exceptionally large timber rattler, measuring five feet in length, which some friends and I caught in the Ramapos Mountains, New York, and which I had in the Bronx Zoo for nearly a year, was perfectly docile. If I had been reckless enough to take a chance, I think that I could have handled her as safely as a pine snake.

The hognose snake, variously known as the puff adder, hissing adder, spreading adder, etc., and believed by many to be deadly, is one of the most harmless. It is all bluff. When it fails to frighten its enemies it feigns death like an oppossum. But it thinks that a dead snake should lie on its back, so it lies that way, but if you turn it over it immediately rolls over, to prove that it is dead.

The ribbons, waters, garter, milks, De Kays, grass and mountain black snakes, etc., are interesting and harmless and in their way fit into the scheme of things. All have their economic value—as scavengers or vermin exterminators. They help to keep a proper balance in nature, and among other things act as a food supply to numerous birds, fishes and reptiles. In the southeastern states there is a general agreement that protects the king snake and the indigo snake. Both are gentle and are desirable around the homesteads. The king snake is especially cannibalistic and is immune to the poison of our venomous snakes. If there are king snakes about the plantation, the poisonous snakes in the neighborhood will soon become fewer.

MR. A. L. GILLAM WITH A SNAKE.

The Reptile Study Society of America is now trying to have laws passed in the various states for the protection of certain useful and harmless snakes.

Personally, I should feel that something necessary is lacking if I should ramble through the woods, the fields and the mountains, and not see a single snake, and know that, through an ignorant brutality, they had become extinct like the dodo, the great auk and the passenger pigeon. Wherever the snakes are of benefit to us, where they do not intrude undesirably or menace unduly, they should either be let alone or be encouraged.

Very truly yours,
A. L. GILLAM.

The verdure unrolls 'neath the sunshine and showers,
And o'er the green carpet come trooping the flowers. —Emma Peirce.

Girls Like Snakes Better Than Boys!!

New York City.

To the Editor:

Upon your request it gives me pleasure to commit myself in writing over my signature to the remark I made recently in the discussion of nature study at the meeting of the Camp Directors' Association of America at which you were a guest of honor and speaker on the topic of nature study.

In an experience of over twenty years in lecturing on reptiles, illustrating with stereopticon pictures and, always, exhibiting and demonstrating with living specimens of lizards and serpents, I am definitely convinced that, on the average, women and girls are much less afraid of creatures clad in scales than we, their brothers. The greater sympathy of the maternal sex also manifests itself in the treatment of individual specimens, whether turtle, lizard or serpent; women, once informed about snakes, take them into their considerate kindness just as if they were dogs, birds, horses or any familiar domestic pets. We, of the Reptile Study Society, are particularly desirous of reaching and "converting" women and girls because they are honest and have the courage of their convictions and will make efficient apostles of this phase of the humane cult-manifesting kindness toward snakes, instead of cruelly slaying them. I can cite many instances to prove my assertion, but will rest with making it.

Sincerely and cordially yours,
ALLEN S. WILLIAMS.

December 8. I have often had great joy in little things,—and often little joy in great things.—Henry Wadsworth Longfellow.

The Stream's Legacy.

The little winding stream flowed on and on,
As if to seek "fresh fields and pastures new";
And when throughout its silvery length we'd gone,
We marveled that the hours had been so few.

Of rural beauties we had had our fill,
'Twas like some "linked sweetness long drawn out":
The memory of which is with us still,
To brighten duller ways we go about.
—Emma Peirce.

TO KNOW THE STARRY HEAVENS

The Heavens in June.

By Professor Eric Doolittle of the University of Pennsylvania.

THE skies, on these warm evenings of early summer, are very beautiful. Surely no one can glance at the southern heavens without being struck by the brilliant stars and planets which shine out there, especially toward the west; and if he is led to study somewhat the fainter stars, and to explore the eastern sky, especially with a small telescope or a pair of opera glasses, he will find there an inexhaustible source of interest and pleasure.

In the south there are now shining brilliantly the beautiful, bright stars Regulus, Arcturus, Spica and Antares, and the bright planets Jupiter, Saturn and Mars are still conspicuous in our evening sky. And this month we witness the reappearance of Scorpio, the most striking of all the summer groups, with its row of three bright stars stretching from A to B, Figure 1; its fiery red star Antares, at C, and its tail, extending first downward and then upward along the exact center of the Milky Way all the way to D. For many centuries the bright stars E and F marked the tips of the claws in this constellation, but these were later re-

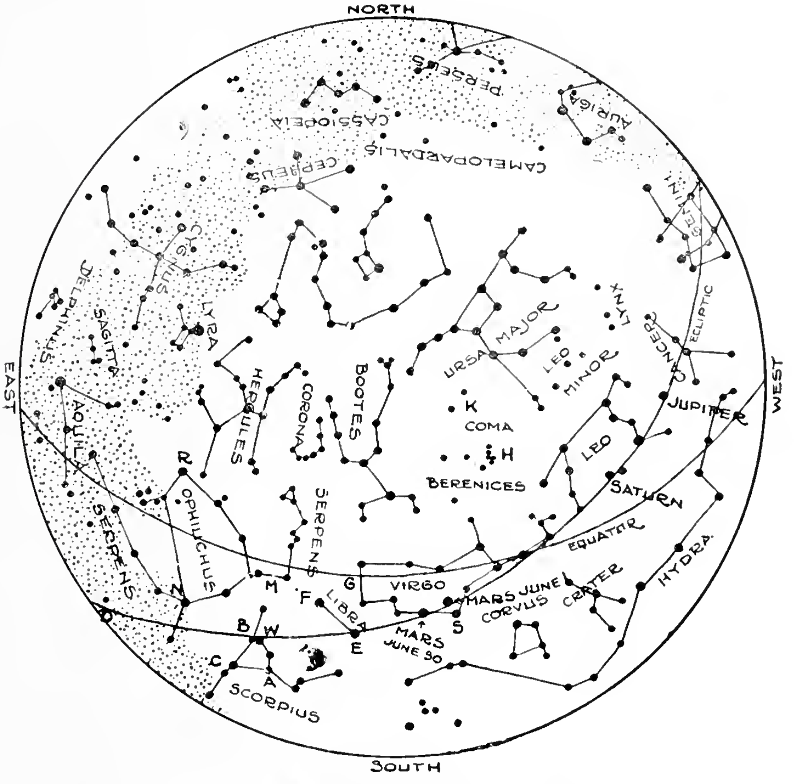

NORTH
PERSEUS
AURIGA
CASSIOPEIA
CAMELOPARDALIS
CEPHEUS
GEMINI
CYGNUS
LYRA
DELPHINUS
SAGITTA
LYNX
URSA MAJOR
LEO MINOR
CANCER
ECLIPTIC
HERCULES
CORONA
BOOTES
EAST
AQUILA
K
COMA
H
BERENICES
LEO
JUPITER
WEST
R
OPHIUCHUS
SERPENS
SATURN
EQUATOR
HYDRA
SERPENS
CRATER
MARS JUNE 1
CORVUS
M
F
G
VIRGO
LIBRA
N
D
B
W
E
S
MARS JUNE 30
C
A
SCORPIUS
SOUTH

Figure 1. The Constellations at 9 P. M., June 1. (If facing south, hold the map upright. If facing west, hold West below. If facing east, hold East below. If facing north, hold the map inverted.)

moved to form the balance. Before this was done Scorpio was one of the longest constellations of the Zodiac.

* * * * *

The June Stars.

The possessor of a small telescope will find much of interest in any part of the sky. Even the very small and inconspicuous group of the Balance, lying between Scorpio and Virgo, contains very much more than would be imagined from Figure 1. There are more than fifty naked eye stars in this little region although, except for the two conspicuous ones, they are all very faint.

Just to the right of the star at F, there is a remarkable variable star which grows more than a magnitude fainter in every two days eight hours, and which is now known to be partly eclipsed by a dark sun revolving about it. And north of F there is a remarkable spherical cluster which contains nearly one hundred variable stars. The star F itself is quite remarkable from having a distinctly greenish tint—a very unusual color among the brighter stars. This star is approaching our system at the rate of six miles a second.

The yellow star at E is easily seen to be a double in a pair of opera glasses; the companion, which is described as of a light gray color, is two hundred and thirty seconds away. And the possessor of a small telescope should not fail to examine also the region H, where he will find the whole background of the sky covered with a delicate network of faint stars. The star at K, above this region, is a beautiful double in a small telescope, and nearly in a line from this to Arcturus, but somewhat nearer the latter star, there is another remarkable spherical cluster, nearly one-tenth of whose stars are variable. Recent researches have shown that these spherical clusters are not immersed in our Milky Way universe of stars, but are beyond its boundaries. They are real universes of suns, but far more condensed and far smaller than our universe is; the distances through them are expressed by hundreds, instead of by tens of thousands of light years.

For the first time this year there are also to be seen in the evening sky the great groups of the Serpent and the Serpent Holder. These two intermixed groups now cover the whole southeastern heavens, from Bootes to the horizon. The head of the winding Serpent is very near Corona, while the extreme tip of its tail is in Aquila. The Serpent Holder, Ophiuchus, grasps the creature firmly in his two hands (at M and N), his head being at R, and his feet just above Scorpio. With a small star atlas the reader may find very many objects of interest within the borders of this faint constellation, especially in the eastern part of it, where are found the wonderful cloud forms of the Summer Branch of the Milky Way.

* * * * *

The Planets in June.

An unusually favorable opportunity to observe the planet Mercury will be afforded toward the close of the month, when Mercury comes to its greatest eastern elongation. This will occur on June 29, and for a few days before and after this date the observer will see it shining far in the northwest in the twilight glow for more than one and one-half hours after sunset. If he finds it when near its elongation, it will look

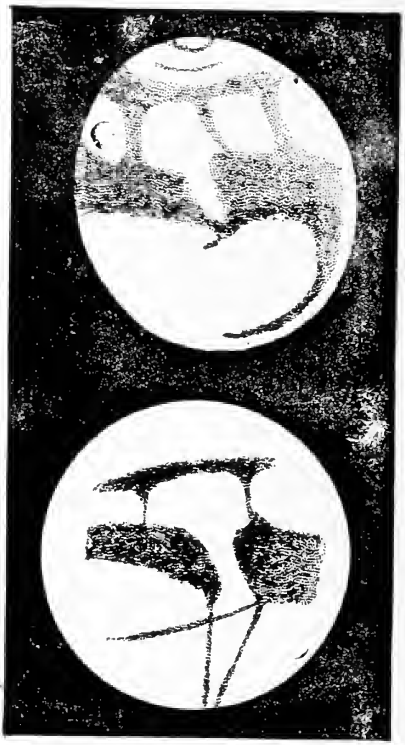


Figure 2. Change in shape of the planet Mars. Shows the planet when least round, and in its present appearance.

half full, but having located it then, he can probably follow it for some weeks longer and observe its change into a narrow crescent.

Venus is now so very near the sun that it cannot be seen at all during the present month. On July 3 it will pass to the east of the sun and become an evening star, but it will not emerge sufficiently from the sun's rays to be easily seen until next autumn.

Those who have been watching the retrograde motion of Mars in Virgo have seen how this planet has been drawing nearer and nearer to the bluish star Spica (at S), until by June 1 it has almost reached this star, but is two degrees north of it. But on this evening at eight o'clock the westward motion of Mars will cease, and from then on until the end of the year it will run eastward again; it will cross Ophiuchus and reach the borders of this month's map by December. The planet is still in excellent position for observation, although during the month its distance from us will increase from 61,000,000 to 78,000,000 miles, and it will diminish one-half a magnitude in brightness. The last was not the most favorable possible opposition, for even when nearest us the planet was 54,000,000 miles away, while its distance at an opposition occurring in August may be but 36,000,000 miles. Yet doubtless during the past months this little world has been kept under constant observation at many observatories, and the results will be published in due time.

On June 24, at 10 hours and 43 minutes P. M., the moon will pass to the east of Mars. As seen from the United States, the two objects will then be a little more than the diameter of the moon apart, Mars being north of the moon. Observers in southern latitudes, however, will see the planet hidden by the moon. On the same evening, and only four hours earlier, they will see the moon hide Spica, but to us our satellite will be seen to pass some distance south of the star.

Jupiter continues its slow southward and eastward motion toward the eastern borders of Cancer, but is still in good position for observation. Interesting phenomena of its satellites may be observed on the evenings and nights of June 3, 16, 19, 23 and 28.

Saturn is moving southward and eastward, a very little to the east of the star at V. The rings are now seen so obliquely that they appear very narrow, but they will not entirely disappear until next November. The great moon, Titan, is farthest east of the planet on June 5 and 21, and farthest west on June 13 and 29. This moon, notwithstanding the great distance away of Saturn, can readily be seen in a small telescope. It is no less than 3,500 miles through, much larger than Mercury and nearly as large as Mars. The next largest moon, Iapetus, is 2,000 miles in diameter; this can also easily be seen. As both the satellites move in circles which we now view nearly edgewise, they seem to oscillate from one side of the planet to the other. Titan occupies a little less than sixteen days in one revolution and Iapetus seventy-nine days. The latter will pass from the east to the west of the planet on June 20.

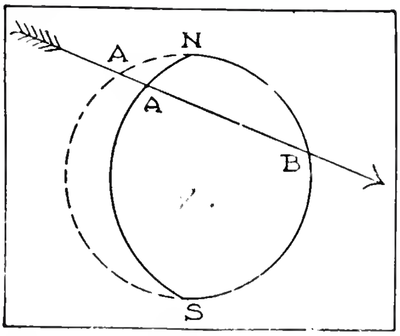


Figure 3. Apparent path of Beta Scorpii during its occultation on the early morning of June 28.

* * * * *

The Longest Day.

On June 21 at 0 hours and 40 minutes P. M. (Eastern Standard time), the sun will reach its highest point in the heavens and this will accordingly be the longest day of the year. In a latitude of 40 degrees, the sun will rise at 4 hrs. 31 min. A. M., and set at 7 hrs. 32 min. P. M., the day being thus 6 hrs. 2 min. longer than the night. In higher latitudes the difference is, of course, still greater. For example, in latitude 60 degrees the sun will rise at 2 hrs. 36 min. and set at 9 hrs. 28 min., so that the night is but 5 hrs. 8 min. long. In these latitudes twilight will last throughout the night, and north of the Arctic Circle the sun will ,of course, not set at all. Even in a latitude of 40 degrees one can see a faint glow from the sun exactly above the north point of the horizon at midnight.

* * * * *

The Occultation of Beta Scorpii.

On the early morning of June 28 the nearly full moon will pass over the star at W (Figure 1) and hide it from view. As seen from Washington, the star will disappear at A (Figure 3) at 1 hour 5 minutes A. M. and reappear at B at 1 hour and 47 minutes, thus remaining hidden by the moon for 42 minutes. These times, however, are subject to great variation as the observer changes his position on the earth, and hence looks at the moon from slightly different directions. Thus, an observer more than 3 degrees below the earth's equator will see the moon pass above the star: one whose latitude is more than 59 degrees will see it pass below the star. In neither case will the star be hidden by the moon.

The best way to observe this interesting phenomenon is to turn the telescope on the star, perhaps 20 minutes before the first of the above times, and then to consider that the moon moves eastward an amount equal to its own diameter in about one hour. One can thus estimate quite closely when the star will disappear.

This star is really a quadruple system of suns. The large star has a very faint companion near it, and a bright, fourth magnitude, companion, fourteen seconds away. Besides this, it was recently discovered to be a spectroscopic binary star, made up of two suns far too near together to be seen in any telescope.

A similar occultation of this star by the moon was seen and described in the year 295 B. C.

How witching are the freshly opened leaves
All rosy with the flush of new-born life!
Almost the pleasure one from them receives
As from the flowers with which the fields are rife.

—Emma Peirce.

January 31. Read the inevitable newspapers, hoping for something, longing for something; finding nothing.
—Henry Wadsworth Longfellow.

Improving High School Biology.

(FROM A PERSONAL LETTER FROM A BIOLOGY TEACHER.)

I am one who firmly believes that our high school courses in biology should be reconstructed from beginning to end. Biology is going to be the coming high school course without a doubt. No subject is in a better position to grip the interests of the plastic mind than this one which deals with the most vital thing in the world—life. And yet what a mess of it is made by the average teacher. When I think of the possibilities along this line and how little these possibilities have been realized by us teachers, I cannot help but think that we have committed an unpardonable sin. To see the method of teaching biology in practice in most of our schools is enough to make an Agassiz weep. Nothing but a mere, formal, trivial, superficial acquaintance with the greatest things in life has been the result of all this mock teaching. It is time for this to change, and it is going to change before very long.

The Sentinel Trees.

The sentinel trees are some conifers tall
That stand by the curve of the bay;
A beckoning spot where their long shadows fall,
In the heat of a mid-summer day.

So high are their tops that they carry our glance
Quite up to the blue of the sky;
They could easily rend, as with sharp-pointed lance,
The clouds drifting down from on high.

When lightning and tempest are raging around,
And slenderer boles all are swayed,
The sentinels stand sturdy and sound,
In the wildest of storms unafraid.

They are right in the path of the sunset flames bright,
As they stream from the far, molten West;
And when they die down to a violet light,
They tell us it's now time to rest.

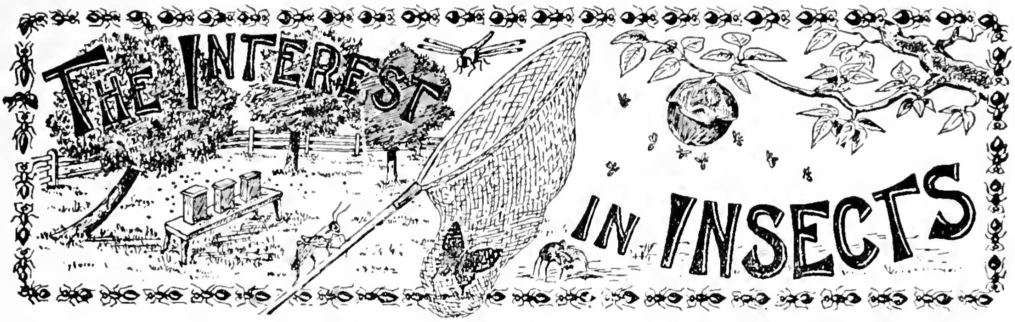
Our first glance in morning, the last one at night,
Is toward such good neighbors as these;
And life is more lofty, more steadfast and bright,
Because of our sentinel trees.

—Emma Peirce.

Blossoming Willows.

The willows are caught in a golden net,
Its meshes entwine them, leaf and bough;
Those who admired their ranks of green,
Will rejoice in their efflorescence now.

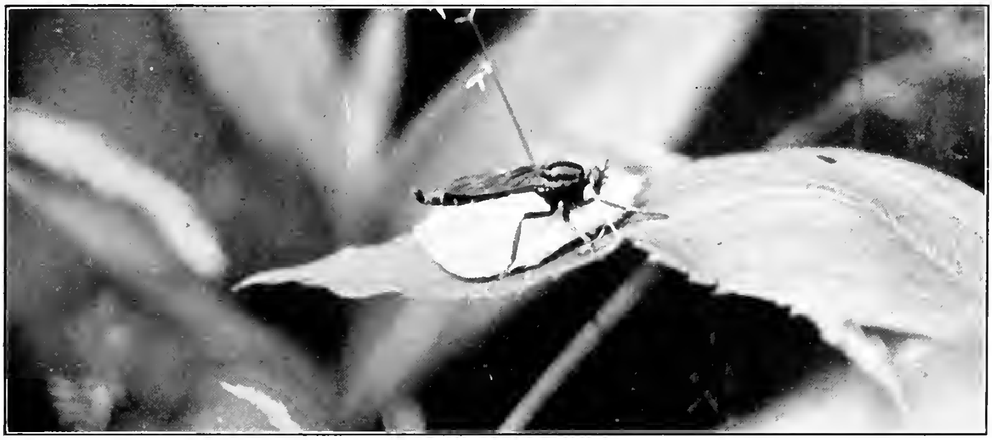
—Emma Peirce.



An Insect Hawk.

J. B. PARDOE, D.D.S., BOUND BROOK, N. J.

In the mountains of New Jersey on a beautiful summer's day I was enjoying my vacation by walking and by hunting with my trusty kodak which I always take with me on my nature strolls among the flowers and other beauties of nature. A little white butterfly came flitting along, now and then stopping to investigate a flower. I thought, here is my chance to add an interesting picture to the collection of which I already have many hundred. I prepared my camera and was following the cabbage butterfly when a hawk-like insect swooped down, grabbed the victim and with it flew to a leaf among the flowers. Now, you robber, I thought, I will get your picture with your prize. So here we have first-hand evidence against the robber-fly.


THE INSECT HAWK.
Photograph by Dr. J. B. Pardoe.

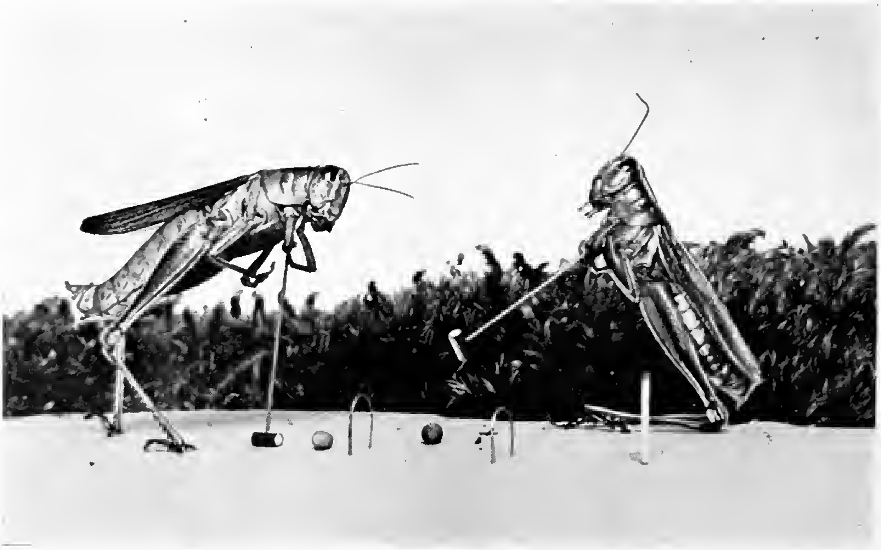
* * * * *

Professor Leland O. Howard in "The Insect Book" has the following interesting statement regarding the robber-fly:

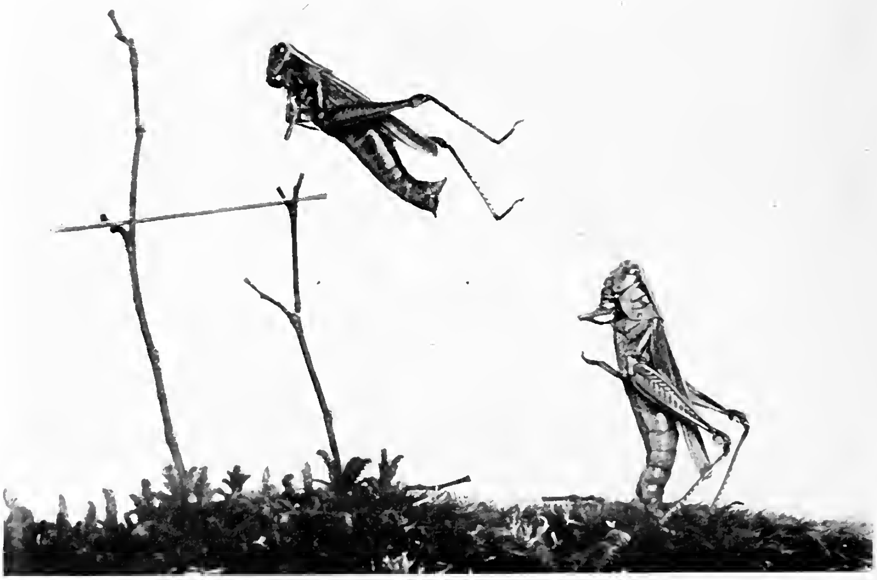
"Like the hawk, they swoop upon their prey, and grasping it securely between their forefeet they violently bear it away. Nearly all of their victims are captured on the wing, and any flying insect is liable to be caught by them—other flies, bees, beetles, moths, butterflies, grasshoppers, and even members of their own species, so that they are true cannibals. Just as with the praying Mantis, or rear-horse, the female frequently resents the caresses of the male, and grasps him and eats him. They will also feed upon caterpillars, but rarely. Persons engaged in bee culture especially fear these robber-flies, which are known rather generally in this country as bee-killers. One of Dr. Fitch's correspondents sent in an interesting account of the damage done to his apiary. The robber-fly captured bees by making rapid dashing catching them on the wing, then wrapping its legs about the bee, and pressing it tightly to its own body it immediately sought a bush or tall weed upon which to alight and devour its prey, piercing a hole in the body and sucking out the fluids and soft internal viscera, leaving only the hard outer skin. Upon the ground beneath some favorable perch for the fly near the apiary hundreds of these shells of bees were found accumulated in a single day. The correspondent thought that it was through the work of the robber-flies that during certain seasons in a bee raising region in New York not a single hive threw off a swarm. The beak of a robber-fly is so strong that it can pierce the skin of a human being, but fortunately none of these creatures has yet acquired the habit of feeding upon warm-blooded animals."

Insects in Comic Photography.

"Photo-Era" of Boston, that high grade magazine of photography, recently had an interesting article by Lehman Wendell on "Insects in Comic Photography." The author says that he does not attempt to train insects, but puts them to sleep with chloroform and props them up with concealed wires. He does not kill the insects but lets them come out of their sleep. A dead insect cannot



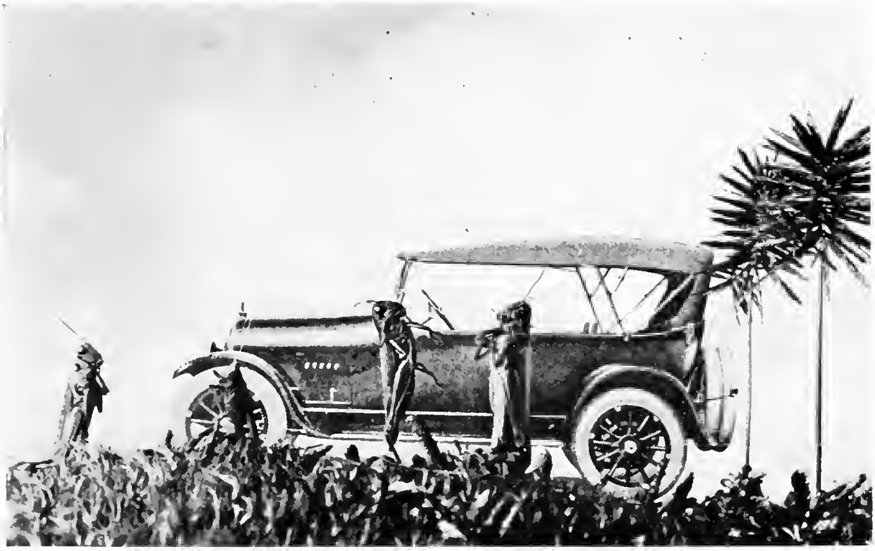
AN OLD-FASHIONED GAME.



THE HIGH JUMP.

be photographed to good advantage. He says, "I love all creatures, perhaps more than the average man." He has found that chloroform carefully administered does not harm the insect. A grasshopper on awakening will soon be as frisky as ever. The chloroform only tones them down for a few minutes required to take the photograph. The foregrounds are formed of a variety of plants, and he obtains cloud effects by enlargements from cloud negatives. All his pictures are staged and photographed indoors, because it would be impossible to do such work in an air current that might upset the arrangements. He has displayed a good deal of ingenuity and, the results of his efforts suggest a wide range of possibilities.

We are deeply grateful to "Photo-


THE AUTOISTS.

THE TRUMPETER.

HAVING A SWING.

THE OLD SWIMMING-HOLE.

Era' for lending us these cuts and are glad to call attention to Mr. Wilfred A. French's efforts in publishing a photographic magazine which has become the most successful this country has ever known. The paper, printing, good judgment displayed in the selection of articles, the co-operation of the best photographers unite to make a combination that should be appreciated by every user of the camera.

Of What Use is a Fly?

The Greenwich Academy,
Greenwich, Conn.

To the Editor:

I should much like to have your answer to this question. Of what use is a fly? I should like to know how so small an insect can help in so large a world.

MARY C. CHESTER.

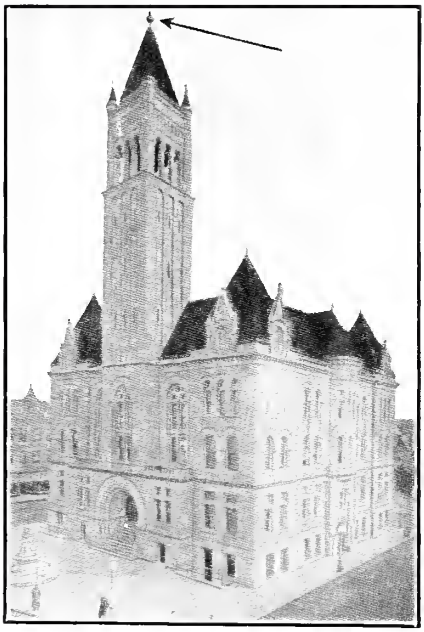
I am glad to have your inquiry regarding the fly. In one way it is useful, just as you and I are useful, in being itself and in performing well the activities of its own life as designed by the Creator. Many persons are constantly asking of what use are such things, meaning in what do those things serve us. We human beings cannot well avoid being selfish, supremely selfish. We want to construe, or rather I should say misconstrue, the Creator's plans as centering in the human individual. To a certain extent that belief is correct. I accept the teaching that a human being has been made but a little lower than the angels and crowned with glory and honor, but there are times when certain individuals seem not fittingly to wear the crown nor to appreciate the honor. I believe there are many forms of life created simply for that form itself; that is, they are endowed by the Creator with certain inalienable rights of life, liberty and the pursuit of happiness. I would put the fly in that list. As a mature insect it is of no use to mankind. As a maggot, or larva, it is of great use. In its larval form it is a valuable scavenger. By reason of the carelessness and perhaps the laziness of the average human being, fly maggots are needed to make innocuous the filth that the general citizen must necessarily neglect. Aside from this the fly is to a certain extent a nuisance. Even that badness is a goodness, however, in teaching human beings to overcome it in playing the game of life. It walks, apparently by preference, over any kind of offensive matter, and carries on its claws microbes, germs and other objects dangerous to us, when we allow it to transfer its promenading to our food. Flies should be kept out of the house, but while we kill the adult fly we should not forget its usefulness as a maggot.

There is another point that appeals to naturalists. A fly is one of the most ingenious mechanisms. Sometime when you are at ArcAdiA I will show you parts of a fly greatly enlarged upon the screen. It seems to me that there is no object in all the world more interesting than a fly's tongue, foot or eye. So we may say that a fly is of use as an object to study, for I do not know why an animal is not useful for mental food in the same commendable way that others are useful as physical food.—E. F. B.

Some Bees Are Very High.

BY DR. J. F. HILL, PARKERSBURG, WEST VIRGINIA.

The Wood County court house of Parkersburg, West Virginia, stands right in the business section. On the top of the tower is an open ball (or latticework sphere). A colony of bees have taken possession of this, a hundred feet or more above the street. From the number of bees flying around it, it must be a strong colony. The janitor says he is going up to get a pot of honey. He is certainly welcome.—"Gleanings in Bee Culture."



ARROW SHOWS WHERE BEES ARE.

A New Paper-making Ant.

On page 272 of our March, 1919, number we published an article, "A Very Interesting Study of Ants." Professor William Morton Wheeler has recently published in "Psyche" a monograph entiled "A New Paper-making Crematogaster from the Southeastern United States." We quote the following from that paper:

"About a year ago Dr. Edward F. Bigelow sent me a photograph and fragments of a large paper nest found by Mr. J. Willis Youngs at Fort Myers, Fla., together with some of the ants that had constructed it. Dr. Bigelow subsequently published the photograph with a few notes. The nest as shown in the photograph is much damaged but must have been originally more than a foot in length. A study of the ants shows that they represent an undescribed species closely related to *C. lineolata* but easily recognizable as distinct. I feel reasonably certain from an examination of the carton and a comparison of Atkinson's and Bigelow's figures that both nests were built by the same species of ant."

Try It Some June Day.

"Governor Foils Lynching Bee"—Headline. Lynching a bee has always impressed us as a considerable task deserving of a governor's commendation. —N. Y. Globe.

Seek Nature.

Seek Nature in the morning,
With freshness in her look;
And seek her at the noonday
In cool, sequestered nook;
And do not lose the sunset,
Its lingering, violet light,
Nor miss the starlit pathway
To her temple of the night.
—Emma Peirce.

The fields are robed in chiffon
Of iridescent hues;
For matchless color blending
Who would not grasses choose?
—Emma Peirce.

EDITORIAL

What is the Trouble With the Present Times?

We have tried to explain the trouble with the present times in the editorial, "There Are Others," on page 113 of the December number of THE GUIDE TO NATURE, of which several friends have been kind enough to speak to the editor a word of comment and appreciation. Perhaps one of the best epitomes of the truth of that editorial recently came unconsciously from two different persons. As I was buying an article in a store in Stamford one of the clerks, rambling on in a kind of soliloquy or dissertation, said:

"Yes, that is the price. Did you ever hear anything like it? Isn't it a perfect shame? I don't know what this world is coming to with all this profiteering. Somebody's got to get hold of these capitalists and stop them or they will wreck the world. There seems to be no limit to their demands. Why, this very thing I am selling you has jumped in price about three times within a few months, and I have sold lots of it for (mentioning a price about one-fifth of its present price). Yes, sir, this world is in a sad state, and I tell you the profiteering capitalists have got pretty severe things to answer for on us poor people."

Thus he rambled on for at least five minutes, waxing eloquent and even pausing in his work to wave his hands oratorically. I thought he was practising on me for an oration that he was going to deliver from a soap box.

I went into another store where it so happened that the proprietor gave me his personal attention and thus philosophized for my edification:

"You are lucky to get it even at that price. But who ever heard of that selling at anything like that? If I had been told it even a year ago I would not have thought it possible, but now I am surprised that it can be sold so low. Think of all the demands these labor unions are making and look at the number of hands that article had to go through. Why, when you are paying a man a dollar and a half to run a wheelbarrow and what do you expect skilled work will cost? There is no show for a man in business nowadays. Laborers are taking everything, and something serious is going to happen to call a halt on all this. You know labor never is satisfied. If you double his pay he would want it doubled next week. He would think you were conscience-stricken because you doubled it only that much."

So he stormed on until I retreated, feeling guilty of something, I knew not what, conscience-stricken because I am a laborer and must be so traduced.

Then I got to thinking of the other fellow and more and more I was glad that I had labored over that article. "There are others" is good capital for the present.

A Thoughtless Crime.

We are informed by a clipping from the Poughkeepsie "Evening Star," under the heading, "Gifts of Trailing Arbutus Make Congregation Happy," that more than three hundred bunches of that dainty plant were given to the congregation of the First Baptist Church at its evening service and proved that spring had arrived. It proved more than that! We are further informed that the worshippers at this service were made happy by the little bunches of sweet spring arbutus and that the gift found great favor. It might well do that. The article says further that a profusion of arbutus blossoms was found in an obscure corner of the woods by Boy Scouts on a long hike. They then evidently proceeded to exterminate the plant, as with it they made more than three hundred bouquets.

We have no words strong enough to denounce this outrage upon nature, this total lack of appreciation on the part of those narrow-minded Boy Scouts.

Nature study does not consist in the extermination of any useful or beautiful plant, nor in the annihilation of any except a noxious animal or an injurious insect. Trailing arbutus is the daintiest and most modest of our spring blossoms. Its fragrance is like the perfume of paradise. It is not and probably cannot be imitated by the perfumer's art.

Here in Connecticut we have more regard for nature and more common sense. I believe we are the only state in the union that has passed a law forbidding the extermination of this dainty little shrub. There is no other place in the United States where the gathering of three hundred arbutus bouquets for a Sunday evening congregation in a church would even be thought of except in Poughkeepsie. In that respect Poughkeepsie is unique.

It is astonishing that in a so-called enlightened age a wholesale slaughter of a rare plant can take place and be tolerated. The Agassiz Association denounces such conduct with all the vigor that it possesses. The one redeeming feature in the whole proceeding is that possibly it may so arouse the nature lovers in New York State that they will write a law in the statute books to forbid the destruction of this delicate plant. Another little bright spot in the situation is the fact that there is anywhere on earth a spot in nature from which three hundred bouquets of the trailing arbutus may be obtained. That is a revelation and a satisfaction. So far as Connecticut and many other parts of New England are concerned the trailing arbutus is rapidly disappearing. Unless a speedy halt is called it will not be many years before the plant will have totally vanished.

The reprehensible conduct of those Boy Scouts calls for the same strong denunciation that Boy Scouts are everywhere receiving for their total lack of real nature interest as evinced by the manner in which they trap wild animals and for which they are condemned by humane societies everywhere. Probably the picking of that arbutus was due to thoughtlessness, but that does not lessen the enormity of the crime, for crime it is. Such conduct puts a tremendous responsibility on naturalists everywhere to be active in the protection of this rapidly disappearing plant. We are bringing this matter to the attention of the Boston Society for the Protection of Our Native Plants.

Wayside Despoilers.

BY MELICENT HUMASON LEE, EL CAJON, CALIF.

Who can conquer the vast army of wayside despoilers? Who can adequately punish by word of mouth (would that some more forceful penalty were permissible by law!) the hosts of "flower lovers" who rob the hills and mesas of their rightful heritage—the beautiful wild flowers, the seeds of which lie dormant through the long months of the dry season - - - for what? For the glorious sending forth of a blossom which captivates the eager eye of the first tourist who passes it en route—en route to other wild gardens of bloom.

Witness, as I have, a magnificent yucca or, as often called, "Our Lord's Candle" *(Hesperoyucca Whipplei)* which had just attained its perfection of growth, cut down in its habitat of noble mountain-slope overlooking a rugged canon, by the ruthless hands of one who carried its lovely form to a car on the road below, to be borne away, only to wither in transit, perchance, and your soul will rise in revolt against a custom which permits hosts of "sight-seers" (for these are usually the worst offenders, the natives, as a rule, being too proud of their native flora to recklessly destroy it) to wreck a land of the very things which make it beautiful, and which attracted the traveler to hasten to it. But the average traveler cares not; he travels this way but once, perhaps. Let us fervently hope so!

Again, witness the sight of a stately, snowy egret shot down from a marsh by the roadside and stuck upon a convenient spike to boast the sportsman's aim to the ever-passing throng, and, incidentally, to defy the law, and you will wonder what will become of the natural glories of a world which yields its fruits to feed its enemy—man.

The bright-hued flowers along the way
Are the multi-colored stars of day.
—Emma Peirce.

Cordial Words.

St. Louis, Missouri.

To the Editor:

One of the delights of my travels is to find in some large city or in some out of the way nook a sure-thing, really alive naturalist who knows how to spend his leisure outdoors and who is willing to show other people, especially the younger generation, how they may spend theirs. It seems to me the great mission of nature study from kindergarten to the last year of the university is to get people outdoors under intelligent leadership, to teach them to play and while they are playing to learn and enjoy nature through all the senses.

Any organization which takes for its slogan "Know Nature First" is sure to have a substantial membership. Such an organization as yours through the medium of its publication is furnishing most stimulating leadership.

Sometime I hope to have the rare privilege of tramping part of the Connecticut shore under your personal guidance.

With many good wishes,

J. Andrew Drushel.

To the Heights.

To the heights more often let us go,
To feast on view unfurled,
And to bide, for even the briefest space,
Above the chaotic world.

Our souls are lifted for the nonce,
On to a higher plane;
And evermore, in storm and stress,
The uplift we retain.

—Emma Peirce.

Our Magazine in the Hospitals.

An important part of our work, a part that probably is seldom realized by our readers, is the cheer and outdoor joy that we take to the "shut-ins." In the twelve years of our publication we have had many interesting experiences in this connection. At one time a kind-hearted woman paid for a series of subscriptions to be sent to various hospitals and sanitariums. It would be commendable if some one would continue along that line of cooperation. We have at present a number of hospitals on our regular mailing list, but we believe The Guide to Nature should visit every hospital and sanitarium in the United States. We carry the kind of message that the patients appreciate. We often receive expressions of approval but perhaps no one has more enthusiastically expressed that good opinion than Margaret MacLachlan, of the Polyclinic Hospital of the United States Public Health Service, of the New York County Chapter of The American Red Cross, in New York City. In a recent letter she writes:

"In going through a lot of old magazines I found a copy of The Guide to Nature for November, 1919. I teach in this hospital and if ever there was a real find this magazine is *it*. I have read it inside out and back end foremost to the boys in the eye ward, who cannot read for themselves, and if you have a few more copies on hand, beginning at December, 1919, one of each, to send me I shall be grateful.

"Now, can you tell me where to begin on the line of astronomy? I should like to get a primer and try to enlarge the drawings on the blackboard. The men are all Service Men and are being treated at this hospital. The nature studies of the tree toad were much appreciated. I translated the word 'toad' into Portuguese,. French and Spanish with the aid of a dictionary.

. . . .

"The Smithsonian Institution at Washington, D. C., has sent me some bulletins on bird lore and one or two others, but the little magazine, well it was just the proper find at the right time."

The forms Mother Nature spreads out for you,
Are as varied as objects in mountain view;
You may choose and study whichever you will,
There will always be lacking some knowledge still,
They are fashioned with such consummate skill.

—Emma Peirce.

From our birth to our return to dust the laws of chemistry are the controlling laws of life, health, disease and death, and the ever clearer recognition of this relation is the strongest force that is raising medicine from the uncertain realm of an art to the safer sphere of an exact science.—Julius Stieglitz in the Introduction of "Creative Chemistry."

LITERARY NOTICES

Zoology. A Textbook for Colleges and Universities. By T. D. A. Cockerell, Professor of Zoology, University of Colorado. Yonkers-on-Hudson, New York: World Book Company.

This treatise is peculiarly well adapted to Members of The Agassiz Association as it is intended primarily for the average individual who does not care to specialize in the subject. It does not enter into the details of structure and classification, yet it conveys to the student aspects of the subject that are valuable. The manner in which the topics are developed results in delightful as well as instructive reading. Many of the illustrations are from photographs taken at the New York Zoological Garden. There is also a great variety of original illustrations. The book is not only instructive but pleasingly readable. It is also well adapted to class use.

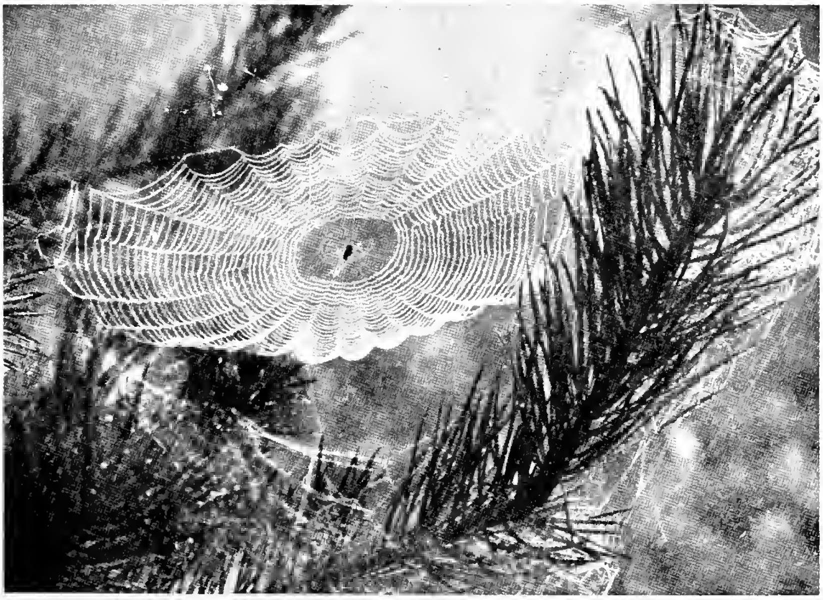
Alaska Our Beautiful Northland of Opportunity. By Agnes Rush Burr. Boston, Massachusetts: The Page Company.

Miss Burr is at her best in this beautiful description of Alaska. She tells in a charming way of the delightful scenery and the rare opportunities which the Northland offers. This book is a description of its rivers, mountains, glaciers, volcanos and other beautiful and unusual scenic features and of the rare delights it offers travelers, big game hunters, mountain climbers, explorers; its towns and pioneer settlements; the government railroad and Mount McKinley National Park; its rich resources; its opening for new business enterprises; its Indians, their primitive customs and present development; its romantic early history when Russian, Spanish and other nations sought its wealth; gold-rush days; its present progress and bright future.

The author has produced a book that should be a matter of personal pride to every American citizen. The publishers have issued the volume in a substantial form and with beautifully colored illustrations.

Puppies and Kittens and Other Stories. By Carine Cadby. Illustrated with Thirty-nine Photographs by Will Cadby. New York City: E. P. Dutton & Company.

This book is built around the illustrations. It is evident that Mr. Cadby likes the camera and that his wife likes cats. What better could they do than to try the camera on the cats? Next he utilized puppies and dogs. But Mr. Cadby could not be kept in the house. He escaped to the fields and there studied spiders and their webs, and then back home to tell Mrs.



A FLY STRUGGLING IN A SPIDER WEB.

Cadby that she must not sweep away the webs but must let them grow for his edification. Of course Mr. and Mrs. Cadby kept chickens in the back yard and again the camera was brought out. In the process of time the photographs accumulated. Then they were sorted over on a big table, and Mr. and Mrs. Cadby picked out a few of the best and Mrs. Cadby wrote charming tales for children about their subjects. So here you have puppies and kittens, spiders and chickens mingled in delightful profusion. But perhaps the most interesting thing about the book is for the thoughtful observer to read between the lines and illustrations and so discover how the whole thing happened.

"ONE HAD STILL A BIT OF SHELL STICKING TO HIS BACK."

THE UNITY OF THE ORGANISM OR THE ORGANISMAL CONCEPTION OF LIFE. By William Emerson Ritter, Director of the Scripps Institution for Biological Research of the University of California. Boston, Massachusetts: Richard G. Badger.

In this book the author dissents vigorously from recent tenencies to regard plants and animals as mere aggregations of fundamentally independent elements, and presents a strong argument for the whole organism as the basic living unity.

He reviews the history and doctrine of "elementalism" from Empedocles to its great vogue in the hands of modern experimenters and speculative biologists, and opposes to it his doctrine of the unity of the living being developed during a lifetime work as biological scholar, teacher and director of major research enterprises.

The book marks a distinctive step in the advance of biology from the laboratory-speculative point of view to a broader natural history outlook.

BRUCE. By Albert Payson Terhune. New York City: E. P. Dutton & Company.

Anyone who has read "Lad: A Dog" needs no introduction to the dog lovers of Sunnybank. It would be unreasonable, however, to expect that "Bruce"—the story of another Sunnybank collie and this time at the war front—should keep the finer qualities, the spontaneity, grace and naturalness of the earlier book. It is always true in the case of the dog story that whatever is gained in intensity of interest by the introduction of exceptional events is lost to the more significant appeal which the dog in his aspect of comrade makes to the true dog lover.

We welcome "Bruce" as illustrating the dog's power of adaptation under the brief, exceptional and hideously abnormal conditions of the firing line. F. E. B.

Summer Vignette.

BY EARLE CORNWALLIS, DWIGHT, NEBRASKA.

From mossy bank I see a mountain-cloud
Which floats on high, like some great feather:
Close by I hear the shivery cottonwoods
That sigh and sigh, one unto the other:
The dreary tinkle of a cow-bell's note
Comes wafted from afar on vagrant breeze—
I picture placid bovine wagging head
In shady dell, somewhere beyond the trees:
Above me, ships of Cloudland swim the sea
Of dizzy distance, rolling 'midst the blue,
And silent, airy phantasies they sail
Across the landscape,—like my thoughts of you!

With Nature holding out both hands
In all the things we see,
'Tis passing strange that human nature
Should indifferent be.
—Emma Peirce.

PUBLISHER'S NOTICES

'Tis not in mortals to COMMAND success, but we'll do more, we'll DESERVE IT.—Addison.

Of Interest to Tree Lovers.

It is with much pleasure that we call attention to the F. A. Bartlett Tree Expert Company of Stamford, Connecticut. Now is the acceptable time for giving attention to our trees. June is a delightful month in the young fullness of the year, and everybody thinks or should think about the welfare of the trees, and incidentally of our own welfare as enhanced by the trees.

As the editor is personally acquainted with Mr. Bartlett and many of his staff, he assures his readers that their orders will receive careful attention. The company does not limit its work to this part of Fairfield County or even to Connecticut. It has offices in various other places.

The Laboratory at Woods Hole.

The annual announcement of the thirty-third year of the Marine Biological Laboratory at Woods Hole, Massachusetts, is an attractive pamphlet of some thirty-four pages that arouses one's enthusiasm for all phases of biology. The list of competent professors who have charge is inspiring. This country should be congratulated because we so strongly cling to the faith, and the practice too, that biology, real, serious study of living things, is worth while. We congratulate the professors and the students who can, for several weeks in midsummer, retire from the rush and bustle of the cities, where most of the colleges and universities are situated, and settle down for a time on that eastern point of Massachusetts in a kind of scientific retreat from the commotion, distress and strain of our modern civilization, and devote themselves to the study of life; to do what in itself is really worth doing, and is not merely a foundation for something else, like most of the occupations of mankind. Where can a young man or a young woman spend the time to better advantage than in a vacation at the seashore in the company of inspiring, well-educated people? We heartily commend this laboratory. For full particulars address the Business Manager, Woods Hole, Massachusetts.

Heard in a Bronx Movie House.

Girl, reading title of picture: "Idle Hours With John Burroughs." "Who's he?"

Her male companion, knowingly: "Doncher know Burroughs? He's the feller what invented the adding machine. It oughter be a good picture." —New York Globe.

"No, sah, Ah doan't neber ride on dem things," said an old colored lady looking in on the merry-go-round. "Why, de other day I seen dat Rastus Johnson git on an' ride as much as a dollah's worth an' git off at the very same place he got on at, an' I sez to him, 'Rastus,' I sez, 'yo' spent yo' money, but whar yo' been?' "—Boston Transcript.

Some Doubts on Heredity.

"What is heredity?"

"Something a father believes in until his son begins acting like a darn fool." —The American Legion Weekly.

Perseverance is a great element of success. If you only knock long enough and loud enough at the gate, you are sure to wake up somebody.—Henry Wadsworth Longfellow.

I am much interested and pleased with the little magazine—small in size but large in knowledge.—Mrs. Ina L. Chaffee, Cincinnatus, New York.

L. B. Museum cases

Illustration shows free standing museum case, bronze and plate glass, with interior pyramid supporting exhibit. Smithsonian Institution, Washington, D. C.

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leavings of many deaths;
(No doubt I have died myself ten thousand
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—Walt Whitman.

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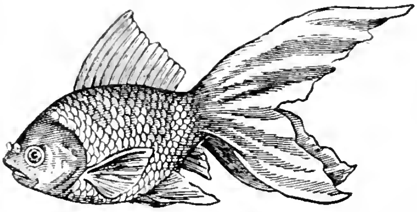

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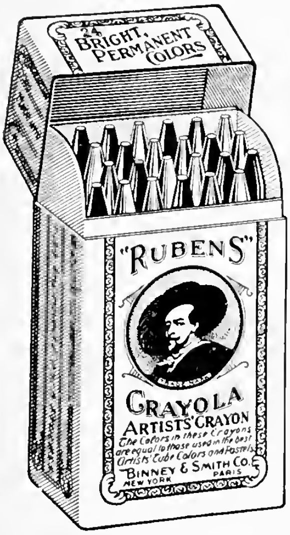
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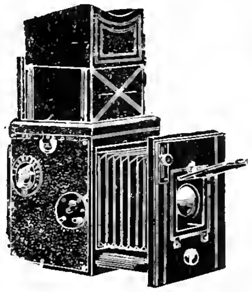

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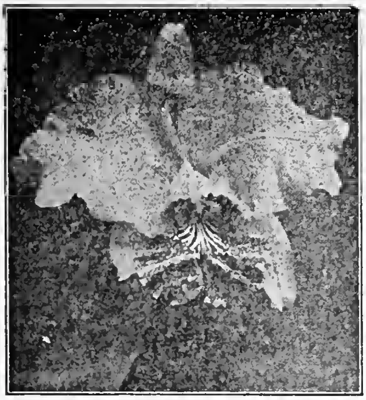

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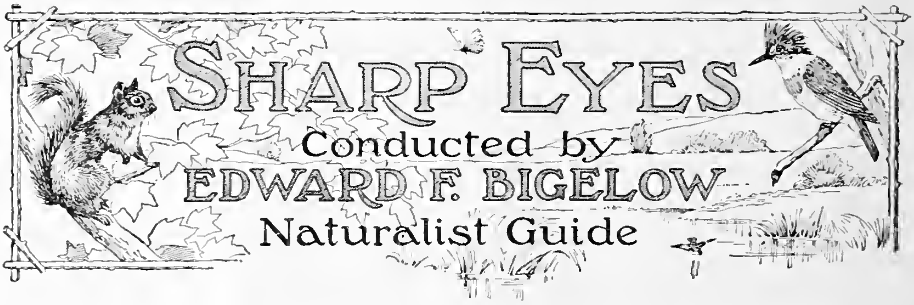

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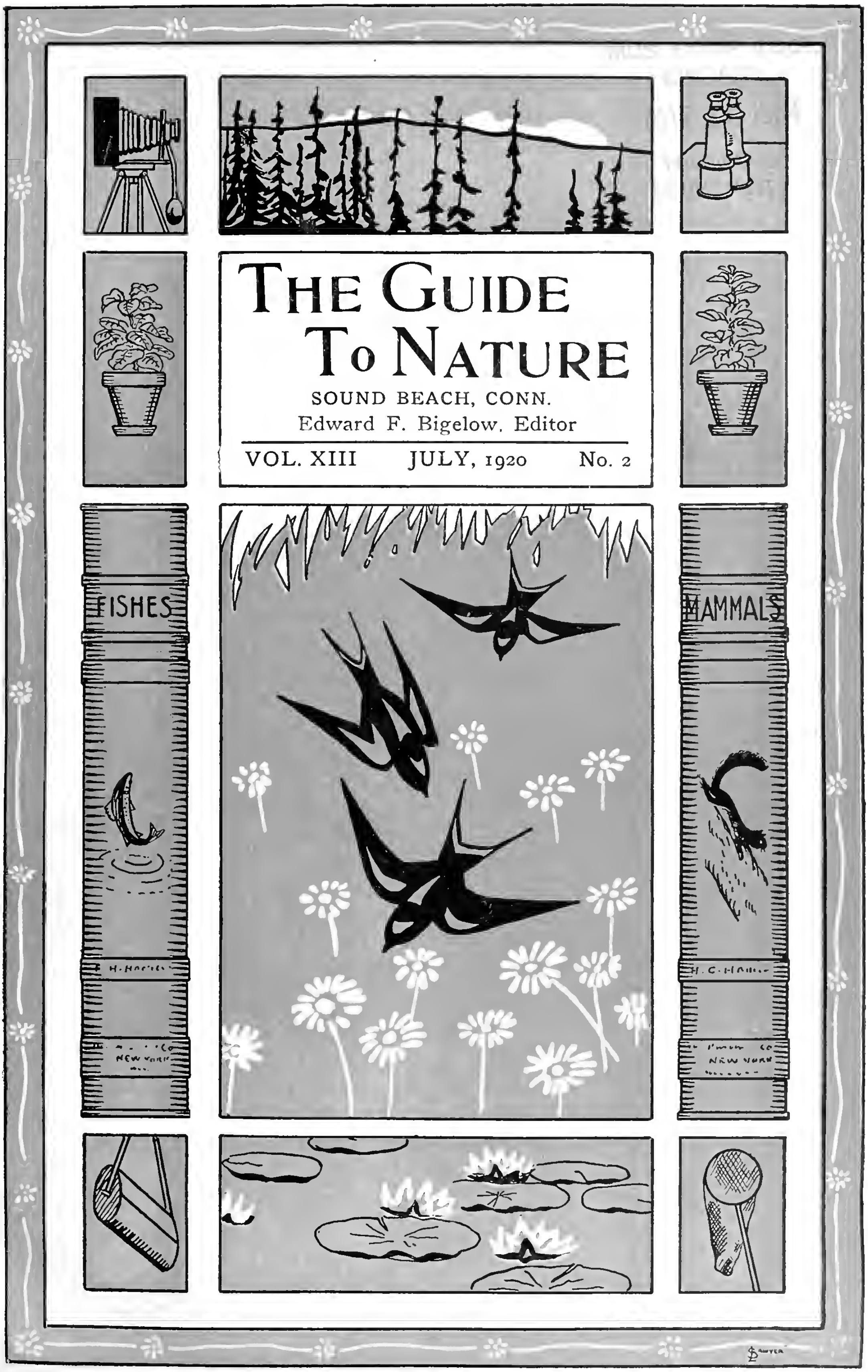

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SOUND BEACH, CONN.
Edward F. Bigelow, Editor

VOL. XIII JULY, 1920 No. 2

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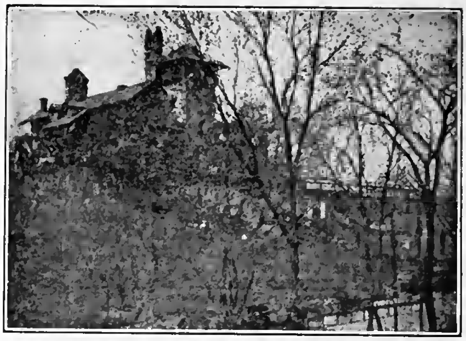

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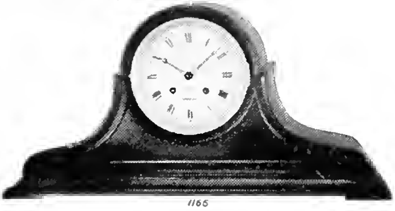

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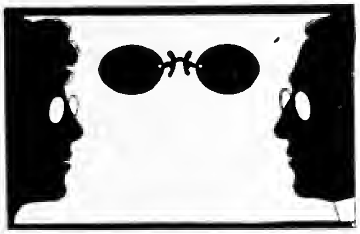

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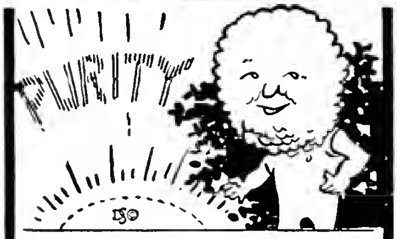

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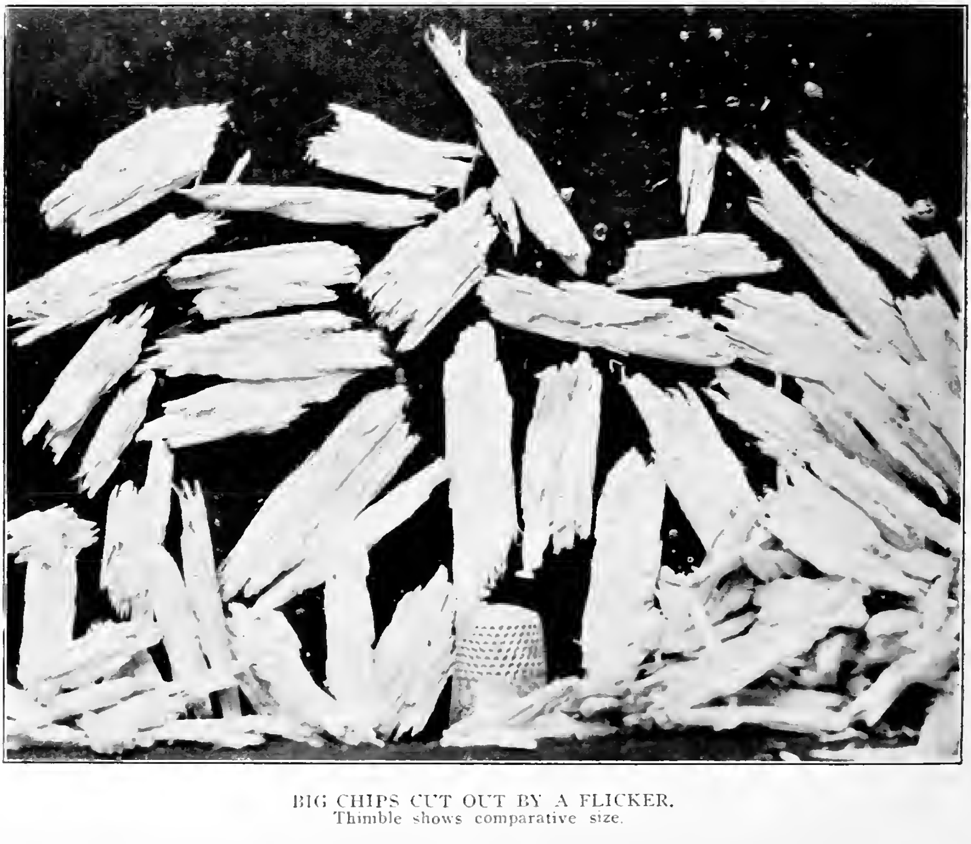

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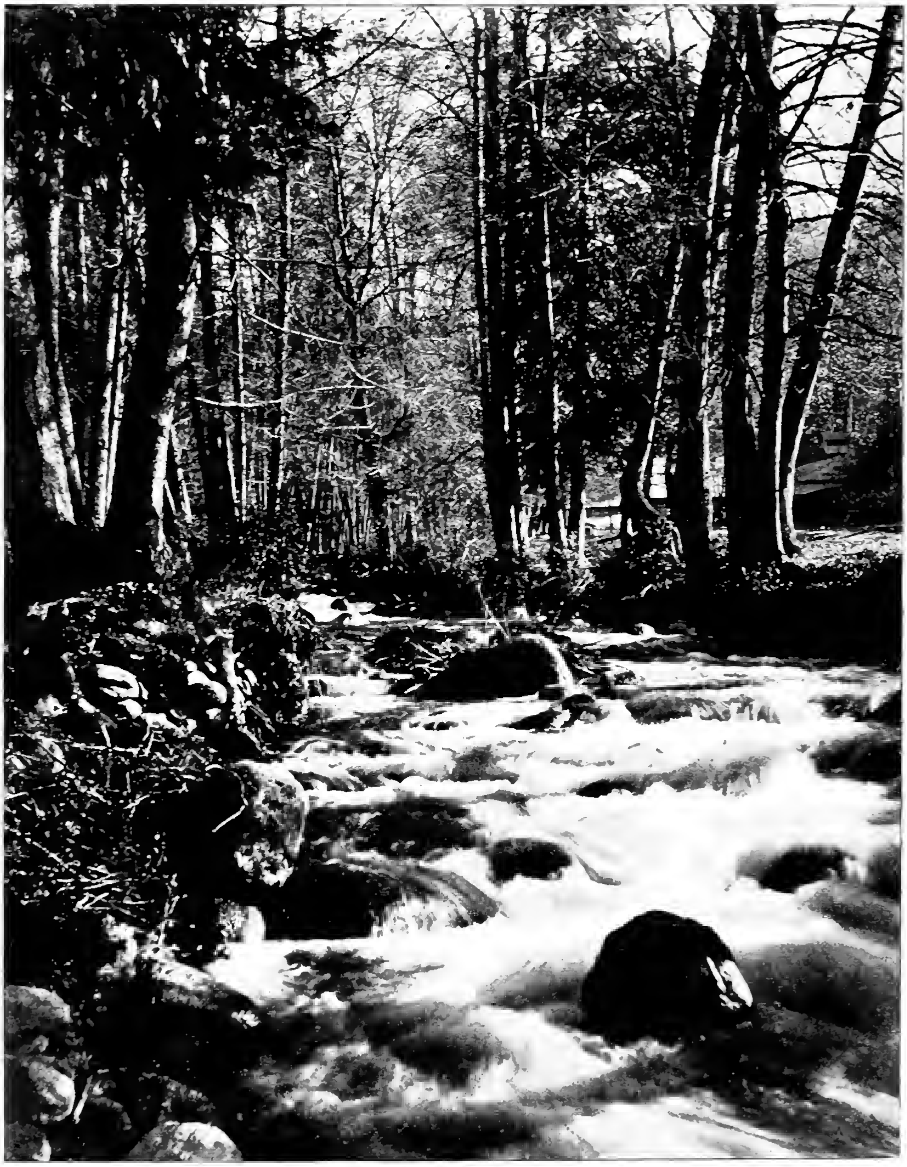

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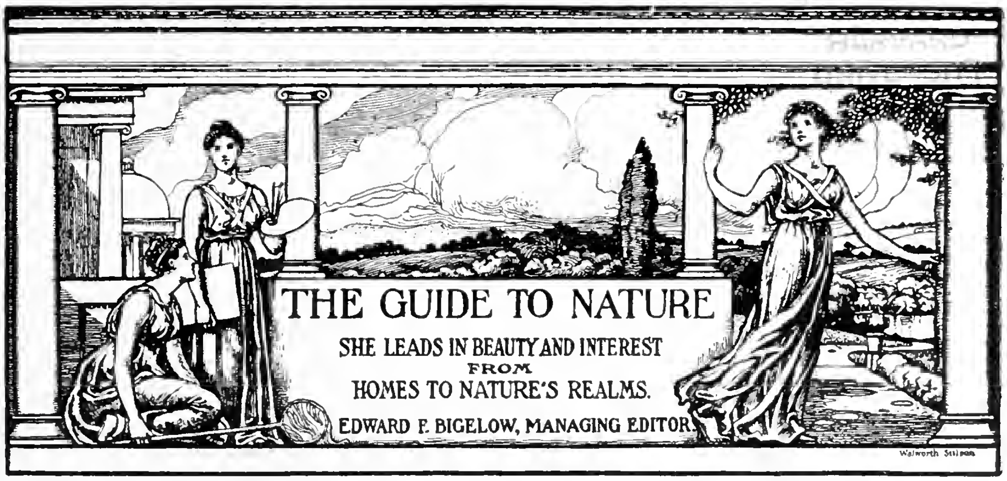

THE GUIDE TO NATURE
SHE LEADS IN BEAUTY AND INTEREST
FROM
HOMES TO NATURE'S REALMS.
EDWARD F. BIGELOW, MANAGING EDITOR

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Volume XIII JULY, 1920 Number 2

JACK AND JILL.

J. B. Pardoe, D. D. S., Bound Brook, New Jersey.

This combination of white dog and black crow made a winning pair of pets a little different from the ordinary. Jill, the crow, was one of four little black beauties taken from their nest when unable to fly and presented to me by a farmer who shot their mother for, as he said, "stealin' chickens."

I built a large cage of chicken wire for my black babies. They grew rapidly. I fed them pieces of raw meat from the butcher's and table scraps. They required feeding often and had good appetites. If not fed on time, their constant calls would wake up the entire neighborhood.

As they grew older, to see what they would do, I let them out of their cage occasionally to walk in the garden. One crow, Jill, began to show signs of intelligence above the others. She would follow me to the house and insist on coming in. Finally I decided to give away the others and keep only Jill. She slept on a little rustic perch that I built for her, making it like a bracket with a screw eye so that it could be moved about from room to room. Jill considered this perch a safety zone and would fly to her roost if she got into mischief and was scolded. Once in her young life, for tearing up a mounted hawk I had in my den, I gave her a slap that sent her across the room and a good scolding besides. She scolded back, cawing loudly, and beat a hasty retreat out of the house still scolding. "No one can get me up here," she seemed to say, "and I will, like a good female crow, have the last word.

A trick occasionally indulged in was to steal a bright silver spoon and fly to the outside of the house roof, tucking the end of the spoon under an edge of one of the shingles. A cache of so-called trinkets or playthings was made in one of the gutters on the side of the housetop. Pieces of glass, dishes, a marble, a bright chicken bone, an old ferrule from a cane, a spoon, a couple of wire nails, a piece of bright tin, a nickle, a thimble and a toothbrush were among the things stored away by the thieving Jill. Another playhouse was made at the edge of the garden between and under two currant bushes.

Jill became quite a garden expert. She was always ready to help me make garden and followed me up and down the rows, looking very important as she walked along peering here and there under clods and roots for cutworms and

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bugs, gently cawing now and then. Sometimes I stopped and handed her a nice fat worm or a big white grub which was accepted with a soft caw as thank you. One day I was thinning out the sprouts in a row of sweet corn. I happened to look back and there was Jill Crow pulling out with all her might the remaining sprouts in each hill. Having seen me pull it up, I suppose she thought it was the thing to do. Her chest stuck out and she as much as said, "Am I not a good helper?" If she saw me plant a bean or squash seed she promptly dug it up with her big black bill. Any visit to the garden by a robin or an English sparrow was resented and Jill gave chase, cawing as much as to say, "These are private grounds. Get out of here." One day I found a black chicken feather and the minute I showed it to my pet she cawed in terror and would not come near me. I do not know why she was so afraid of a black feather. A white feather or one of any other color would not produce this effect.

When the garden work was finished and the dinner bell rang, Jill would fly or ride on my hand or arm to the house for dinner. Sitting on my shoulder and sometimes on the back of my chair, she coaxed for a dainty bit of meat, cake or cheese. Of cheese she was very fond, often taking bits from between my teeth. Sometimes when she was a bad crow I scolded. On such occasions she flew to her roost to finish her dinner there.

Can a bird play like a kitten? Jill did. Playing around the floor or lawn she would often roll over on her back with feet up in the air and lie that way, kicking similar to a kitten playing. I never before saw or heard of a bird rolling on its back in this manner and looked with astonishment the first time I saw Jill do it.

Cut from Photo-Era.

JACK, THE DOG, AND JILL, THE CROW.

She often wanted to go out of doors early in the morning and, if the window was not open, she would come to my bed, pull at the covers, talk in my ear, pull my hair, etc., to make me get up. She made friends with a young lady neighbor, sometimes in the morning going to the young lady's bedroom window and drumming loudly on the glass with her bill as much as to say, "Please open the window. I want to come in." One of Jill's neighborly visits did not turn out so well. A nice old lady was planting some choice flowers. Jill went over to help, but after pulling up a few by the roots she was driven home by a pelting with stones.

The best thing that my pet did, and

the one I like the most, was to fly to meet me on my way home from my office. I live at the edge of the town, about ten minutes' ride from my office. The factory whistle blows at noon. Jill learned to know that this whistle was the signal for my appearance. Riding home on my bicycle I would be met by this most intelligent bird. As I was nearly halfway home she would come flying down the street and settle on my shoulder, cawing gently to me as we rode along together. This delightful experience was very gratifying to me.

Jill was very fond of having her head scratched, sitting on my knee a long time and going to sleep during the process.

Jack and Jill had many games together, Jill riding around on Jack's back. If a stray dog came around, Jack ran after him barking, with Jill flying over his back and cawing loudly, scaring the intruder so badly that he would run for his life.

Jack acquired a very bad habit trying to chew up stones, pieces of coal, etc. In this manner he was rapidly wearing down his teeth. To show the power of his jaws, one day he took a tin funnel and mashed it flat, then made a tooth mark through both sides of it at once.

An Orang-utan's Sense of Humor.

At the Bronx Zoo in New York City is an orang-utan that is a clown among monkeys. It is about the height of an eight-year-old child, and short-necked and stubby-legged like a dwarf. I was standing before its cage, a Companion contributor writes, when the keeper brought it a pan of milk. The orang-utan sat on the floor, grasped the pan and drank from it as a child would from a bowl. In its eagerness to drain the last drop it tumbled over backward, which amused the people watching it.

The orang-utan sat up and looked at them when they laughed and seemed to ponder a moment; then it grasped its pan and repeated the tumble. After amusing the spectators a while that way, it happened on a funnier variation by rising up from its fall with the pan on its head.

When the spectators had grown tired of this, the orang-utan disgustedly rolled the pan away and looked about for something else to amuse the crowd. From under a pile of straw it produced about six feet of rope. Throwing an end of this over its trapeze so that it dangled high in the air, it jumped for it, missed it, and rolled over backward in the straw. This may have been an accident the first time, but, encouraged by the amusement of the growing crowd, it did it over and over with grotesque exaggerated clumsiness.

When this, too, had become stale, the orang-utan climbed to a platform, passed one end of the rope over a pipe that ran above its head, and grasped both ends. Then it walked backward with them as far as it could and swung forward. The rope was too long and the performer got quite a bump; but the children roared with delight, and so at the expense of its anatomy the monkey repeated the accident time after time.

The last laugh of the afternoon was on the crowd. The orang-utan made numerous unsuccessful attempts to tie one end of the rope to the pipe and to climb into its trapeze while holding the other end, but each time, of course, the fumbled imitation of a knot came undone. This seemed to be a real joke on the monkey, and the crowd was more amused than ever at its seeming distress. At last the comedian, evidently tired of entertaining the public, calmly tied the rope to the pipe, climbed into the trapeze with the other end in its hand and, ignoring the spectators, gave itself a good swing.—The Youth's Companion.

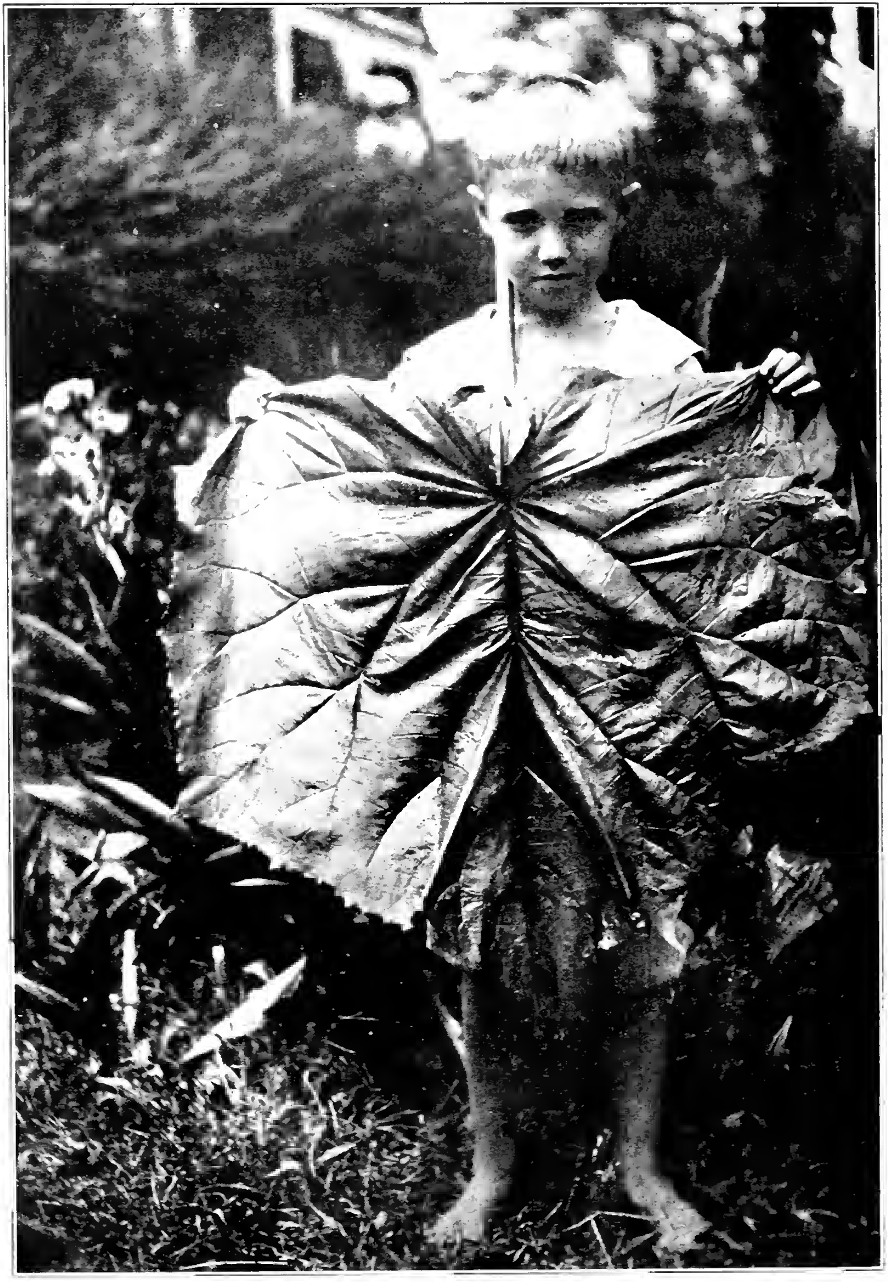
Fuchsias.

The fuchsias are languorous beauties,
  Exotic in tint and mien;
Their ruby and violet pendants,
  Like jewels amid the green.
—Emma Peirce.

For my own reading, I have been deeply interested in Morse's "Life of Holmes." Toward the end of his days one sees that he, too, came face to face with the great mystery. Dying do we leave this life a "futile failure" and return to unconsciousness, or do we meet another life full of infinite possibilities?—Elizabeth Cary Agassiz.

A Huge Leaf.

The accompanying illustration of the leaf of the Paulownia or the princess tree must evidently be considered a huge leaf. It is thirty inches in diameter, although the tree from which it was taken is only one year old. In the southern states, the Paulownia is used extensively for shade and for ornamental purposes and also for the beauty of its flowers. Mr. Robert Sparks Walker has an interesting article on the subject in "American Forestry," and that magazine has kindly lent us this cut. Mr. Walker says that the tree is remarkably free from insect pests and grows rapidly. The leaves are sensitive to the frost, and when the sun rises on the first morning after a freeze the Paulownia begins to drop its leaves,



BOY WITH ONE PAULOWNIA LEAF.

and by nightfall the tree that was well-clad twelve hours before will be as nude as any other tree in the forest. Mr. Walker points out that the tree has one fault in that the seed pods cling to the branches all winter, making a gigantic rattlebox which clatters and clatters whenever the wind blows. The tree produces an enormous number of seeds. He counted one by one the seeds in an average pod, and found almost exactly two thousand. He estimated that there were more than twenty-one million seeds on the one tree. A few birds, especially the blue jays, enjoy eating them.

In the Sand Dunes.

BY EDWARD EYRE HUNT, RIVERSIDE, CONNECTICUT.

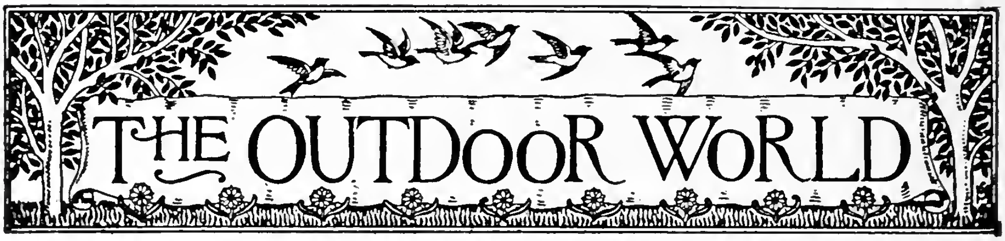
Life in the dunes is like life in perpetual snow, without the cold. Fuel can be fetched on sleds; tents must be pitched with some regard for sand slides; gales will blow the sand like finest snowflakes into every crevice; the glare of sunlight on the white waste will grow oppressive, and dark glasses or sooty marks below the eyes are good protection, just as in the Arctic; the disposal of sewage is easy; water can be obtained merely by sinking a well beneath the hard, dry surface, for the subsoil of the sand is always cool and damp; shifting sands, like glacial ice, can best be fixed by vegetation—dune grass or beach plum—and the white, even surface each morning will bear, like newly fallen snow, a perfect record of every creature which has passed, the autographs of countless little feet.

The dunes have a teeming population. About our tents were dozens of hop-toads which came out at dusk and went foraging in the wiry dune grass. They spent the day under driftwood or buried themselves in the cold subsands, and every morning their spoor, like a vertical pattern of water lilies, spread up and down the dunes. Flying grasshoppers, too, were numerous and were either ivory white in color or a very pale gray. Their protective coloration was perfect. Nervous little sand fleas came into our tents and climbed to the peak of the canvas roof. At night they danced fantastically about our lanterns. There were sand wasps, too—dark blue or black. Ant hills abounded, sometimes too near and numerous for comfort. And there were crickets with the shrillest and most rasping evening note that I have ever listened to. The cadavers of crabs and other small deer were circled with the tiny, well-like burrows of tiny, voracious crablings, and some little creature—anonymous to me—left vermicelli tracks all about our tent doors in the mornings, tracks which began and ended nowhere. There were flies, of course—far too many!—and once I caught a katydid.

Among the birds the fish hawks easily interested me most. I found, to my astonishment, that they had rather a pleasant note, and I had always believed the hawks about the least musical of birds. They fished constantly, darting down into the water and coming up with menhaden which they carried to their ugly nests in the tops of dead trees. My tent mate enlightened me a bit by telling me that a wounded fish hawk which he had caught had webbed feet and a long bill; that it didn't look like a hawk at all but like a gull. I think it likely that we have misnamed this bird, but cannot be sure until I look it up. Buzzards for some reason never visited our beach, although they floated about superbly a mile or two inland. Plovers came faithfully and so did the gulls. One day five tall herons stalked about in the lagoon behind the tents. So far as I could tell no birds were nesting in the dunes in August.

The power of money could be tremendously increased, if we could buy time, as we do magazines and books. I have more of the latter than of the former, indeed so much more that it is impossible to get half through with what I'd like to. Yet, with the impossible staring me in the face, I find and must gratify a desire to continue THE GUIDE TO NATURE. It is a delightful diversion after a long day's work—like making room for a nice dessert even after a hearty meal. You will find my check enclosed with best wishes for your continued good work.—John A. Davis, Baltimore, Maryland.

April waved her wand, and lo!
Where just before were ice and snow,
There stretched a slope beneath our eyes,
That might have come from Paradise.
—EMMA PEIRCE.



THE OUTDOOR WORLD

TURTLE KNOWS THE WAY HOME.

NEW JERSEY MAN CONVINCED BY RESULTS OF EXPERIMENTS

Milford, N. J.—That the common land turtle has a homing instinct quite as keen as the carrier pigeon is the belief of Wilson Rittenhouse after six years of experiments conducted with a turtle that for years had inhabited the Rittenhouse garden and vicinity. One day Rittenhouse decided that he didn't want the turtle around, so he took it out on his mail route and dropped it near Mount Pleasant. A fortnight later it had covered the intervening miles and was back in the garden.

Interested by the turtle's achievement, Rittenhouse marked it afresh and took it to a farm near Frenchtown. A few weeks later it was "at home" again in the garden.

Four years ago Rittenhouse decided he would give the turtle a more difficult test. He carried it across the Delaware River four miles from his home. He added still more definite marks to its shell and liberated it. The summer passed and the turtle did not return. But this week Mrs. Rittenhouse saw a familiar object crawling up the garden path. The marks on its shell clearly identified it as the old turtle, returned after four years' absence.—"Philadelphia Record."

The foregoing newspaper clipping was sent to Mr. Rittenhouse and he replied as follows:

"The turtle story is true. I did not expect to experiment with it when I started but this is how it came about:

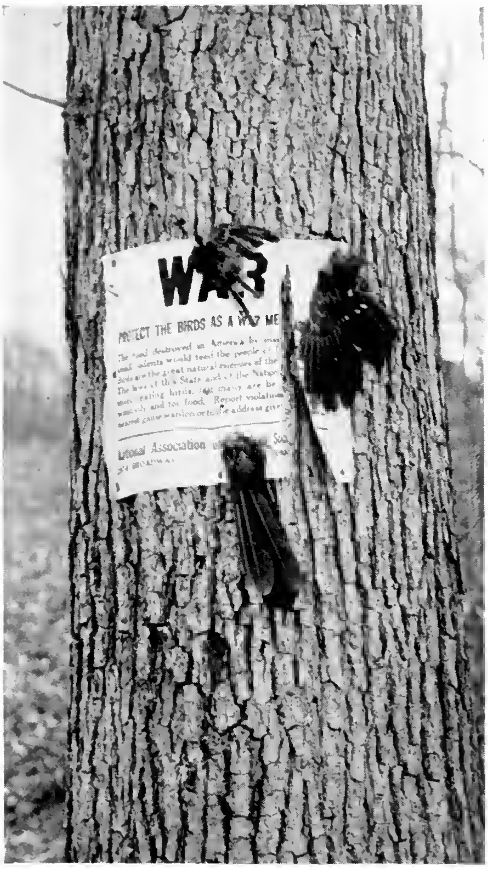
"We have a fairly large garden, and each year raise a good many tomatoes. One day Mrs. Rittenhouse noticed something had been eating some of the tomatoes and thought it was the chickens. I could not find any place in the fence where the chickens could get into the garden, but still something kept eating the tomatoes. One day she found a turtle eating one of them and then we knew. I did not like to harm a turtle so I put it in my mail wagon and took it one and one-half miles on my route and dropped it by the roadside, never expecting to see it again. But in about two weeks Mrs. Rittenhouse again found a turtle at the tomatoes and said she believed it to be the same one. I said that it could not be possible, though it looked like the same one. I decided to try it again. I cut a mark on the bottom shell and took it over the same route, putting it out at the same place. In about two weeks it was back at the tomatoes again. We knew it was the same one by the mark I had put on it.

"Then I began to be curious and took it one and one-half miles away in another direction. By that time it was getting late in the season and we did not see it again that year, but the next year we found it back in the garden at its old job—tomatoes. We could hardly believe it possible, but there were the marks. We put it in a box for a few days until we went to call on a friend across the river in Pennsylvania. We crossed the Delaware River bridge into Pennsylvania and after going five miles down the river, just before reaching our friend's home, I put it out by the roadside saying, "Now I guess you won't get back again." Before starting on this trip, however, I put more marks on it so as to be sure I would know that turtle if it should come back, although I did not expect it to do so. Four years passed and we had almost forgotten it when again Mrs. Rittenhouse found it in the garden. Of course we thought it wonderful. I told the editor of our town paper about it and he published a notice of the matter, which was copied by other papers.

"It was not a common land turtle but brown in color with a flat bottom like a terrapin, which accounts for its crossing the river I think. We kept it until we went to visit my wife's former home six miles away, when I put it in the car and left it on the farm there. That is now more than a year ago and I have not seen it since."

Defiance of a Bird Law.

The photograph almost speaks for itself. An ambitious youth of Hemlock, while "out gunning," slashed the poster he found on a tree in his shooting grounds, and to further assert his defiance to law and order, nailed to the defaced plea, the poor, mangled body of a golden crowned kinglet, and the wings and tail of a brown thrasher. The young Bolshevist—and no one, we are sure, will gainsay the epithet—must have been interrupted in his task and taken a hasty departure, as he left on the ground beside the tree, his knife, with which he had slashed the poster, and the body of a downy woodpecker, dressed as clean and neat as a chicken for market. What the "hunter" wanted with these few ounces of woodpecker flesh, seems almost beyond the conception of any decent, normal American man or woman, whether he be a nature-crank or not; but quite obviously this tremendously useful insectivorous bird was to go down the maw of the young gunner.



DEFIANCE OF BIRD LAW.

Mr. Bieseman says that this same youth for years has committed similar depredations on bird life.

There is no need of publishing the boy's name—it is a mere incident. He is just one of many law-breakers in his own town and in many other towns in Ohio and elsewhere. The matter was reported to State and Federal authorities, but according to the National Association of Audubon Societies, nothing ever came of it.—Blue Bird.

There is no month in the whole year in which nature wears a more beautiful appearance than in the month of August. Spring has many beauties, and May is a fresh and blooming month, but the charms of this time of year are enhanced by their contrast with the winter season. August has no such advantage. It comes when we remember nothing but clear skies, green fields and sweet-smelling flowers—when the recollection of snow, and ice, and bleak winds, has faded from our minds as completely as they have disappeared from the earth,—and yet what a pleasant time it is! Orchards and corn-fields ring with the hum of labour; trees bend beneath the thick clusters of rich fruit which bow their branches to the ground; and the corn, piled in graceful sheaves, or waving in every light breath that sweeps above it, as if it wooed the sickle, tinges the landscape with a golden hue. A mellow softness appears to hang over the whole earth; the influence of the season seems to extend itself to the very wagon, whose slow motion across the well-reaped field, is perceptible only to the eye, but strikes with no harsh sound upon the ear.—Charles Dickens in "Pickwick Papers."

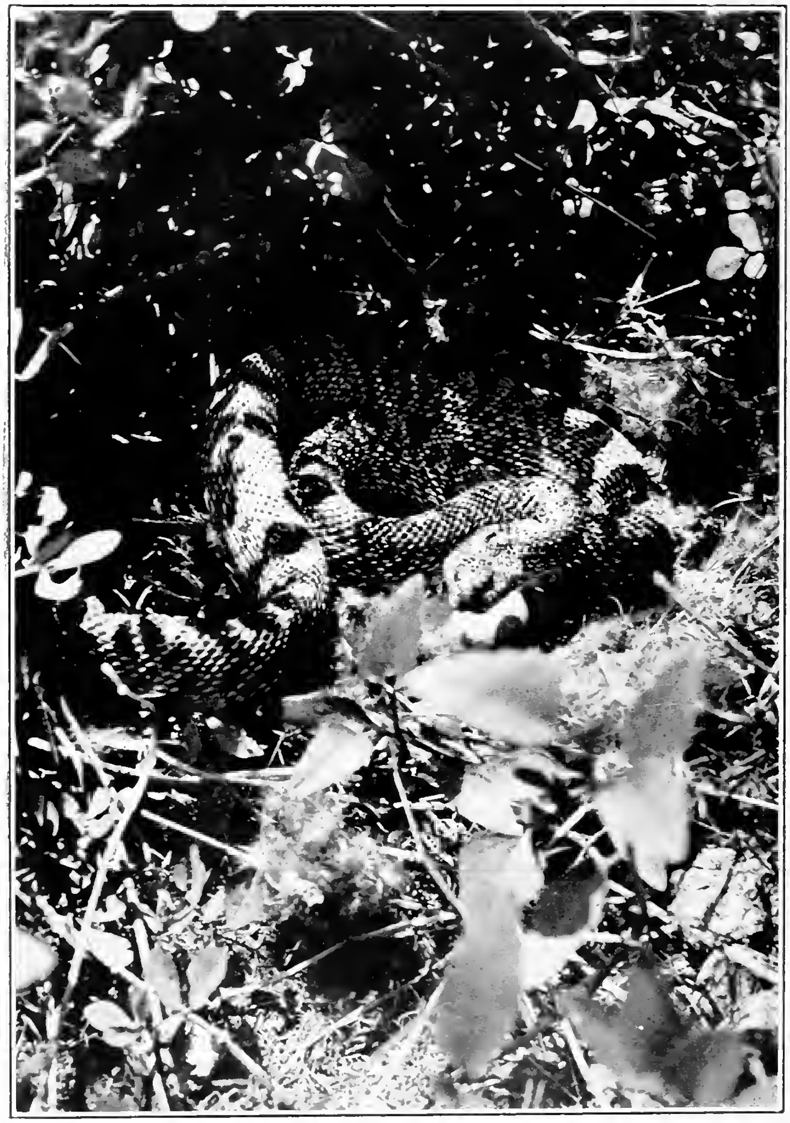
Spring is the promise, Summer the flower,
Winter the rest, after Autumn's dower.
—Emma Peirce.

A Snake That Eats Eggs.

We are indebted to the "Bulletin of the American Game Protective Association" for the use of the accompanying illustration of a bull snake robbing the nest of a wild duck. This remarkable photograph was taken by Mr. Robert B. Rockwell. The Bulletin says:

"Most men who have made a study of this question contend that snakes are very beneficial creatures, excepting, of course the few poisonous species. The farmer often tells you that the bull snake is the best rat-catcher he knows, and in the South the king snake holds the same position of esteem. However, the photograph on the front page of this 'Bulletin' shows beyond question of doubt that Eve was not the only one who could not resist temptation."

When visiting a friend in Patagonia I was greatly astonished one day on going out with a gun to shoot something followed by the dogs to find a black cat in their company, and to see her when I fired my first shot actually dashing off before the dogs to retrieve the bird!—W. H. Hudson in "The Book of a Naturalist."



BULL SNAKE EATING DUCK EGGS.

Tame Pigeons Alighting in Trees.

Washington, D. C.

To the Editor:

Some of the facts included in a recent correspondence I have had with Mr. J. H. King of Beaver, Pennsylvania, may interest the ornithologists among your many readers, and fuller comments upon it from others prove to be worth the while.

It seems that, not long ago, Mr. King was practicing out on a rifle range near his home, when some tame pigeons passed, one or two of which lit in the top of a tree not far off. Now it has always been a question as to whether tame, domesticated pigeons ever alight in trees. Mr. King referred the fact to Mr. Dan B. Starkey, Editor of "Outers-Recreation," who in turn referred it to me. Mr. King also interviewed Mr. W. E. Clyde Todd, of the Carnegie Museum of Pittsburgh, on the question, and the latter informed him that he had never, in all his life, heard of such a thing as a tame pigeon alighting in a tree. I wrote Mr. King that I personally had observed only one instance of it, and it occurred during the summer of 1862. The bird—a white one—lit on the top of a tree in the woods near "Horse Pond" at Stamford, Connecticut, apparently from sheer fright, having been greatly alarmed at the firing of a fowling piece in its near vicinity.

This may have been the case with Mr. King's pigeons, though he does not say so. Should I see a tame, domesticated "blue rock" pigeon deliberately alight in a tree, of its own volition and for no other reason than that it chose to do so, as a wild mourning dove would do, I would say that it was an instance of reversion to the ancestral habit, common to all species of wild, arboreal pigeons. Such examples are to be frequently noted among other domesticated animals. Nevertheless, a record of them is always of some value, not to say interesting to many; and I am sure that Mr. King would like to hear of other instances of tame pigeons alighting, of their own will, in trees, as being confirmatory of his personal observation on that point.

Faithfully yours,

Dr. R. W. Shufeldt.

Hunting Foxes in the Spring.

BY L. B. CUSHMAN, NORTH EAST, PENNSYLVANIA.

Not many hunters would knowingly and willingly cause the death by starvation of a litter of from five to ten pretty little puppy foxes in their home in the ground. The killing of a mother fox after the first of March will in all probability cause just that result.

Some years ago the writer was hunting foxes with a younger brother (H. F.) on the woodsy, rugged banks of Elk Creek, south of Fairview, when the hounds located one in the trunk of a hollow fallen maple. A shot was fired into a hole in this prostrate tree, and with an ax borrowed from a farmer several openings were cut, finally exposing to view a mother and ten woolly little fellows nearly black and just old enough to be real beauties. The mother and some five of the baby foxes lay limp and dead from the charge of shot.

As though stricken dumb, we stood there some time without saying a word. It taught me a lesson. I said, "Never, never again," and from that day to this, though I have bagged several foxes during the time, I have never hunted them on the snows of March or April.

Poison Ivy.

There is one evil for which more remedies are suggested than there are cures for the high cost of living. We refer to poison ivy, that green villain which from now until frost will waylay its victims beside trees and fences in almost every part of this country. W. L. McAtee of the United States Biological Survey says in an article in the Medical Record that he has tabulated 244 recommendations relative to ivy poison, as follows:

For preventing	19
Internal remedies	27
External remedies	198

Persons who believe they have found ways to make the country wanderer immune have suggested coating the exposed parts of the body with sweet oil, cottonseed oil, grease and soap suds; or taking prescriptions made from lady's slipper or the ivy itself; or drinking the milk of a cow that has been fed on poison ivy.

Doses that have been taken internally after the poison has its work in include tinctures or fluid extracts of sweet fern, snakeroot, pasque flower, aconite, spice bush, hura, poison sumach, pipsissewa, yellow jassamine, belladonna and bryony. Other remedies on the list are strong coffee, morphine, quinine, Fowler's solution, sweet spirit of nitre, tincture of iron, sulphur, calomel and Epsom salts. Mr. McAtee lists seventy tinctures, infusions or poultices contributed by the plant kingdom; ten acids, forty-four salts of various elements and eleven emollients. To read the roll is to think that poison ivy victims have sampled everything on the drug store shelf.

Some witnesses declare that the poison can best be cured with poison from the sting of the honey bee. Others advise sepia, a preparation from the ink of cuttlefish, or the flesh and juices of the great spider crab. It is on record that before the Civil War a young slave in Virginia was so badly poisoned that he sold for only $300; his new owner cured him with five cents worth of copper sulphate.

A score of bathing processes have been suggested. One traveller reported that he was cured by a plunge into the hot lake at Mammoth Hot Springs, Yellowstone Park. A man declared that the only reliable salve was obtained by burning old rags on a rusty hatchet and collecting the "dew," this to be applied to the affected skin. A common remedy, and one which is nearly always to be had quickly, is a hard brushing of the poisoned part with yellow soap and hot water. A Brooklyn doctor wrote to Mr. McAtee that he had tried more than a hundred remedies "from let it alone to sour buttermilk." And he added, "both are excellent."

It is an unreliable poison. The so-called immunity from it is not always to be trusted. Mr. McAtee reports the case of a man who used to eat the stems and chew the leaves with impunity, but he was badly poisoned when a vine fell on his face. A young lady who wished to commit suicide ate an apron full of poison ivy leaves and they had not the slightest effect upon her.

Such a variety of testimony leads the reader to think that ivy poison is, as General Hancock said of the tariff, a local issue.—The Sun and New York Herald.

A Field Mouse.

BY GRACE SWOBODA, GRADE 5, WEST MAIN STREET SCHOOL, MERIDEN, CONNECTICUT.

One afternoon when I was sliding down a hill near the cannon in the park I saw a field mouse under a boy's sled. I said, "Look what is under your sled." He looked and tried to catch him, but he ran to his nest in the Christmas tree. His nest was made of hay and leaves. He was brown with a little black on his back. About one hour afterward I went up there again. He had dug a hole about one foot long in the snow. He was looking for something to eat. I didn't have any crumbs with me then so I couldn't give him anything to eat. The next day I went up there again with some crackers. What do you think? He was gone! I looked in his nest and he wasn't there, so I looked in some bushes near his nest, but he wasn't there either, so I think that he must have died of hunger the night before!

Amid a Bosky Dell.

BY CHARLES NEVERS HOLMES, NEWTON, MASS.

There's a dear little dell
  Near a drear lonely fell,
Where a silvery rill
  Trickles down from a hill,
And the pines seem as high
  As the clouds in the sky.

'Tis a cool, cheerful glade,
  Somewhat sombre with shade,
Where the singing of bird
  In the stillness is heard,
And a lingering breeze
  Softly sighs through the trees.

It's a wilderness glen
  Far from riotous men,
Where at times flits the bee
  To a sweet clovered lea,
And a stray butterfly
  Flutters leisurely by.

Oh, that dear little dale,
  O that cool, cheerful vale,
Where a silvery rill
  Trickles down from a hill,
And the pines seem as high
  As the clouds in the sky!

The Sacrificial Fields.

How appealing are the flowering fields,
  Before their sacrifice!
'Tis sad to think, in lands so free,
  Their beauty hath a price!

But though the graceful heads lie low,
  That just now were so fair,
Their breath ascends as incense sweet,
  On the altar of the air.

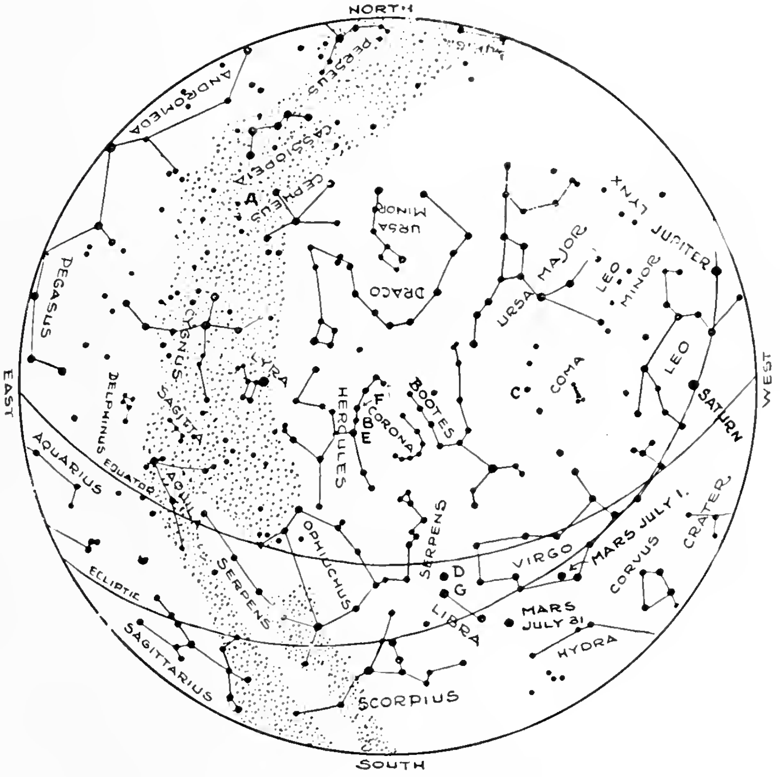
—Emma Peirce.

TO KNOW THE STARRY HEAVENS

The Heavens in July.

By Professor Eric Doolittle of the University of Pennsylvania.

IN this midsummer month the striking Scorpion, with its fiery red Antares, is found exactly on the meridian in the south. Almost overhead are the great groups, Hercules and Bootes, with the delicate little Northern Crown between them, while the Fall groups of Cygnus and Delphinus have risen well up from the ground in the east.


NORTH
PERSEUS
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A
URSA MINOR
DRACO
LYNX
JUPITER
URSA MAJOR
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PEGASUS
CYGNUS
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CORONA
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COMA
LEO
SATURN
EAST
WEST
DELPHINUS
SAGITTA
AQUARIUS
EQUATOR
AQUILA
OPHIUCHUS
SERPENS
SERPENS
D
G
VIRGO
MARS JULY 1.
CRATER
CORVUS
ECLIPTIC
LIBRA
MARS JULY 31
HYDRA
SAGITTARIUS
SCORPIUS
SOUTH

FIGURE 1. THE CONSTELLATIONS AT 9 P. M., JULY 1.
(If facing south, hold the map upright. If facing east, hold East below. If facing west, hold West below. If facing north, hold the map inverted.)

The observer can now trace out Serpens and Ophiuchus, the very extended, though rather faint, groups of the Serpent and the Serpent Holder, and the whole eastern borders of these constellations, and the whole summer branch of the Milky Way, from Sagittarius to Cepheus, will well repay examination with a small telescope.

In short, the whole summer sky, though so much fainter, will be found no less interesting than that of Winter. Having traced out many or all of the brighter constellations, with the help of Figure 1, the observer may select any region of the heavens for exploration and study, confident that he will find much of interest in any part. But for this work he should have a good star atlas, which will show him the location of innumerable colored, double and variable stars, as well as the brighter star clusters, nebulas and star clouds.

* * * * *

The Planets in July.

Mercury is so far north of the equator and its eastern elongation, which occurred on June 29, was so great that it may still be seen for many evenings during the first part of July. It should be looked for low in the northwest, just after sunset. In the telescope it will be seen to be very rapidly narrowing to a crescent, as it approaches the sun's rays. It will enter the morning sky on July 26.

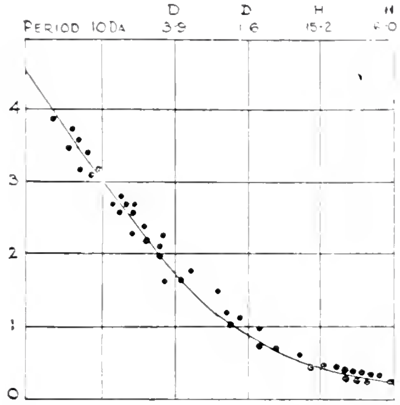


Figure 2. Relations between absolute brightness and period in Cepheid variables.

Venus enters the evening sky on July 3, but it will be much too close to the sun to be observed during the present month. It will, however, steadily withdraw from the sun's rays and by the end of the year it will set more than three hours after sunset. It will then be a very conspicuous object in the western sky.

Mars during the month will move out of Virgo and into Libra. It may be seen approaching the interesting, golden, double star at H, but it will not pass this star until August 9. As the distance of Mars is steadily increasing, it will lose one-third of its brightness during the month. A very interesting occultation of the Red Planet will occur at 1 A. M. on July 23, but this will, unfortunately, be invisible throughout the United States, as Mars will have set by this time.

Jupiter is midway between Leo and Cancer, but it is now so low in the west that it can be viewed for but a few hours after sunset. On August 22 it becomes a morning star. There are but four phenomena of its satellites which can be seen during the present month, as follows: On July 5, 9 hours 2 minutes, the second satellite will enter upon a transit; on July 12, at 8 hours 26 minutes, the first satellite will emerge from transit; on July 18, at 8 hours 18 minutes, the third satellite will disappear behind the planet, and on July 19, at 8 hours 10 minutes, the first satellite will enter upon a transit. (All times are Eastern standard time.)

Saturn is near the center of the constellation Leo, still in excellent position for observation in the early evening. We now see its rings so nearly edgewise that they appear very narrow in the telescope, and their width will diminish one-quarter during the present month. They will not, however, entirely disappear until next November. At that time Saturn will be a morning star.

On July 4, at 7 hours 10 minutes A. M. (Eastern standard time), the earth will be at its greatest distance from the sun. It will then be 3,230,000 miles farther away than when it was nearest the sun on last January 3.

* * * * *

The Spherical Clusters of Stars.

If the observer will look in the constellation Hercules, now almost overhead, he will see, in a straight line between the stars E and F, a little misty patch of light. Even a very small telescope will show this to be an almost perfectly round little ball of stars packed closely together, though to show the cluster in all its beauty a very large glass is required. When photographs of it are taken with the largest telescopes, no less than 80,000 stars can be counted on the plates

A similar, perfectly round cluster may be found in the constellation of the Hunting Dogs, in the position C, of Figure 1, and another is at D, just above the greenish star, G, of the Balance. Altogether, eighty-six spherical clusters are now known. They are most beautiful and remarkable objects in the telescope, but the discovery of their true nature and of their positions in space and distances from us has only very recently been made. All of these things are now known, at least approximately, and it is the, at first, almost startling results of the long investigations that have attracted the attention and interest of astronomers.

In the first place, it may be said that no spherical cluster is so near us that any of its stars suffer any measurable displacement as we pursue our yearly path about the sun. Our position in space changes 186,000,000 miles during each six months, as we go around the sun, but if a heavenly body is so far away that its light occupies more than one hundred and fifty years in coming to us, its displacement owing to this change of position is too small to be measured, even in our largest telescopes. In fact at this distance away, a star will be displaced in a little "Parallactic Orbit," the distance across which is almost exactly the same as the thickness of the finest spider thread.

Since, therefore, we can detect no displacement of the stars of a spherical cluster directly, we must have recourse to indirect methods of finding their distances from us. One of the most reliable of all methods is by a study of the variable stars which many of the clusters contain. No less than twenty-five years ago, 132 of these variable stars were found in the cluster at C, 85 were discovered in the cluster at D, while 122 were found in a cluster in Centaurus. This last is the largest and finest cluster of the entire heavens, but it is not visible from the United States. Some of the clusters contain but very few or no variable stars at all; the cluster at B, for example, has but seven.

Many of these variable stars belong to a type known as Delta Cepheid variables, because the typical variable star of this kind, discovered two hundred and forty years ago, is the fourth brightest star of the constellation Cepheus. This star will be found at A, Figure 1. Its light at a perfectly regular interval increases quite suddenly to three times its usual amount and then it fades away somewhat more slowly. The intervals between the greatest brightness of the stars of a cluster range from ten to fourteen hours, the average period being a little more than twelve hours. It is believed that a Cepheid variable is a pulsating star, and that it is its periodic change in shape that causes its outbursts of light.

It is remarkable that there has been established a definite connection between the absolute brightness of a Cepheid variable and its period of variation. This connection is shown in Figure 2, which is a curve based upon more than two hundred and thirty variables. Thus we see that the longer the period is the greater is the absolute brightness of the star. If the period is twelve hours, the star when placed at a unit's distance would appear of magnitude—0.3, which is about eighty times the brightness of our sun. If the period is ten days, however, the magnitude will be—3.0; that is, the absolute brightness would be about ten times as great as in the other case.

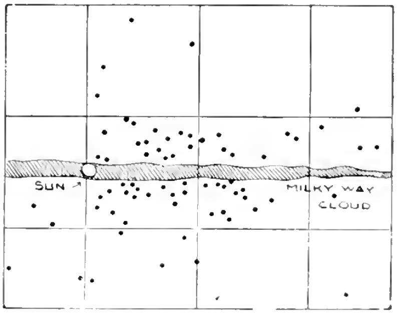


Figure 3. Showing the situation of the spherical clusters with reference to our Milky Way cloud of stars.

Thus we can find the absolute brightness of a star when we know its period. That these stars in the spherical clusters appear to us so very faint must be because they are so very far away from us. Thus, the average apparent brightness of the stars in the cluster in Centaurus is 12.3, while that of the stars in the cluster at C is 14.0. Evidently, the stars of the first cluster appear to us about six times as bright as those of the second because they are so much nearer to us.

In this way (and by several other methods, which we have not space to describe), the absolute distances of the spherical clusters are found. The results by all different methods are in excellent agreement. They all concur in showing that these clusters are entirely outside of our Milky Way cloud of stars, the nearest of all being the cluster in Centaurus, whose light requires 21,300 years to come to us. The most distant of all so far discovered is so far away that even in the largest telescopes it appears only as a nebulous star; its true nature was not discovered until 1912. The distance of this cluster is about 200,000 light years.

Figure 3, from a drawing by Harlow Shapley of the Mount Wilson Solar Observatory, shows a section of our greatly extended, but very much flattened, Milky Way cloud, with the positions of the spherical clusters projected on the plane of this section. Every cluster is so very far away that we see only its brightest stars. Thus, in the cluster at C, Figure 1, the average brightness of the stars which we see is one hundred times that of our sun. Our own sun, were it removed to this cluster, would appear to us of magnitude 21.5, and would not appear on any photograph; Sirius, the greater Dog Star, would appear of magnitude 17.5 and would be just visible.

Moreover, the stars in any spherical cluster are very much crowded together. Within a sphere so large that it includes twenty stars in the vicinity of our sun, there are no less than 15,000 stars in the cluster at C. These are, indeed, marvelous aggregations of stars. Apparently it is only in empty space that the stars of an irregular cloud can, as the ages go by, arrange themselves in a perfectly spherical form. Within our Milky Way cloud, the disturbing pull of innumerable other suns would make this impossible. It is, therefore, not surprising that although the spherical clusters are found upon the borders of our universe of stars, none are found within it.

We sometimes think that people who hear the Bible all the time get into the state of mind where they are not responsive to it, just as a farmer, who is out in the open all the time and works in the fields and sees all sorts of growing things, is not awakened by the sight of an apple tree in bloom or a field of waving grain, but a man who spends his days on paved streets finds that such sights tap a hidden reservoir of poetry and beauty in his soul.—The Chesterfieldian.

What Profiteth It?

[Excerpt from an editorial in The Chesterfieldian.]

And the majority of us do not even understand the very mechanical things that are supposed to serve us. How much of the principle that underlies the operation of an elevated railroad does the little shop girl who daily travels on it to and from her work understand? She knows no more of its real working than did the Indian woman of two centuries ago who spent her life scraping skins and weaving baskets.

A great many of us who had been in a habit of congratulating ourselves upon our civilization were quite jarred out of our complacency by the Great War. For we saw that centuries of so-called civilization not only had not abolished war but had not made it less terrible or even essentially different.

And in our intellectual life, it seems as if the intellectual of today is no further advanced than the intellectual of centuries ago. Amid all this so-called civilization it seems that the soul withers rather than grows. It is virtually impossible for a man to do his work and live his life in a quiet, rational, kindly manner. He must organize his work into a business and rush pell-mell into competition with someone else. He must scheme and fight; he must forget the principles of humanity; he must give himself no time to think of anything but business; and finally, he, himself, must become, among his other victims, a victim to that same mad pursuit. And nations do exactly the same thing in their mammoth commercial competition.

It appears to us that real civilization must be a thing of the soul, rather than of mere mechanical contrivances and systems outside of a man's own soul, and until we understand that we shall never progress very far. Until we do, we may keep right on going through life, fighting, grasping, wounding others and being wounded ourselves, without ever having time to see or enjoy the real beauties and truths in the world about us and in our own souls.

And until then we may still inquire of ourselves, "What profiteth it man if he gain the whole world yet lose his own soul?"

THE AGASSIZ ASSOCIATION

Established 1875 Incorporated, Massachusetts, 1892 Incorporated, Connecticut, 1910

Greenwich Academy Junior Chapter.

Our junior Greenwich Academy Chapter of The Agassiz Association, of Greenwich, Connecticut, has reorganized, electing the following officers: President, Ruth Quackenbush; Vice-President, Virginia Day; Secretary and Treasurer, Margaret Edwards.

The report is accompanied by letters telling of interesting observations. From these letters we have selected the following, which seems to be the best.

A Spring Walk.

BY CONSTANTINE EUGENIE JOHNSTON.

One day my father took me for a walk. He first showed me where a tree had been cut down. It had gotten wet in some places, and the borer had made little holes in the wet wood. You could see where the woodpecker had pecked through the bark and gotten a little worm.

Father also showed me how to find out how the tree fell. You can tell how by looking to see which side has most bushes broken.

Then we walked on and father saw a hole on the side of the hill by a brook. I think it was a woodchuck's hole. I saw where the woodchuck had made a little path along the bank.

The woodchuck's hole is among the rocks. He builds it there because no animal can dig between the rocks, and besides when the woodchuck's hole is on a hill and the water comes rushing down the hillside it will rush in and wet the woodchuck's hole. But when the house is in the rocks the water will drain out between the cracks.

Farther on in our walk we saw some little field sparrows hopping about in the bushes. Field sparrows and most of the sparrow family are brown.

A glint cerulean, as we pass,
Reveals the peeping blue-eyed grass.
—Emma Peirce.

Financial Report of The Agassiz Association, Inc.,

ArcAdiA: Sound Beach, Connecticut.

(Accepted by the Board of Trustees at the Annual Meeting on Agassiz's Birthday, May 28th, 1920.)

Summary—Cash Received.

April 1, 1919, to March 31, 1920, inclusive.

From The Guide to Nature	$4,670.50
From Contributions to Little Japan	1,136.14
From Members' Dues, Contributions, etc.	877.86
Total	$6,684.50

Summary—Cash Paid.

April 1, 1919, to March 31, 1920, Inclusive

For The Guide to Nature	$3,286.15
For Little Japan	2,176.32
For General Expenses and Improvements	1,222.03
Total	$6,684.50

(See Postscript.)

The above is a correct summary of cash received and paid from April 1, 1919, to March 31, 1920, inclusive.

(Signed) Edward F. Bigelow, *President.*
Sound Beach, Connecticut.

Subscribed and sworn to before me this 22nd day of April, 1920.

(Signed) Harry C. Frost,
Notary Public.

Auditors' Statements.

Stamford, Connecticut.

This is to certify that I have examined the details of which the foregoing is a summary and find all to be correct.

(Signed) Clinton R. Fisher,
Auditor for the Public.

Subscribed and sworn to before me this 3rd day of May, 1920.

(Signed) C. E. Thompson,
Notary Public.

* * * * *

I have examined the books of record of The Agassiz Association for the year ending March 31, 1920, and find them well kept. The expenditures seem to have been made advantageously and to the best interests of the Association.

(Signed) Hiram E. Deats,
Member of Board of Trustees.
Address: Flemington, New Jersey.

May 28, 1920.

* * * * *

Postscript: The excess of "received" for The Guide to Nature over the "paid" is not due to profit but to two factors: (1) transfer of a magazine account ($240) to Little Japan account and (2) holding up payment of magazine expenses to pay longer over-due accounts of Little Japan in lack of contributions for that purpose.

The Bigelow family consists of four workers (manager, secretary, stenographer and bookkeeper, proof reader), in behalf of The Agassiz Association. Some devote much of their time, others nearly all of their time to the work of publication, correspondence and telephone information, care of premises, entertainment and instruction of students and many parties, large and small, of visitors, some for a brief time, others for the entire day or more. For their services in 1919, the entire family received $570.06.

Can You See?

BY THE EDITOR OF "LEPIDOPTERA."

Of course you can see! Even though you are shortsighted or cross-eyed you still have sufficient vision to recognize your friends, to read the paper, to add a column of figures, or to drive your automobile. *But how much can you see?* Are you blind when you enter any fields other than those through which your daily rut leads you?

The average person today can recognize the make of an automobile going by at forty per; but he only knows the dandelion because he digs it out of his lawn, and the violet because they cost him five dollars a bunch. He can quote you the market price of five Liberty Bonds and twenty-five other securities; but he only knows the sparrow, the crow and the hen. He reads the latest novels and attends the nearest "movie"; but he never heard of the "Book of Nature" or witnessed the "Birth of a Butterfly." He can see a pretty girl half a block away; but he only knows one way to recognize a skunk and then it is too late. His knowledge of minerals is limited to the diamond he must buy, the coal he must burn, and the granite slab he must ultimately rest beneath. The average man is defunct as regards any knowledge of Nature. Here is your opportunity—you collectors!

The next time you take a trip ask one of your average-man friends to go with you. Don't tell him why or he will name a new species of "nut" and refuse to go. Just take him along and talk money, music, books, business or whatever he wants. But between sentences call his attention to the peculiar spot on that tree just ahead. He probably won't see it until he gets so close that the frightened spot takes flight and discloses a brilliant pair of hindwings. After this he will be interested enough to be fooled by every patch of moss or wad of pitch or bunch of gypsy eggs. When you reach a stone wall show him that little pointed brown head sticking around the corner of a rock. It will be the first chipmunk he ever saw that wasn't stuffed. After climbing the wall turn over one of the stones and see the ants and termites running around. Then pull down a branch of an oak tree and look for the little tunnels of the leaf-miner moths, made by caterpillars so small that they cannot be seen by the naked eye. Walk a little deeper into the woods and pick some ladies' slippers. He will appreciate these because they don't cost him twelve dollars a pair. Now proceed toward that hammering noise and find a red-headed or downy woodpecker relieving some tree of its pests. Finally plunge into some dense thicket and discover a little brown house full of naked, open-mouthed babies waiting for their parents and a juicy worm.

By this time your guest has forgotten about business and is asking you questions which you cannot answer. On the way home he will wear his eyes out trying to look everywhere at once. Next week you won't have to urge him to accompany you and the week after that he will be asking you to take him or else going alone. You have opened a man's eyes, broadened his field, and entered unheard-of riches in his life account, for—

"He who knows the most, he who knows what sweets and virtues are in the ground, the waters, the plants, the heavens, and how to come at these enchantments, is the rich and royal man." —Emerson.

The Point of View.

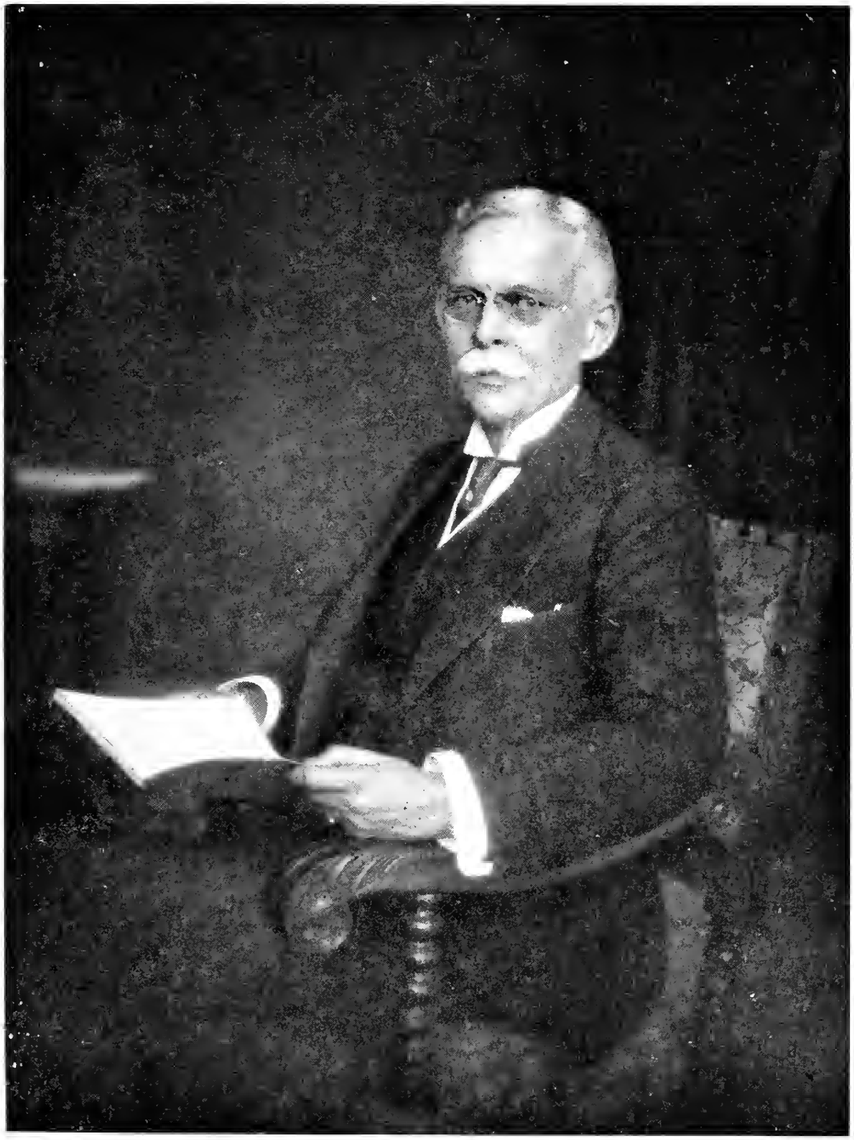
A mission worker, says Harper's Magazine, deprecating the way some people talk of "the drab lives of the poor," tells of some East Side girls who were taken to a beautiful Westchester County country home to spend a summer day. As they were leaving, their hostess told them how much she had enjoyed their visit, whereupon one of the girls replied:

"I guess we have cheered you up a little; it must be awful dull for you up here."—The Youth's Companion.

LITERARY NOTICES

A GOLDEN AGE OF AUTHORS. A Publisher's Recollection. By William Webster Ellsworth. With Illustrations. Boston, Massachusetts: Houghton Mifflin Company.

We hail with delight this genuine book out of the heart and extended experience of its talented author. Mr. Ellsworth occupied a prominent position as Secretary of The Century Company, New York City, in the days when there was literally a golden age of authors, when such as Gilder, Holland, Drake, Mitchell, Mark Twain and George Kennan were producing delightful literature. He is therefore well equipped to produce a charming



WILLIAM WEBSTER ELLSWORTH.
Publisher, Author, Lecturer and Royal Good Fellow.

book of reminiscences. He makes known to the literary public many things from the publisher's point of view that are especially enjoyable. The statements are written without straining for effect, but as simply as if the writer were speaking to the reader, a fact that makes them all the more valuable and pleasing. Along the same and similar lines Mr. Ellsworth is delivering lectures to delighted audiences in all parts of the country. We recommend our readers to send to Houghton Mifflin Company for a copy of the book or to order it through a bookseller. For further particulars as to lectures address Mr. Ellsworth at The Century Club, 7 West Forty-third Street, New York City.

THE CHILDREN'S LIFE OF THE BEE. By Maurice Maeterlinck. Selected and Arranged by Alfred Sutro and Herschel Williams. Illustrated by Edward J. Detmold. New York City: Dodd, Mead and Company.

Bees are among the most interesting of all insects, and undoubtedly Maurice Maeterlinck is one of the most interesting writers on these interesting insects, which appeal especially to children. We therefore welcome this wonderful nature book which follows the thought, and in many cases repeats the language, of one of the foremost literary men of the present day. The colored illustrations are beautiful.

A LITTLE GATEWAY TO SCIENCE. Hexapod Stories by Edith M. Patch, with illustrations by Robert J. Sim. Atlantic Monthly Press, Boston, 1920, pages 1 to 178. Price: school edition, $ .90; Library edition, $1.25.

We have in this little volume a collection of most interesting stories told in a charming manner by one possessing an intimate acquaintance with insect life and therefore unwilling to sacrifice fidelity to increase the "story" value of the tales. There is no reason why some of the most attractive features regarding the abounding life all about us should not be put in simple language for the delight of the children and even the instruction of their elders.

This little work should fill a great need in supplying children with desirable summer reading and it may be employed to great advantage as a supplementary reader for primary grades in both public and private schools. Through this volume and others like it, our children may be led into an appreciation and sympathy with nature that will be of utmost value in later years.—E. P. Felt.

WHAT BIRD IS THAT? A Pocket Museum of the Land Birds of the Eastern United States, Arranged According to Season. By Frank M. Chapman, Curator of Birds in the American Museum of Natural History and Editor of "Bird-Lore." New York City: D. Appleton and Company.

Here is a new kind of bird book. It not only shows the color and chief markings of each bird but also shows whether a bird is *large or small*. Moreover, by means of group pictures, it shows all the birds arranged *according to season*. With these two features to aid one, the identification of the various birds is easy, even for the beginner.

This book, by the great authority, Frank M. Chapman, is a complete guide. Every land bird east of the Rocky Mountains (301 species in all) is pictured. To accompany these pictures Dr. Chapman has written text describing the distinguishing marks, range, nest, eggs and song of each bird, and the localities where and seasons when it may be found. Every person who has ever wanted to know the birds should have this book. It is the simplest and most authoritative of bird books for the amateur.

The Meadow Brook.

BY CHARLES NEVERS HOLMES, NEWTON, MASS.

Where daisies bask in the sunshine bright
And buttercups glow with saffron light,
Where bees are buzzing all summer day
And butterflies flit on pinions gay,
Where birds sing blithely their melody
Amongst the boughs of a willow tree,
A meadow brook—never resting—flows
Until earth is white with wintry snows.

'Mid grassy banks runs this shallow stream,
So clear and cool, with its sparkling gleam,
And murmurs low like a lullaby
At eventide when the fleet bats fly,
When crickets chant on a cloudless night
And full moon shines like a pearl of light.

A Bouquet of Scents.

Such a charming bouquet of scents
On our motor ride today!
First it was sweet wild roses,
Then 'twas the new-mown hay.

We entered a twilit wood,
Where ferns most congregate,
Whose aroma fills the air
Be the season early or late:

And the nectar of the pines
With the sun on their needles fine,
Was beguiling to the sense,—
Was better than quaff of wine.

Some fields of blossoming clover
Were offering their best,
And a winding lane of alders
Vying with all the rest.

Now and again a sawmill
Would come into our view;
And the air be redolent
Of the odor of lumber new.

At last we approached the sea,
Where, aside from the glorious view,
Its tonic, briny breath
Would our very life renew.

—Emma Peirce.

Explaining the Early Bird.

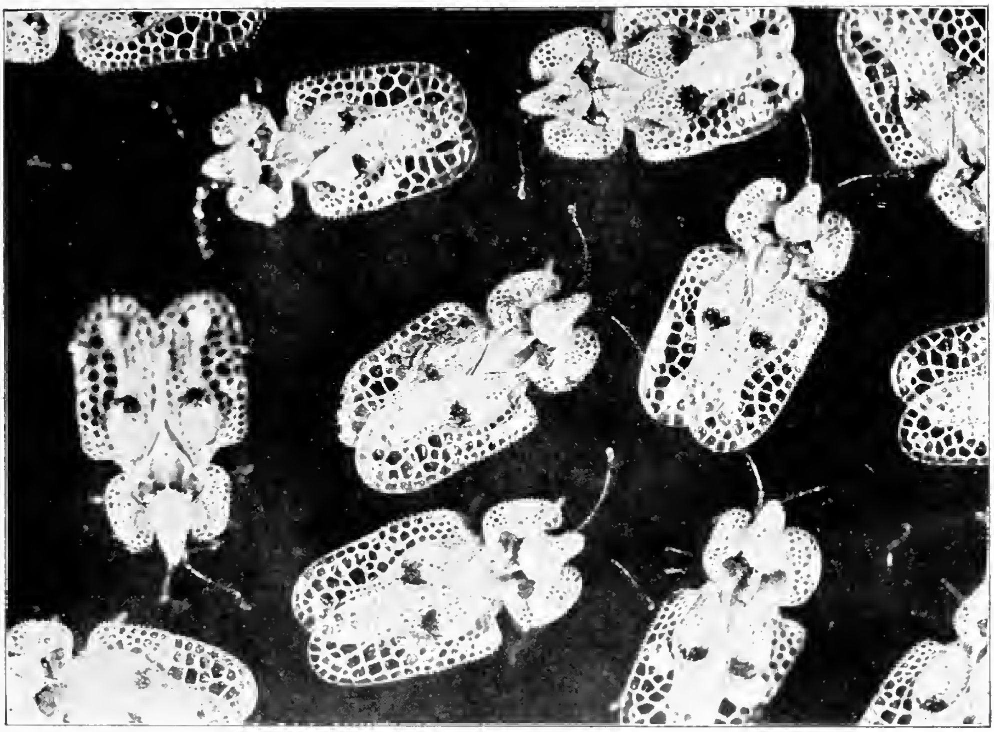
First Bird—"Didn't you come north unusually soon?"

Second Bird—"Yes, I heard nests are going to be awfully scarce."—New York Sun.

Elderberry.

Great creamy masses line the way
As through the countryside we go;
It lends a freshness to the day,
When we can see this summer snow.

—EMMA PEIRCE.



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Frequently found under the bark of sycamores.

How Boy Scouts Study Nature.

First Class Scout: Once we had a very thoughtful hike.

Tenderfoot: What was it, a nature study hike?

First Class Scout: No, we were thinking of going on one when something happened that prevented us from going, so all we did was think about it. —Boy's Life for June.

A Letter Writer in His Youth!

A saleman was traveling a country road when suddenly he saw a house burning. Running up, he pounded on the door lustily, till an old woman opened it.

"Madam, your house is on fire!" he exclaimed.

"Eh?"

"I say your house is on fire!"

She put her hand to her ear and leaned toward him. "What?"

"Your house is burning up!" he roared.

"Oh! Is that all?"

"That's all I can think of just now, madam." he gasped.—The American Legion Weekly.

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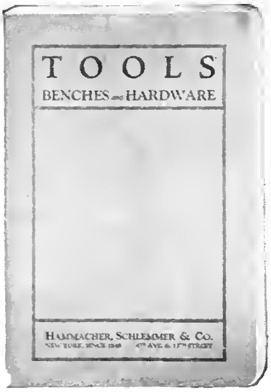
And as to you Life, I reckon you are the
leavings of many deaths;
(No doubt I have died myself ten thousand
times before.)

—Walt Whitman.



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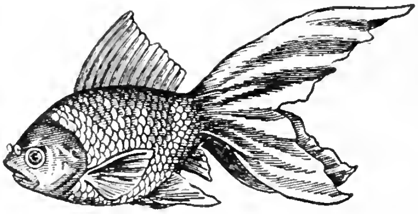

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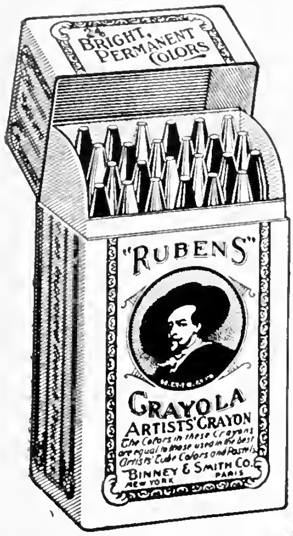
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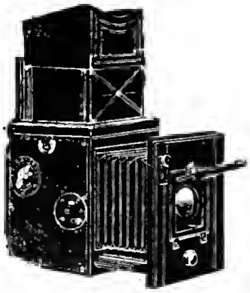

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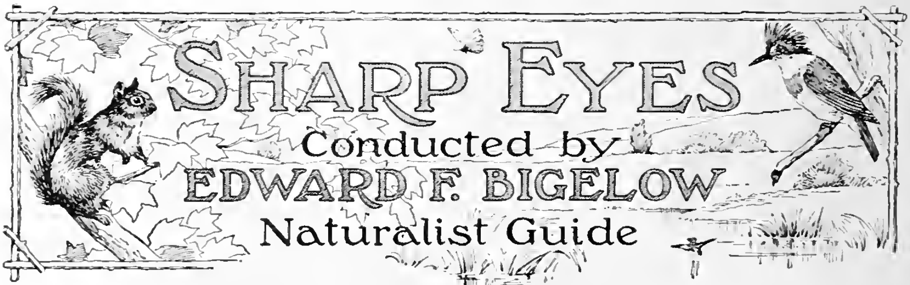

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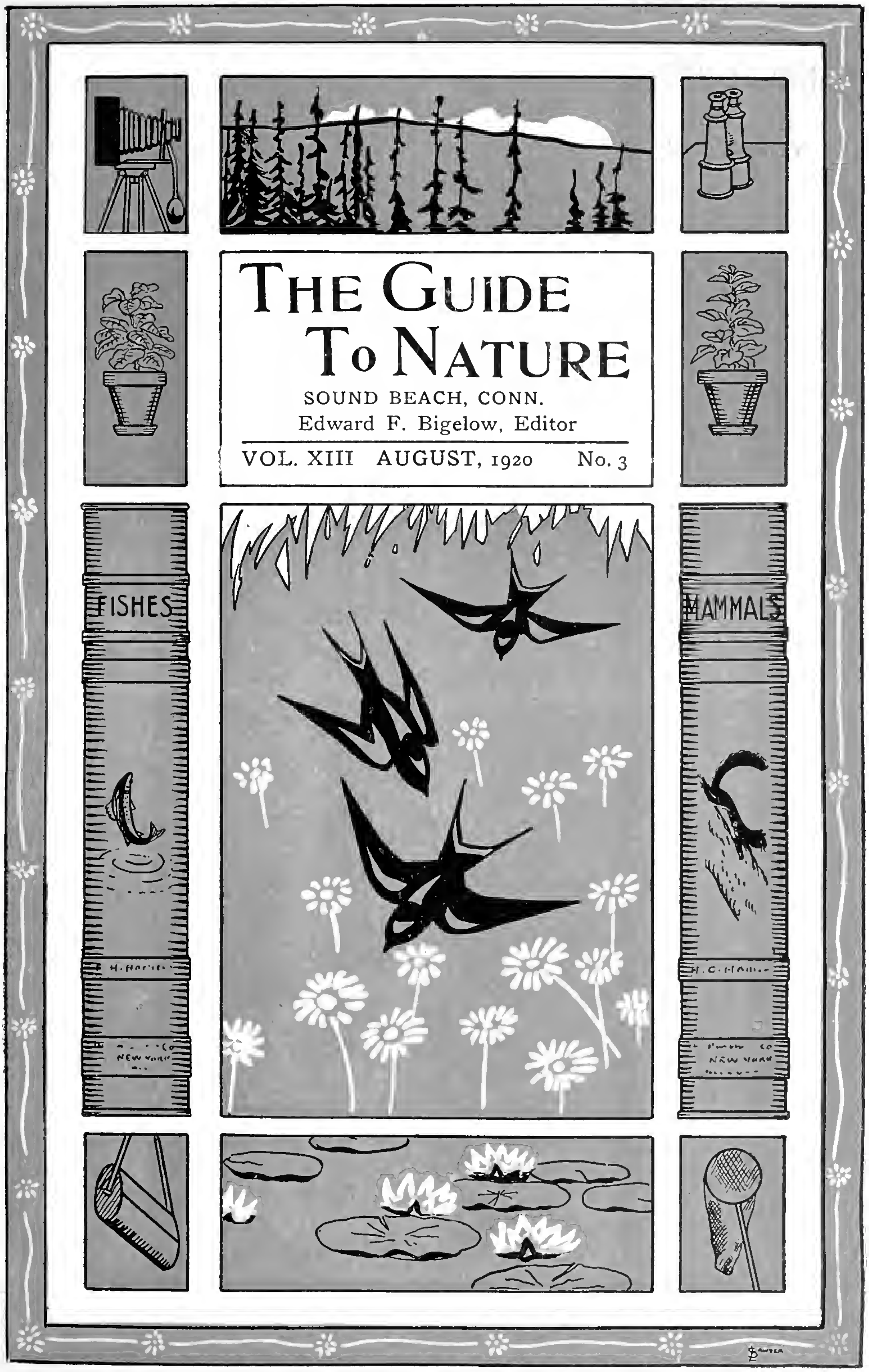
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THE GUIDE TO NATURE

SOUND BEACH, CONN.
Edward F. Bigelow, Editor

VOL. XIII AUGUST, 1920 No. 3

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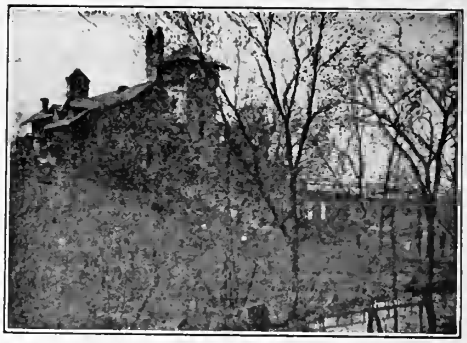

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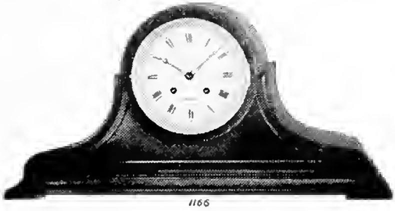

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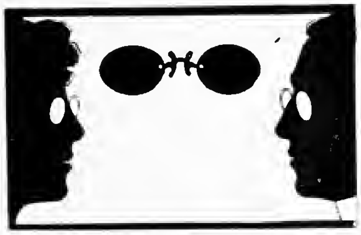

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Are many miracles begun;
They wait us in the early morn,
In dewy freshness, one by one,
When star-worlds pale before the dawn.
—Emma Peirce.

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The Origin of Things.

"Daddy," asked a mite of eight summers, "God makes us do the good things, doesn't he?"

"Yes," replied the father.

"And Satan makes us do the naughty things?"

Again, yes.

"Well, who makes us do all the funny ones?"—London Post.

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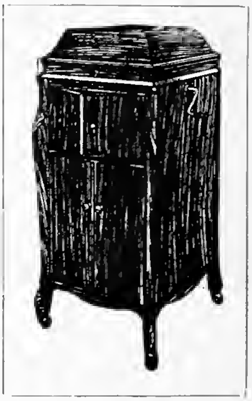

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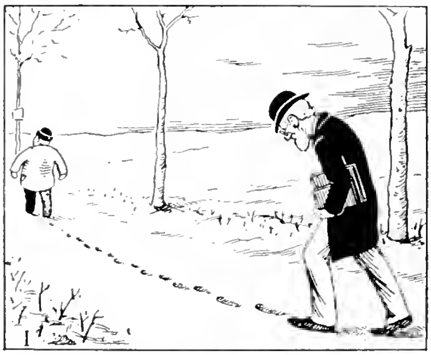
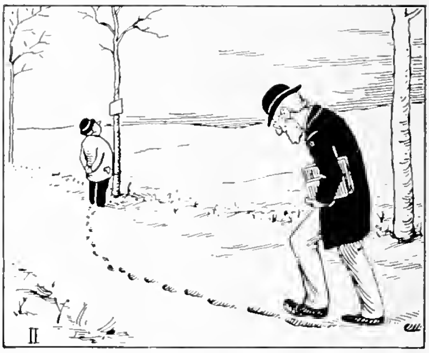
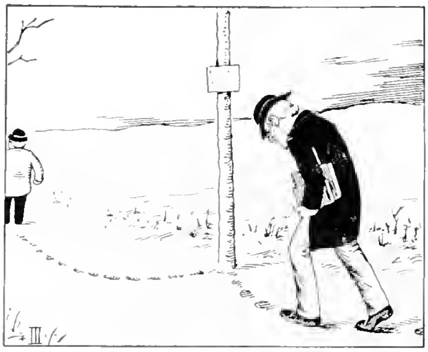


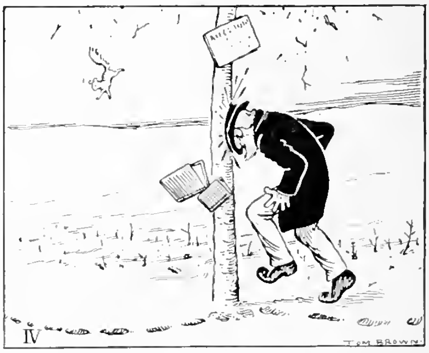
Who Walketh Unheeding



Where Other Men Tread



May Find That Much Reading



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"Well, I hope I am."—N. Y. Globe.

The Emptiness of a Vacuum.

Judge—"Have you anything to offer the Court before sentence is passed on you?"

Prisoner—"No, your Honor; my lawyer took my last dollar."—Boston Transcript.

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It will be necessary to select early when you find what you want in order to secure it. Prices will not be lower this Fall, but good merchandise will be hard to duplicate.

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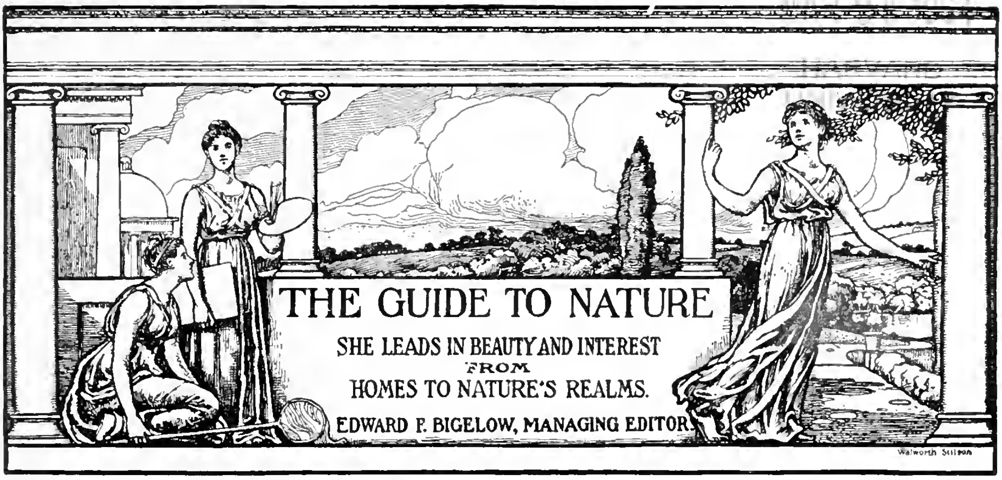

THE GUIDE TO NATURE
SHE LEADS IN BEAUTY AND INTEREST
FROM
HOMES TO NATURE'S REALMS.
EDWARD F. BIGELOW, MANAGING EDITOR

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Volume XIII. AUGUST, 1920 Number 3

AUGUST.

By Ruth Elizabeth Kelly, Valley City, North Dakota.

In August the tide of the year has turned; Summer wanes and Autumn begins to creep in with pausing footsteps, stooping here and there to wield her paintbrush. Already royal colors glow in the purple of the thistles, in the golden spires of the evening primrose, in the tall joe-pye weed of the swamps, in the sturdy ironweed. Everywhere is the dull white of Queen Anne's lace, as background. In waste places, early goldenrod spreads abroad its lavish wealth. Glints of dark blue show where the great lobelia's long-continuing spire stands guard over creeks in company with the cardinal flower, which is unrivalled for brilliancy. Deep reds are seen in blackberry vines, and bright reds in sumac seeds. Of the June flowers black-eyed Susans still bloom in sunny stretches, and bouncing Betty still gives us its pink beauty. The fragrance of their leaves attracts us to the peppermint and to the spearmint.

Roadsides are rank with tall weeds, with rifts of yarrow and of mullen stalks, milkweeds going to seed, sweet clover and self-heal. White snakeroot leads us into the woods. Here are pyrola, pipsissewa and downy false foxglove glimmering like a candle, the early white asters and, along the roadsides, tick trefoil and dittany. Deep in the shades are the tall cathedral spires of black snakeroot and the starry campion. Boneset shows us where there is water. Here we find great tall flowers of rich color, embroidering swamps in opaline hues. Among the berries are those of jack-in-the-pulpit, brilliantly red, and of the red baneberry.

August mornings are dewy; everywhere are cobwebs heavy with dewdrops which outline them as with jewels. The hot sun soon dispels them and dries the grass.

Great white clouds sweep across the sky, chasing shadows over the bright landscape. The sun sets clear and red, followed by a pink-and-lavender sky. The air resounds with insect life. All day we hear the locust's trill; in the evening, the cricket and the katydid. Night moths, the sphinxes, hover over the four-o'clocks and other night-insect attracting flowers.

Bird life is silent, except for the goldfinch, which is now building its nest of the thistledown, and the indigo bunting and the scarlet tanager, the only birds that sing in hot weather. Oc-

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casionally chirps and calls are heard from our nesting birds, those that sang so sweetly in the springtime.

Occasionally August afternoons are swept by heavy thunderstorms, but after the storm the atmosphere is delightfully fresh. Some days the air is redolent with the odor of smoke from forest fires, brought by the western breezes from western forests. Then a soft haze lies over the landscape.

Thus the dreamy Summer days pass by, slowly lengthening into Autumn days. August is the fruitful month, when all things are matured, ready for the fatal frosts that are just around the corner.

Bird Houses in the Parkway Reservation.

BY BRONX PARKWAY COMMISSION, BRONXVILLE, NEW YORK.

Through the generosity of a bird lover, who prefers to remain anonymous, cash prizes have been offered to public schools along the Bronx River Parkway Reservation, and have resulted in the production of about seven hundred bird houses, which have been installed in trees on the Reservation.

BRONX PUBLIC SCHOOL CLASS WITH BIRD HOUSES BUILT IN BRONX RIVER PARKWAY COMPETITION.

Competitions were held in about twelve schools adjacent to the Reservation, and prizes of five dollars, three dollars and two dollars were offered in each school for the best built bird house. The manual training teachers, who acted as judges, took into consideration meritorious design as well as construction. Girls as well as boys competed and produced creditable work.

The Bronx River Parkway Reservation extends from Bronx Park to Kensico Dam at Valhalla, and is being developed under the supervision of a State Commission, whose members are Madison Grant, representing the Borough of Manhattan, William W. Niles, representing the Borough of the Bronx, and Frank H. Bethell, representing Westchester County.

The Reservation follows the beautiful Bronx River Valley, which is well wooded in some sections and in open portions is being reforested with shrubs and trees. The Parkway Commission is carrying out a large amount of improvement work in deepening the Bronx River and forming small lakes for water sports. The banks of this beautiful river were formerly despoiled and given over to garbage dumps. Sewage and other pollution has now been entirely eliminated, and a naturalistic landscape development is being carried out.

Well watered and wooded, this valley provides cover for large numbers of our native birds. That it would form an ideal bird refuge was the idea of the donor of the prizes, a gentleman living near the reservation. The bird house building contestants were assured that their houses would all be installed in the Parkway, and this program was carried out. It was necessary to employ a motor truck to collect and carry the seven hundred houses that the competition brought forth.

The prizes were awarded with appropriate exercises at each school. One of the classes of a public school in Bronx Borough is shown in the accompanying illustration. The bird houses, attached to trees, are now used by wrens and other birds. In one instance a fight between robins and bluebirds for possession resulted in the bluebirds using the inside of the house and the robins building a nest on the roof.

Alaska Bounty Law Threatens to Annihilate the American Eagle.

FROM THE NEWS BUREAU, PUBLIC INFORMATION COMMITTEE, AMERICAN MUSEUM OF NATURAL HISTORY, NEW YORK CITY.

Much has been written in deprecation of the permitted extermination of the wild pigeon. Formerly found in almost incredible numbers in some parts of the United States, the species was utterly wiped out by unrestricted shooting and the destruction of its nests. And so rapid was the process of its extinction that the bird had vanished before the public realized its need of protection.

A similar fate now imminently threatens the "American" or bald eagle—our national emblem and one of the most beautiful and magnificent of our native birds. And by a curious irony, the destruction is being accomplished at public expense, as provided in the bounty law passed by the Territorial Legislature of Alaska on April 30, 1917.

The bald eagle has never been an abundant species. Estimates of its numbers have generally been greatly exaggerated. It is only on the basis of the occupied nests that its real numbers—or rather its real scarcity—can be estimated. Computations based on observations of the birds themselves are obviously unreliable. For, conspicuous by its size and habits, and by its preference for coast regions and large rivers over remote forests and mountains, it is very apt to attract considerable attention, and the same individuals are doubtless seen again and again. This will be realized in consideration of the bird's natural longevity and strong powers of flight, which make it possible for a single individual to be seen repeatedly over a period of many years and in widely separated places.

Up to the present time, the only region where the bald eagle has maintained encouraging numbers has been the coastal region and large river valleys of Alaska. Here it did breed in numbers surprisingly large for a bird of its size. But the Alaskan bounty law, which provides for the payment of fifty cents for each eagle destroyed, although it went into effect only on April 30, 1917, had already, by April 10, 1919, resulted in the killing of 5,600 eagles. Moreover, the bounty seekers have undoubtedly not confined their depredations to Alaskan territory, but have extended them into the British provinces adjoining Alaska, in order to swell their gains. It is possible that by this time more than one-half—perhaps more than three-quarters—of the

THE AMERICAN EAGLE.
Photograph by courtesy of the American Museum of Natural History.

entire species have already been sacrificed. If action is to be taken, it must be at once. For protection, to be effective, must come, not merely before the species has been annihilated, but before it has been so reduced as to suffer the weakening effect of inbreeding or the failure of the scattered individuals to find each other and raise young.

In view of all that is known by naturalists of the habits of this inoffensive bird, the hostility to the eagle in Alaska is based rather on misinformation and ignorant prejudice than on any real damage done by the birds. The tales of its ferocity and destructiveness to game or domestic animals are for the greater part pure fiction, for the rest, usually gross exaggerations. Moreover, it is the demonstrated policy of the United States Department of Agriculture—wise from experience—to discountenance bounty laws for the extermination of birds of prey. Much money is spent each year in the control of harmful rodents whose increase is favored by the destruction of such birds. For our "American" eagle there is the added plea of its patriotic significance. And finally, as it is a migratory bird, the right to destroy it cannot be claimed by any State or Territory. Like most of our other migratory birds, it should be protected by the Federal Government—particularly as the effect of the protective laws adopted for its preservation in most of our States is being annulled by the action of a single Territory.

The general indifference to the fate of the great bird of splendid tradition is due, beyond doubt, to the common lack of information regarding its threatened extinction. The situation calls for publicity of the widest. The sheer vandalism of the destruction of the bird should be checked, and checked at once. The crusade for its protection should enlist the enthusiasm and sincere effort of bird lovers and bird students throughout the country, of our scientific and patriotic societies, and of the public press. It is only by the prompt passage of a Federal law protecting the American eagle that our national bird can be saved from total extinction.

J. H. DAVIES,
Secretary, Publicity Committee.

THE UNIVERSAL LANGUAGE.

Kindness is a Language the Deaf Can Hear and the Dumb Can Understand.

As the children came trooping into a certain ward school one morning, the teacher noticed a strange boy among them. She bade him come to her, but he did not mind. Stepping down the aisle, she laid her hand upon his head and looked kindly into his big blue eyes. He smiled brightly and spoke in Swedish. He could not understand a word of English. She gave him a place at her desk, set him copies, and practised him on the most common words and phrases at every odd moment. He would try a hundred times on a hard word if she bade him to try; so, he was soon able to do work in class. One day when she had praised his progress, he said eagerly, his beautiful eyes shining with love, "Your goodness makes things easy for me."

What would have happened if she had punished him when he could not understand? The result would without doubt have been very different.

Can we not apply the little incident above to our relations with those around us who do not seem to understand? Especially the animals under our care and those with whom we come in touch, should we try to reach through the universal language of kindness; a language which is understood by man and animal as well. It is simply practicing the Golden Rule. Protect and defend the weak and helpless.

M. L. H.

Box 144, Copley Sq., Humane Education Bureau, Boston, Mass.

From My Window.

Across the gleaming bay
That toward the sunrise lay
  Two wooded hills their rounded contour lent
To grace a picture rare,
Where in the morning air,
  Soft opal tints were with the others blent.

Some stately near-by trees,
Faint stirred by early breeze,
  The framework made for all this loveliness,
And as we gazed anew
On this enchanting view,
  The earliest sunbeam came as a caress.

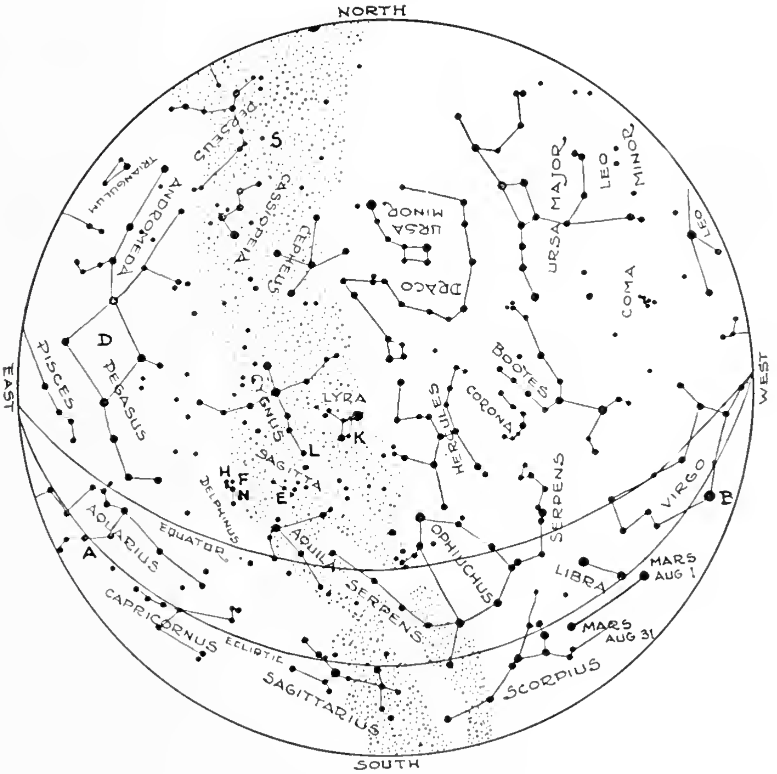
—Emma Peirce.

TO KNOW THE STARRY HEAVENS

The Heavens in **August.**

By Professor Eric Doolittle of the University of Pennsylvania.

THE principal change in our evening skies since last month is the appearance of the four bright stars which form the Great Square of Pegasus (at D, Figure 1), and this beautiful figure will remain with us until the end of the year. The summer branch of the Milky Way has risen so high in the east that it now passes almost through the zenith, and with its many star clouds and its long train of bright constellations will well repay study with a small telescope.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DRACO
URSA MAJOR
LEO MINOR
LEO
COMA
LEO
EAST
D
PISCES
PEGASUS
CYGNUS
LYRA
K
L
SAGITTA
H
F
N
E
DELPHINUS
BOOTES
CORONA
HERCULES
SERPENS
WEST
VIRGO
B
AQUARIUS
A
EQUATOR
AQUILA
SERPENS
OPHIUCHUS
LIBRA
MARS AUG 1
MARS AUG 31
CAPRICORNUS
ECLIPTIC
SAGITTARIUS
SCORPIUS
SOUTH

Figure 1. The Constellations at 9 P. M., August 1. (If facing south, hold the map upright. If facing east, hold East below. If facing west, hold West below. If facing north, hold the map inverted.)

The bright planets, Jupiter and Saturn, are very low in the west, and so nearly lost in the sun's rays that they can only be viewed with difficulty; in fact, during the month the former planet will enter the morning sky. There only remains with us the interesting planet Mars, which now shines brightly in our skies, and during the month will be seen to move entirely across Libra and well into Scorpio. It will be remembered that during the last two weeks of June the Red Planet formed a beautiful pair with the bluish Spica (at B); during the first days of August it will form an even more striking pair with the widely double, golden star at C, but it will not remain near this star nearly so long as it remained in the vicinity of Spica, for the eastward motion of Mars is now very rapid. The planet Venus is also now in the evening sky, but it will not withdraw far from the sun's rays during the present month.

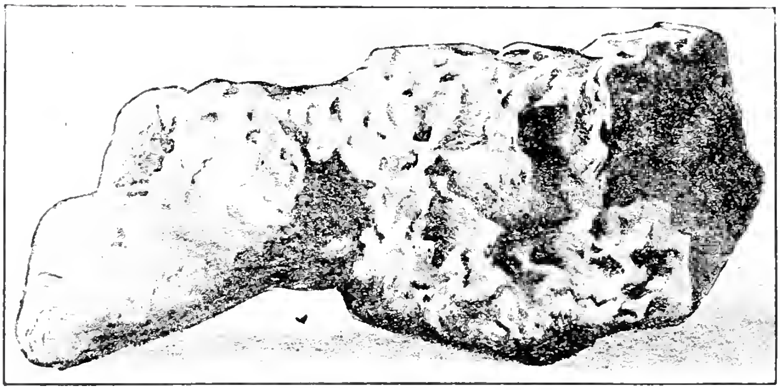


Figure 2. A typical meteoric stone showing hollows burnt out by friction with the air.

The August Stars.

The reader who is already familiar with the larger constellations will find it of much interest to gradually extend his knowledge by learning the fainter ones also. But few of these are named on Figure 1, though their brighter stars are shown. For example, just north of Aquila is the stream of faint stars known as Sagitta, the Arrow, shot by Hercules toward Aquila and Cygnus and flying between them. Its most remarkable object is a faint star just north of the star at E, which is a rapid triple star, whose three suns are respectively of colors green, white and blue.

To the east of Sagitta is the striking little group Delphinus, often called "Job's Coffin." This constellation is of great antiquity. Even to the Hindus, from whom the Greeks borrowed it, it was known as the Porpoise, but to the Greeks it became the Dolphin which rescued Arion on his voyage to Corinth. Though so small a constellation, it contains many objects of interest. Its brightest star at F is a variable, while each star marked H is a double or triple sun; the northernmost one is a beautiful object in a small telescope, its components being golden and bluish-green, and eleven seconds apart.

The band of faint stars above Delphinus and Sagitta is Vulpecula, the Fox, while those between Delphinus and Aquarius make up Equuleus, the Little Horse. Both of these constellations contain many double and triple stars, whose positions may be found from any star atlas, but they contain no star clusters or nebulae bright enough to be seen in a very small telescope, with the single exception of the remarkable object known as the Dumbbell nebula. This is in the position of M, almost exactly in line with the two stars K and L. Though visible in a two-inch glass, it requires a much larger aperture to show its complicated spiral structure. In a moderately large glass it appears only as two misty clouds, with many stars around and between them.

* * * * *

The August Shooting Stars.

During the second week in August we have the nights of the August shooting stars, or Perseids, so called because these little bodies dart outward in every direction from a radiating point in the constellation Perseus, in the position S of Figure 1. Unfortunately, this constellation is below the Pole and very near the northeastern horizon in the early evening, but by midnight it has risen much higher in the sky, so that from midnight until dawn is the best time to watch this interesting display.

The number of shooting stars soon

will average about one each minute, or even more. Each one is merely a little cold particle, or meteorite with which the earth collides, each particle being burned up and so rendered luminous by friction as it plows through our air. The great stream of millions of little particles stretches around the sun in the exact path of the bright comet of 1862, and it is highly probable that the stream is merely the remains of the comet which has been stretched out along its orbit by the tidal action of the sun.

The particles of this stream are very much scattered; it is even possible that a very numerous shower of small meteoric stone which fell to the ground on July 19, 1912, were a part of the Perseid swarm, though from the absence of reliable observations upon the direction from which the stones of this shower came this is by no means certain.

* * * * *

Meteor Crater in Arizona.

There is at least one place on the earth where there is definite evidence that a great projectile, or more probably a compact swarm of meteoric stones struck us at one time with a very high velocity. This remarkable structure is known as "Meteor Crater." It is in Northwestern Arizona, about ten miles from the Canyon Diablo station. Here there is a great, round hole in the earth about four thousand feet in diameter, and the depth of which from the rim to the nearly level floor is about five hundred and seventy feet.

When this great depression was made the terrific force of the collision pulverized, and even melted, many tons of rock and also threw fragments to great distances. It also raised the rim around the hole, named by early explorers "Coon Mountain" or "Coon Butte." The whole region for many miles in every direction has now been very carefully surveyed and explored, and deep drillings have been made in the floor of the crater, partly in the hope of finding the great iron mass of the original meteorite itself. To date the latter search has, however, been unsuccessful.

The ejected material varies from very finely pulverized stone, "which seems to have welled out of the crater like flour out of a barrel," to great masses weighing four thousand tons and more. Pieces weighing from fifty to several hundred pounds were thrown a distance of two miles away, but the largest fragments are found, as might have been expected, nearer the crater rim. The total weight of the rock ejected from the crater has been estimated as two hundred million tons, but this estimate is probably too low. There can be no doubt that enormous quantities of the rock flour were blown to great distances by the wind when the collision took place.

Scattered over the plains to a distance of six and a half miles from the crater there are also found great numbers of iron meteorites, apparently outriding members of the great swarm which hit the earth. It is believed that, when the compact, central cloud reached us, a cushion of hot air was pushed almost as a solid mass before it, and that this cushion was mainly effective in making the crater. The tremendous outrush of air around the edges of the crater after the actual col-

METEOR CRATER IN NORTHWESTERN ARIZONA.

lision took place would have carried not only the rocks of the earth, but also the outer meteorites, to great distances from the scene of the collision.

Altogether this is one of the most remarkable and interesting features of the whole earth. The colliding body may be regarded as a compact meteor swarm or as a comet, but in the latter case we must suppose that the comet was a very small one.

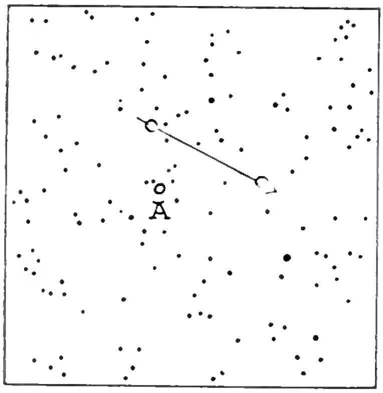


Figure 3. All faint stars near A of Figure 1 showing the motion of Uranus during August.

The Planets in August.

Mercury, which entered the morning sky on July 27, will attain its greatest western elongation on August 14. It will then rise far in the northeast a little more than one hour before sunrise.

Venus entered the evening sky on July 2, but throughout the month it remains so near the sun's rays that it can only be seen with difficulty. On August 1 it sets in the northwest about thirty minutes after sunset, and by August 31 this time is increased to nearly one hour. In its steady eastward motion out of the sun's rays, Venus will pass thirty-nine minutes north of Jupiter on August 8, and it will pass twenty-three minutes south of Saturn on August 22. These will be most interesting conjunctions to observe in a small telescope, but the observations must be made very soon after sunset while the western sky is still very bright.

Mars is now the only planet which is conspicuous in the evening sky. Its distance from us will increase 12,400,000 miles during the month, so that it will lose one-fourth of its brightness. Throughout the month it will nevertheless be most conspicuous in the southwest, shining with nearly twice the brightness of a first magnitude star.

Jupiter will enter the morning sky on August 22, and throughout the month is too nearly lost in the sun's rays to be well observed.

Saturn is also drawing very near the sun and can only be observed toward the beginning of the month, though it will not enter the morning sky until September 7. On August 1 it sets a little to the north of the west point of the horizon, one and three-quarters hours after sunset.

This is the best month of the year to observe the planet Uranus, for it comes to opposition, and is hence nearest the earth, on August 27. It is slowly retrograding and moving southward in Aquarius, and will pass exactly thirty-seven minutes north of the star at A (Figure 1) on August 7. To make the search for the planet easier, the stars in the vicinity of A are shown in Figure 3. The smallest dots there represent stars of the tenth magnitude, which will be too faint to be seen in any telescope of less than 1.6 inches aperture. The star at A is of magnitude 4.9, while the magnitude of the planet is 6.1. With the help of Figures 1 and 3, Uranus can readily be found, but it will appear only as a dull greenish star in a small telescope. The planet is so far away that its interesting system of four moons, revolving in periods of from two and a half to thirteen and a half days, and varying in size from four hundred to one thousand miles in diameter, can only be seen in the largest telescopes.

Twinkle of Stars by Other Names.

How different exactly the same thing will appear when put into other words is well illustrated by the following. There is a well-known verse all of us have learnt in our childhood:—

Twinkle, twinkle, little star,
How I wonder what you are,
Up above the world so high,
Like a diamond in the sky.

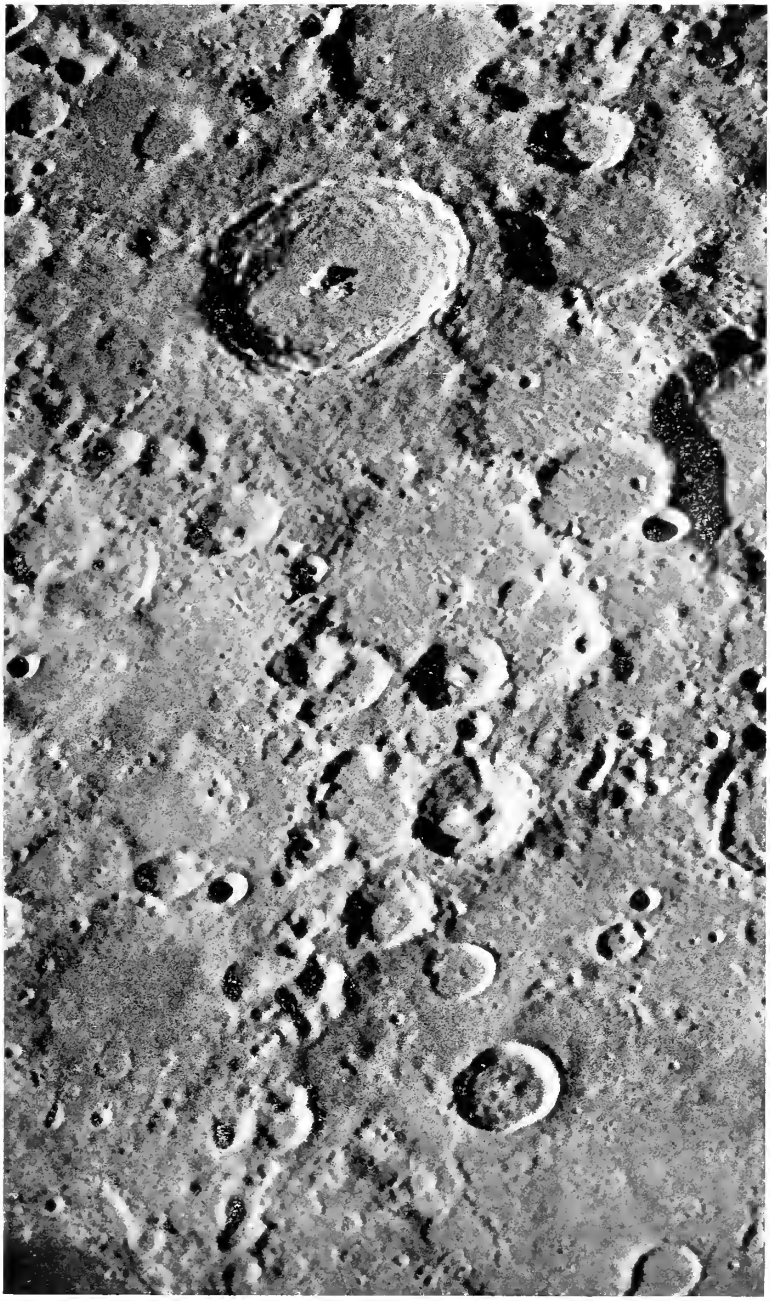
This has been cleverly transposed by some one into the technical astronomical terms used in observatories, as:—

Scintillate, scintillate, globule vivific,
Fain would I fathom thy nature specific,
Loftily poised in *ether* capacious,
Strongly resembling a gem carbonaceous.

—A Night Raid into Space.

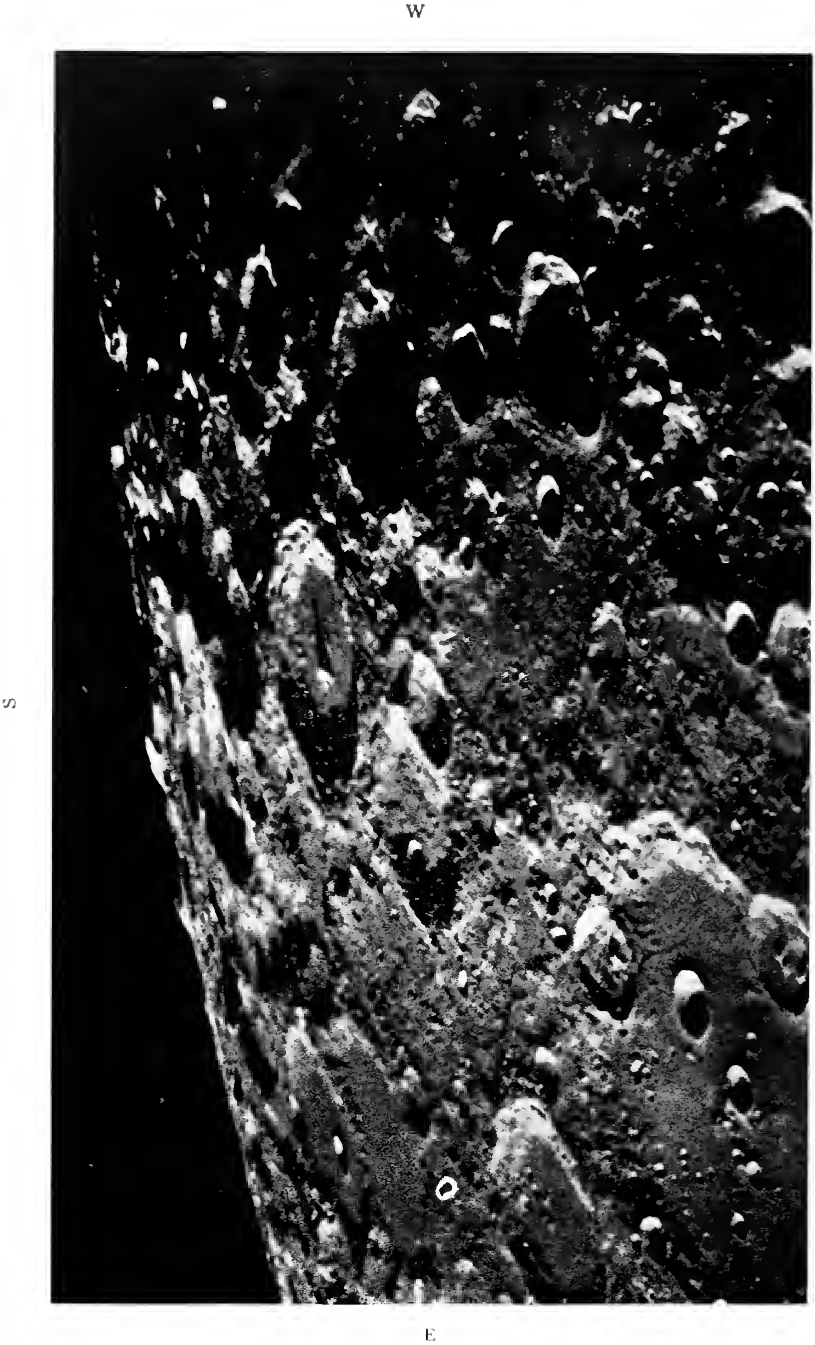
Good Photographs of the Moon.

The Mount Wilson Observatory at Pasadena, California, is bringing the moon optically nearer to us than ever before. The photographs obtained show perfectly the wonderful detail of the rugged lunar scenery. We are grateful to that observatory for allowing our readers to walk about "fair Luna," as they may readily do in imagination upon seeing the two realistic illustrations of the craters, crags and precipices on our satellite. These illustrations are beautiful in their apparent ruggedness and truly realistic effect.



TYCHO AND REGION TO THE NORTH.

Photographed by F. G. Pease with the 100-inch Reflector, September 15, 1919. Enlarged 2.8 times.



MORETUS, CLAVIUS, ETC.
Photographed by F. G. Pease with the 100-inch Reflector. Enlarged 2.8 times.

Purple Loosestrife.

The little brook flowed murmurously,
And o'er its sloping bank
A crimson flower disported free,
Revealing rank on rank.

Its vivid beauty carried far,
And held our glance for long,
To the ever sweet accompaniment
Of the rippling water's song.

—Emma Peirce.

A NIGHT RAID INTO SPACE. The Story of the Heavens Told in Simple Words. By Colonel J. S. F. Mackenzie. With Twenty Illustrations. Philadelphia, Pennsylvania: J. B. Lippincott Company.

This is a convenient little handbook with interesting chapters on the constellations, planets, earth, moon, etc. Especially for our younger readers this would seem to be a meritorious introduction to astronomy, as it gives simple and easily comprehended statements of the essentials of the science.

THE OUTDOOR WORLD

Chuckie Awakes from the Winter's Sleep.

On page 85 of our number for November we published an article, "My Pet Woodchuck," by Miss Anna K. Bewley, Forestgrove, Pennsylvania. During the winter that woodchuck was in hibernation, but on March 27 Miss Bewley wrote to us as follows:

"Memory, according to the dictionary, is 'that faculty of the mind by which it retains knowledge of previous occurrences, acts, thoughts, etc., and recalls them.'

"From this we have decided that our pet woodchuck ('Chuckie') must have a 'mind' because when he came out of his long winter 'sleep' or hibernation March 22, 1920, he seemed to have no difficulty in remembering and recognizing his friends, although he had been 'asleep' since last November. He did not come out February 2 to look for his shadow, according to the funny ground-hog day tradition, but we still had the six weeks of winter.

"If, as our 'naturalists' try to teach us, animals have no reasoning powers but only instinct, it might be interesting to know by what instinct our Chuckie has learned to remember.

"He takes pleasure in sitting in the sun near his hole under the kitchen. If a strange person or dog comes his way, he is out of sight in a flash; but he follows me into the house and joyfully plays with our dog at every opportunity.

WOODCHUCK AND DOG CHUMS.

"He did not care much for food at first, taking a small quantity of bread and only a little water. In a day or so he was ready for more. His weight was considerably reduced, although he did not look thin, but his collar is much too large for him. We are hoping to get him a new 'Easter suit' since he seems to have shed most of his hair, but he is the same playful Chuckie with his gentle disposition. Even the dog seemed nearly as glad to see him as we were."

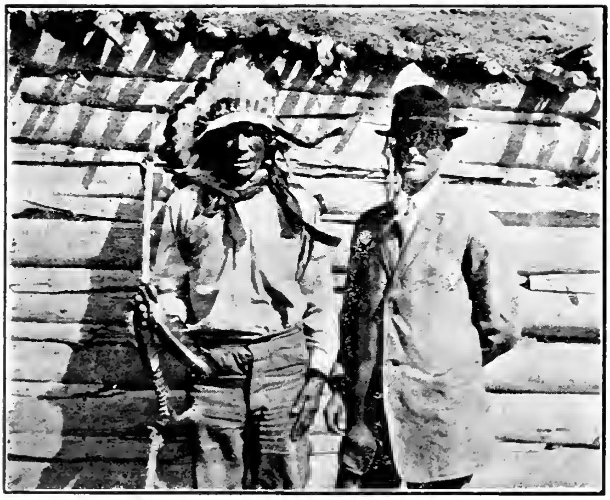
A Life Devoted to Nature Study.

Atlantic, Iowa

To the Editor:

I have endeavored to gratify your kind wish to secure a short story of the work and attainment of our devoted friend, Frank C. Pellett, the well-known naturalist.

The writer feels commendable pride in the privilege of having Mr. Pellett as a friend and neighbor for a number of years and becoming thereby measurably familiar with his first-hand methods of study and investigation. His original researches give him confidence in his teaching, and he feels but little restraint in the presence of educated audiences. The greeting accorded him by these audiences is certainly appreciative, and they listen with delight to his unique instruction and racy illustration. Much of this interest is due to his instinctive and sacred love for his chosen work—a very good suggestion for the student who may wish to follow his example in nature study.



MR. PELLETT IN THE ROSEBUD RESERVATION WITH BLACK RING, A BROTHER-IN-LAW OF CHIEF SITTING BULL.
Mr. Pellett takes a great deal of interest in the study of Primitive Americans.

Bobwhite's thrilling call, the sweet melody of native songsters, the squirrel's saucy challenge, the hum of bees have for him an irresistible inspiration, and by some strange psychic power he is able to transmit this inspirational interest to his audiences. His platform work seems as free as his unfettered research in the field.

His power of attractive public address was discovered in a session of the ministerial association of Atlantic, Iowa. With some hesitancy he consented to give for them a short review of his study of the small animals that trouble the farmer. Much interest was felt in his simple, direct and illuminating presentation of the facts and fancies contained in his address, and the encouragement received on this occasion inspired the beginning of Mr. Pellett's splendid career in natural history. At the time a number of invitations were received by him to repeat this address in some of the local churches. His trait of racy and attractive expression is readily seen in his books and lectures.

To facilitate his study of their character and habit, he kept as pets a variety of the "back door neighbors" about his home,, "with the keys of the city," as he would say of their freedom.

The natural attractions of his boyhood home provided in a great measure the inspiration of the young naturalist. In the formation of his own home, he located near the congenial haunts of his boyhood in the midst of a grove of romantic scenery, the tall, native trees, wild flowers and "deep tangled wildwood" abounding in birds, bees and squirrels "to the manor born." This sylvan retreat bears the name of Tamakoche, a traditional name among the Indians, meaning, my country. The library and workroom is euphoniously known as the "Bughouse." Little of decorative art is seen about the premises. They are simply an unfretted piece of God's out-of-doors.

The Bughouse has been closed and the populous apiary silent since "The American Bee Journal" called our friend to a place of distinguished honor and service. This change was made but recently, and we hope that the lure of Tamakoche will in good time occasion the return of Mr. Pellett and his interesting family to this congenial sylvan retreat.

A. D. Beckhart.

THE AGASSIZ ASSOCIATION

Established 1875 Incorporated, Massachusetts, 1892 Incorporated, Connecticut, 1910

Louis Agassiz's Grandson at ArcAdiA.

Mr. R. L. Agassiz of Boston, Massachusetts, grandson of Louis Agassiz, from whom The Agassiz Association of Sound Beach takes its name, recently visited ArcAdiA and thoroughly investigated everything. Mr. Agassiz has for many years been an occasional contributor to the work and soon after his return home wrote the following letter accompanied by a check for one hundred dollars:

"I meant to write you before to tell you how much I enjoyed my trip to ArcAdiA, and to congratulate you on the work you are doing and the completeness of your equipment.

"I think the Association is very fortunate in having the Bigelow family to take care of its interest. You all do an immense amount of work, for no financial consideration, and I enclose a small check which I hope will be of some use to you."

Contributions to Little Japan.

Mr. Arthur L. De Groff, Newark, N. J.	$26.25
Brunswick School, Greenwich	25.00
A Friend, Riverside	1.00
Mr. Frank C. Dowd, Madison, Conn.	.50
Dr. J. E. Serre, Sound Beach	5.00
Mr. Louis Cortambert, Glen Ridge, N. J.	5.00
Mr. R. L. Agassiz, Boston, Mass.	100.00
Miss Mary E. Ritch, Stamford	5.00
A Corresponding Member, Texas	5.00
Mr. Arthur A. Carey, Waltham, Mass.	3.00
Mr. Frederic Ewing, Greenwich	5.00
A Friend in Maryland	5.00
Mr. George Roome Smith, Brooklyn, N. Y.	1.50
Mrs. Annie L. Mortimer, New Haven, Conn.	5.00
Mr. J. Edgar Willing, Sound Beach	1.00
Mr. Francis Keally, New York City	1.00
	$194.25
Previously acknowledged	$2,125.05
Total	$2,319.30

Omitted from publication in June number of The Guide to Nature by typographical error:

The Rogers School Association, Stamford	$15.00

An Old Home.

BY ELIZABETH THOMSON ORDWAY.

Contributed by Adelaide Pierce Carvahlo
Hartford, Connecticut.

Dooryard full of daisies,
Trees knee-deep in grass,
Bowing, bending, swaying
As the breezes pass

Straggling tiger lilies
Near the old rail fence,
Redolent with meaning
Of the years gone hence.

Close beside the door rock
Bush of lilac stands,
Tapping at the window
With its purple wands.

Robin on the well sweep
Sings the sweet old song;
Whip-poor-wills at even
Voice their sense of wrong.

Empty barn and woodshed
Seen through open door
'Mind one of the plenty
Ever there of yore.

Over all a woodbine
Clambers with wild grace,
Giving a new beauty
To the dear old place.

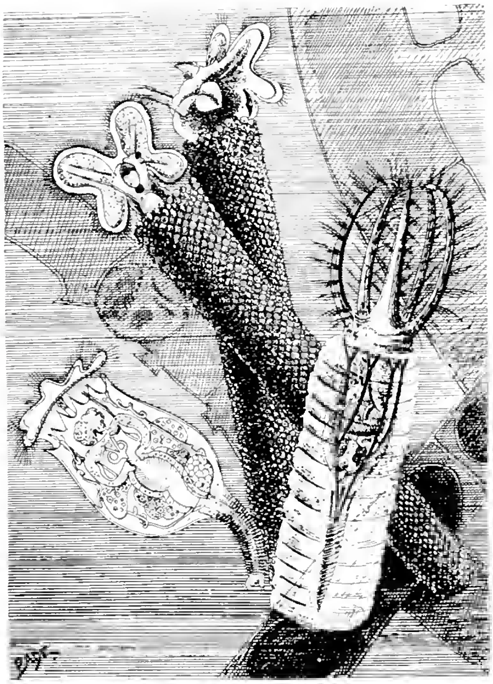
Old Home full of memories
Fragrant as the rose,
Growing ever sweeter
To life's very close.

RECREATIONS WITH THE MICROSCOPE

The Wheel Animalcules.

BY DR. E. BADE, IN "AQUATIC LIFE."

Among the minute animals which people the water, the rotifers or "wheel bearers," Rotatoria, form a very interesting class. Only a few of them reach even three millimeters in length, and they are giants of the race; usually they vary between one-twentieth and one-tenth mm. in length (a millimeter is approximately one twenty-fifth of an inch.) These little fellows put dramatic movements into the life of the pond. Some sport around in the clear water, "Knights of the Lists," bearing mighty lances, as do others thorns. Others are sessile on plants, on the lower surface of lily pads, for instance. A few live in the sea; some, in the intestines of worms and molluscs, lead parasitic lives, but the species most numerous are those that prefer the quiet backwaters of streams, the bottoms of plant-grown ponds or the puddles in swamps. One family, the Bdelloidae, occurs in the moss of house-roofs and in the lichen-growths of tree-trunks and rocks.



BRACHIONUS URCEOLARIS, MELICERTA RINGENS AND STEPHANOCEROS EICHHORNI.

The older naturalists called them wheel animals, and this popular name has persisted. The anterior end of the body carries a retractile ciliated apparatus, the so-called "wheel organ," which varies considerably in appearance in the different species. This organ, thickly beset with cilia, has a twofold purpose, serving for locomotion and also creating a current in the water whereby edible substances are brought to the ever hungry maw. The "wheel" appears circular for one moment, escalloped the next, then frilled, lobed even branched or armlike. Through a compound microscope the ceaseless play of the cilia gives the impression of the spokes of a revolving wheel. This appearance is so deceptive that the first observers assumed it as a fact that the animals carried a wheel; hence the name.

By adding a little cocaine or quince-gum to the water in which the animals are being examined microscopically the cilia play slackens, and it can then be seen that the apparent wheel in motion is simply very minute hairs (the cilia), which rhythmically beat the water. But the little wheel organ is not the sole point of interest with these fellows. Even now their exact position in the zoological system is not quite clear.

Ehrenberg classed them as "Infusoria," but that was a century ago, when the unicellular animals, the Protozoa, were not definitely understood. Similar looking creatures were grouped together, and as one-celled ciliated infusoria frequently recall many rotifers in appearance, all were promptly put together as of one relationship. Today the rotifers are classed near the worms.

that great class or group of animals which still serves as a catchall for the zoologist. Here is placed everything which cannot be definitely associated elsewhere. We know that these animals are many-celled and highly organized, and offer as an excuse for their position among the worms their affinities with certain larval forms of the Trochophora type. In them the cilia are at first much developed, but in the end are restricted to certain localities of the body, one of which appears constant about the mouth. Hence the conclusion that our wheel animalcules are exceedingly primitive forms with close relations to the progenitors of the phylum or genealogical tree of the Vermes (worms).

The rotifers have a motile dental apparatus, a stomach of many cells, an intestine, salivary and renal glands, brain, nerves and red eyes. The microscope reveals these organs in operation. You seem to look through a window at a delicate clockwork, so transparent is the skin of most of them. Manifold are their shapes. Free swimmers have balancers and other attachments assisting them in floating and swimming. Most of the sessile species construct protective casings of foreign matter (Melicerta), or exude jelly-like covering (Floscularia). Others are merely attached by a pedicel ending in a sucking disc. Melicerta ringens, as an example of a case-builder, possesses a so-called "pill-organ," which is an open sac fringed with cilia, placed immediately below the mouth. This sac catches stray little grainlets and turns them into pills with the aid of mucus or slime. These are then carried out and deposited along the upper edge of the case, the entire case being built from such pellets.

Rotifers can withstand drying up—desiccation—for some time, being then blown about with the dust and thus carried far and wide. When they again reach water they flourish as before. This state of anabiosis (lifelessness) is a well-known phenomenon shown by many microorganisms, which after two hundred years of observation. still is not well explained. Rotifers can remain in this inert condition for months and years with impunity. Possibly they exude a jelly-like substance which permits the retention of the modicum of moisture which carries the animals through this period of drought.

Life is very elastic and adaptable to many contradictory phases, and even then may triumph over death. Perhaps even these minute "wheel bearers" may possess organs within their bodies whose significance is so far unknown to us. The illustration shows three species very much magnified.

Through veils of feathery grasses
The daisy faces nod,
To give each one who passes,
A greeting from the sod.
—Emma Peirce.

The Values of the Six-Footed Creatures.

The six-footed creatures are, in many ways, better subjects for the beginning lessons in Nature Study than most other animals, or plants. And children like them, unless they are taught by some foolish grown-up that it is nice to shudder at anything that creeps. The longer the child can hold fast to his early liking for these denizens of out-of-doors (and some of us never lose it), the deeper his joyful interest in woodland, field, and roadside rambles will be; and it is an unfriendly and an unkind act to mar this natural pleasure.—Edith M. Patch in "A Little Gateway to Science."

Dr. Nichols preached a fine sermon, laden with thought, on the influence of Nature on a mind diseased. He said that once an insane woman was restored to her right mind at the sight of Niagara.—Henry W. Longfellow.

Catalogue of Photographic Lenses.

The new catalogue of photographic lenses issued by The Bausch & Lomb Optical Company is not only beautiful in appearance but it contains much material to inspire one with enthusiasm for photography. The work of high grade lenses is an unquestioned argument in behalf of their superior efficiency. The specimens of scenic and scientific work are gems of clear-cut photography. The information is also extremely interesting. The catalogue makes one glad to be an owner and user of an Anastigmat.

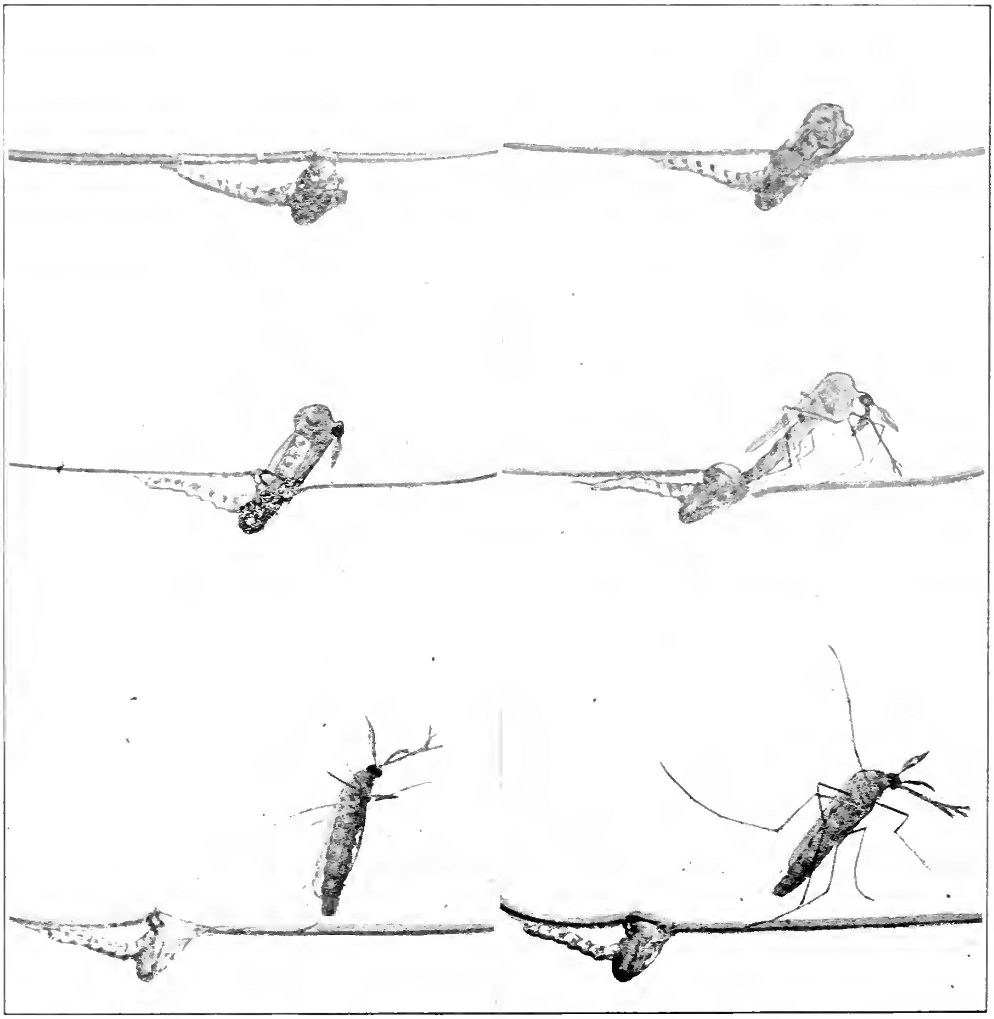
The Birth of a Mosquito.

We are grateful to "Aquatic Life" for lending us the accompanying cut of photographs by Herbert M. Hale, South Australian Museum, showing the birth of a mosquito from the pupa.

The horizontal line represents the surface film of water. The eggs of the mosquito are placed upon the top of the water in a raftlike arrangement. When a larva hatches it drops down into the water through a sort of trapdoor in the bottom of the egg. Later it transforms to the pupa. Both larvae and pupae go to the surface film frequently for breathing, but when the time comes for the mosquito to emerge the pupa skin is left under the surface of the water and the full-grown insect comes out above it, as is so clearly shown in the illustration.

Those who have a compound microscope or even a pocket microscope will find it interesting to gather the mosquitoes from stagnant water while in either the larval or the pupal stage and watch the transformation. They may be kept in a tumbler or any other small glass receptacle. Every one who has seen this transformation exclaims over it as one of nature's miracles.

Not all we get on mountain top
 Is measured by the eye;
We feel an uplift, as if Angel
 Wings had brushed us by.
—Emma Peirce.



THE BIRTH OF A MOSQUITO.
Enlarged three and one-half diameters.

The Use of Spectacles With the Microscope.

On page forty-five of our number for August, 1919, we published an article entitled, "Do Not Use Spectacles With Microscope." This brought forth three letters of protest, perhaps the strongest coming from Professor M. A. Bigelow, Teachers' College, Columbia University, New York. In that he says:

"It is dangerously misleading to many young people to say that 'spectacles should never be used with a compound microscope.' That is true so far as spectacles are adjusted for old age, or for either far-sight or near-sight, but it is certainly quite wrong so far as astigmatism is concerned. In this defect one meridian of the eye is normal while the one at right angles is either 'farsighted' or 'nearsighted.' Obviously the usual microscopic lenses cannot adjust to this condition. It is, however, possible to have the proper lens built into the ocular at considerable expense, but requires great skill in using. The alternative is spectacles with proper correction for astigmatism and some soft cover for the ocular to protect the spectacle lens. There is no other way to avoid dangerous eye-strain. All of the cases in which I have found students injuring their eyes by not using spectacles with the microscope were cases of pronounced astigmatism. I had the same difficulty in my college days until a great specialist straightened me out. Evidently you and your correspondent are cases without astigmatism but probably with age-sight, because the editor confesses to thirty years in microscopy and his correspondent is a 'veteran.' In the interest of science, and to avoid dangerous practice by numerous young people who have astigmatic eyes, I urge a prominent correction of the misleading statement.

"The headline in THE GUIDE TO NATURE should have read 'Do not use spectacles with the microscope if you have far-sight, near-sight or age-sight, *but by all means use them* if you have astigmatism.' That is the only scientific statement of the whole matter."

A similar objection was raised by James L. Wolff, Scottsburg, Indiana, and also by Edwin Tenney Brewster, Andover, Massachusetts.

Professor M. A. Bigelow referred his objection to the Spencer Lens Company, of Buffalo, New York, and was sustained by them in his opinion that the microscope should be used for near-sight or far-sight without spectacles, but not with eyes affected with astigmatism. The Spencer Lens Company makes the following suggestion:

"In fact a great many people who have but slight astigmatism work very comfortably with the microscope without their glasses. Unless a person's eyes are very slightly astigmatic we would advise using the spectacles, especially if there were to be any long continued sessions with the microscope. Spectacles are not comfortable to work with when looking through the microscope, and perhaps the nicest solution would be for the worker to provide a lens which would correct the deficiencies of the eyes when used with the microscope. Mount this lens in a mounting which will slip over the eyepiece but at the same time provide a means of holding the cylindrical axis at a proper angle. Unless some such device as this is resorted to, we would strongly advise the use of glasses with astigmatic eyes."

These opinions coming from trustworthy authorities would seem to be final, but upon extended correspondence we find that they are not, but that experienced users of the microscope still maintain that spectacles should never be used with any optical instrument. One person who has had extended experience with the microscope makes this astonishing statement:

"This is the first time in my life that I ever heard of an astigmatic person even trying to use the microscope. Spectacles should *never* be used with *any* optical instrument. Astigmatism and the microscope combined make the joke of the season."

The delay in publishing anything on the subject has been owing to the fact that several experts with the microscope to whom the question has been referred have not yet replied. When doctors disagree who is to decide? The editor surely cannot, but he is still of the opinion that spectacles with the microscope are pretty nearly if not quite an optical joke, because their use is equivalent to wearing two pairs of spectacles. If one's spectacles do not suit the eyes then one goes to the optician for another kind that will. To say the least, spectacles are inconvenient to use with the microscope.

Mycetozoa Grown in the Laboratory.

BY CHARLES P. TITUS, EAST ORANGE, NEW JERSEY.

An experiment made recently resulted so satisfactorily that other observers will surely want to repeat it. All nature lovers will enjoy growing these interesting organisms. Little apparatus is required.

Starting with spores so tiny that separately they are invisible, moisture and a mild degree of heat cause them to grow and to form as the next step a substance similar in appearance to the "white" of an egg. This spreads over old, damp logs in the woods or on vegetation generally, and eventually the final stage of some varieties produces tiny stems with heads filled with spores. Other varieties change into various colored masses of tangled threads strung with spores, while others produce crowds of tiny puffballs of many hues, all filled with spores.

In the deep woods can always be found small bits of decayed wood, or branches fallen from trees and almost ready to drop to pieces. Two or three of these pieces should be selected, each perhaps eight or nine inches long and about an inch and a half in diameter. Carry them home in paper or in some other convenient receptacle, but do not wash them nor remove any of the forest earth that may be adherent.

Procure an ordinary flowerpot of unglazed clay and fill it with any garden earth, "planting" the pieces of wood so that they protrude for about six inches above the surface. Put the flowerpot in a dish that will support it and leave a space which must be filled with water. The water will soak up through the earth and the wood, supplying the necessary moisture for the growth of the spores.

A glass jar should be inverted over the apparatus for the double purpose of retaining the moisture and excluding dust. A sunny window will furnish heat which is apparently more necessary than light for the growth of the strange organisms.

After a while, tiny mushroomlike objects will be noticed on the wood, which should occasionally be examined with a reading glass or other magnifier. When a thick growth of the little objects appears, small sections of the wood bearing them should be carefully cut out with a sharp knife and glued to the bottom of pill boxes, and saved for examination and study.

Under a moderate magnification many details of the delicacy and beauty of the Mycetozoa become visible, and provide an endless source of wonder and delight.

There seems to be very little literature available as an aid to the study of this interesting branch of science. "The North American Slime-Moulds," by Thomas H. Macbride (Macmillan, 1899) is good, and Arthur Lister's book on the Mycetozoa is beautifully illustrated. The Micrographic Dictionary has several articles on Myxomycetes and Mycetozoa (the words are synonyms) with illustrations of various species. Harshberger's Mycology has an illustrated chapter describing the life history of the Myxomycetes.

Craig's Pond.

In frame of living green
Our little pond is seen,
  With wooded hills encircling it around,
A mirror to the sky
And cloudlets sailing high,
  Its shore for us a perfect picnic ground.

The way to this retreat,
Untrod by alien feet,
  Is through a woodland sweet and fresh to view,
Where ferns and shrubs abound,
And moccasin flower is found,
  In sunny days when Summer still is new.

A most secluded place
With every charm and grace,
  That Nature conjures up for our delight;
We love it through the day,
And lingeringly stay
  Till warned away by near approach of night.

—Emma Peirce.

I have found lots of nice, interesting things in the woods in my time. One thing I am very glad I found and that is your fine, clean, wholesome, neat, instructive little magazine which draws us closer to nature and the great big out of doors. Success is yours and you will always be remembered for your good works.—J. B. Pardoe, D. D. S., Bound Brook, New Jersey.

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And as to you Life, I reckon you are the
leavings of many deaths;
(No doubt I have died myself ten thousand
times before.)
—Walt Whitman.

USEFUL WILD PLANTS OF THE UNITED STATES AND CANADA. By Charles Francis Saunders. 275 pages illustrated by half-tones and drawings in the text. New York City: McBride & Company, 1920.

This book contains chapters on edible bulbs, roots and tubers; fruits and seeds; stems and leaves; beverage, medicinal and poisonous plants, with miscellaneous uses including soap, supplemented by a regional and general index. The New York Botanical Garden has supplied four of the plates from its guide-book and various other photographs illustrate this interesting and compact little volume.—E. G. Britton, Honorary Curator New York Botanical Garden.

STORIES OF LUTHER BURBANK AND HIS PLANT SCHOOL. By Effie Young Slusser, Mary Belle Williams, Emma Burbank Beeson. Edited by Lillian McLean Waldo. With an Introduction by Luther Burbank. New York City: Charles Scribner's Sons.

A book written for the young but as eminently readable by the adult. It presents the problems of plant breeding, the development of new and improved varieties of food-producing and decorative plants, in a manner clear and interesting for the ordinary reader, who closes the book with a feeling that he has gained a real knowledge of the subject and an insight in evolution within the plant world at large, especially in the part taken by cross-pollination and selection.—F. E. B.

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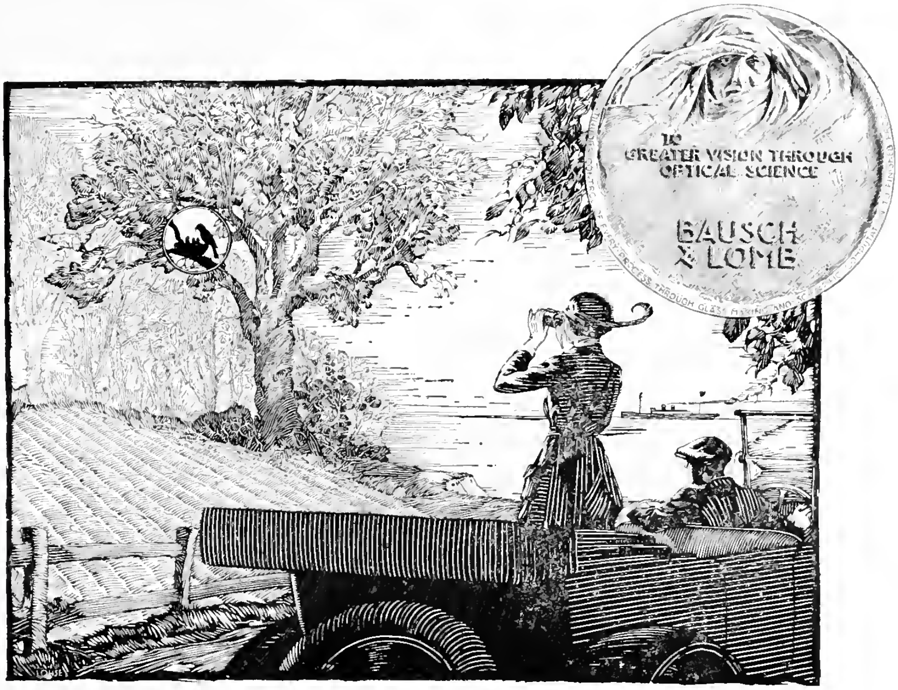

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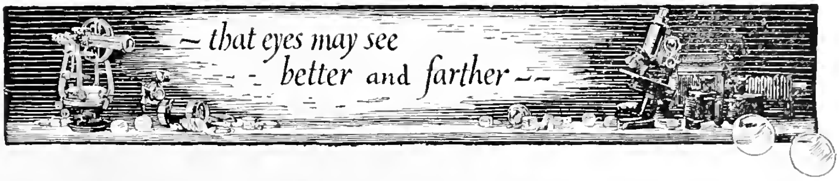

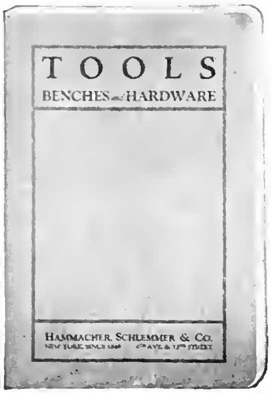

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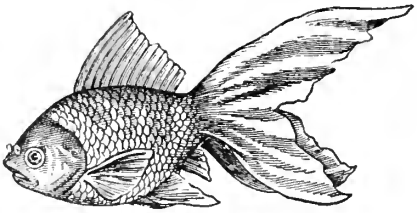

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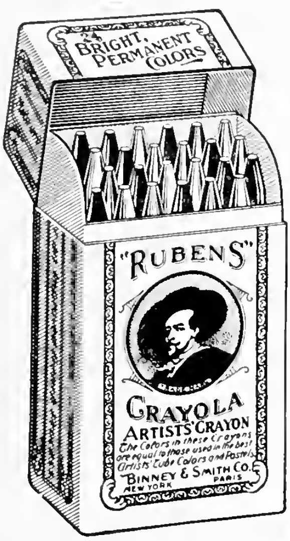
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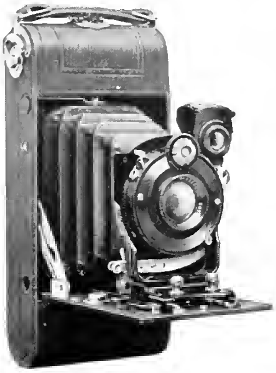

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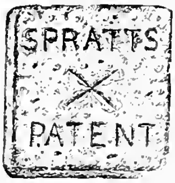

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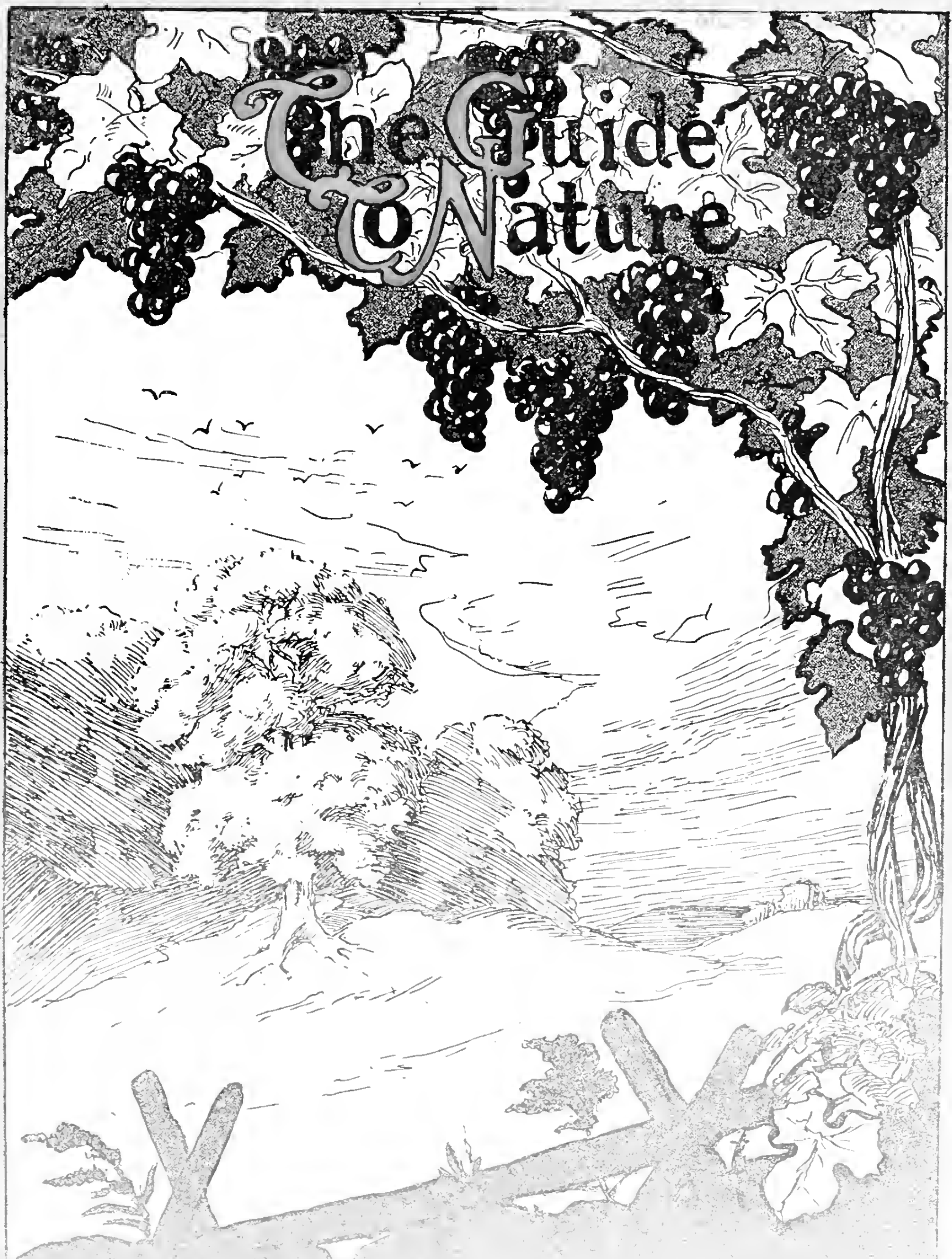

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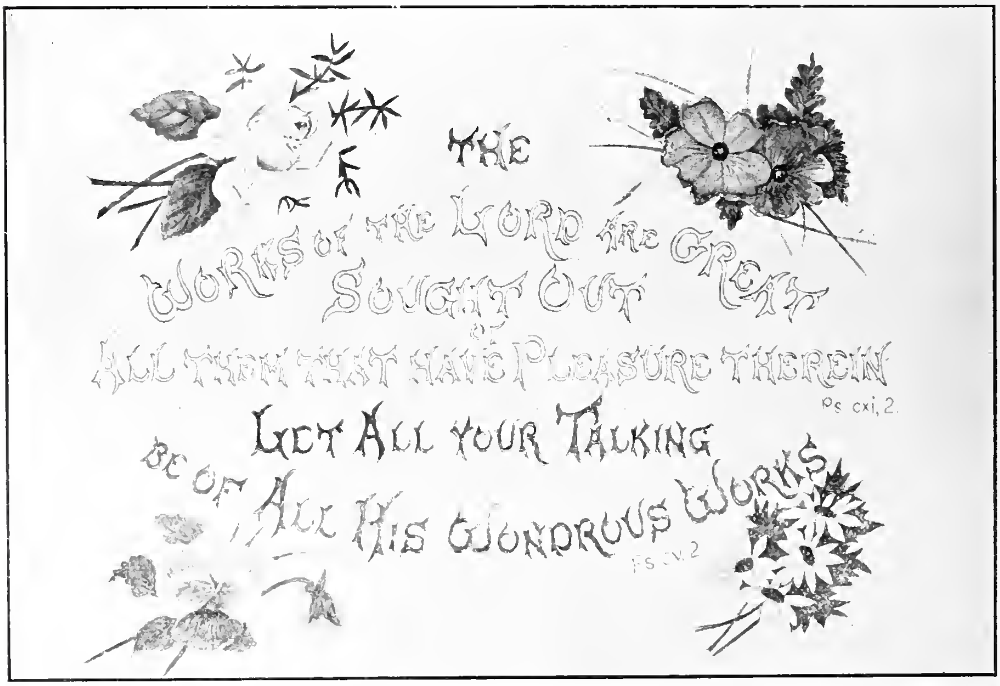
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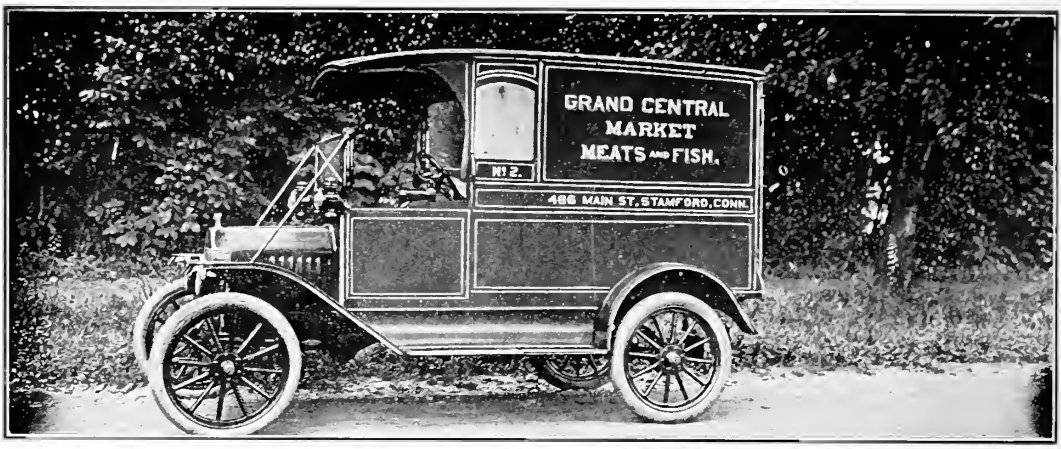

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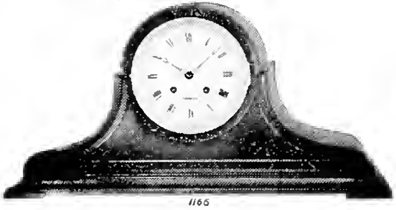

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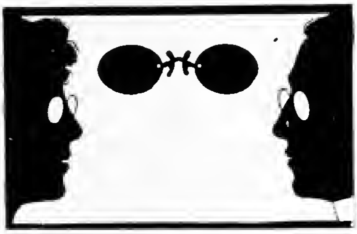

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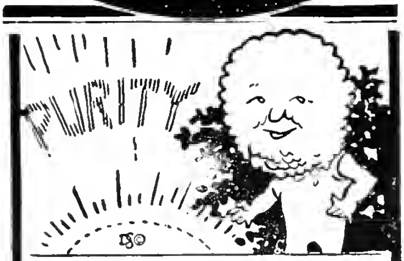

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"Well, I hope I am."—N. Y. Globe.

The Emptiness of a Vacuum.

Judge—"Have you anything to offer the Court before sentence is passed on you?"

Prisoner—"No, your Honor; my lawyer took my last dollar."—Boston Transcript.

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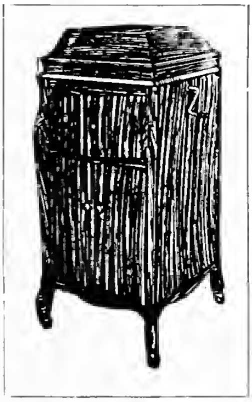

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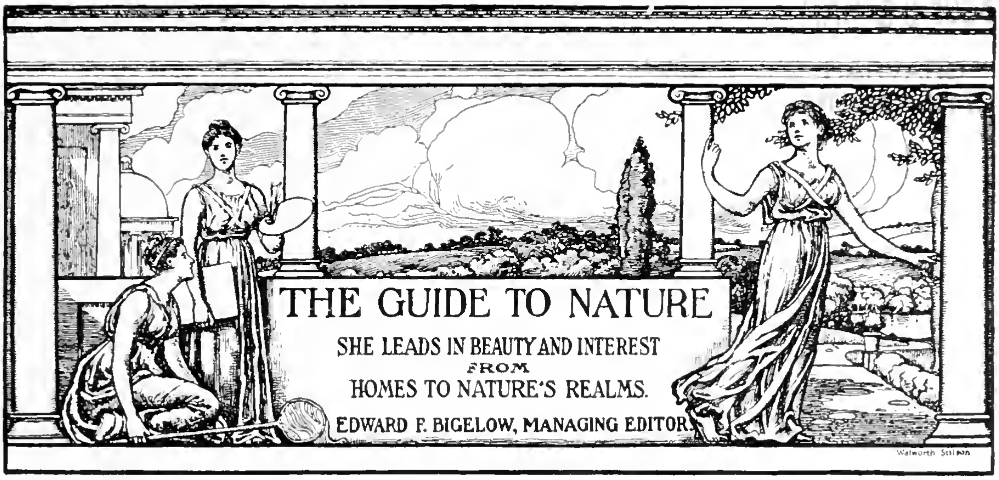

THE GUIDE TO NATURE
SHE LEADS IN BEAUTY AND INTEREST
FROM
HOMES TO NATURE'S REALMS.
EDWARD F. BIGELOW, MANAGING EDITOR.

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MY TWO BIRCHES.

By Dr. Robert T. Morris, New York City.

When I planned the entrance gate at Merribrooke, masons made an attractive sweep of curved wall to meet the square stone posts. That left an area facing the highway to be beautified. I asked myself about the ways in which the passer-by might be pleased and complimented by a bit of thought displayed in his behalf. The wall and the posts I decided should be covered with ivy. That much was certain. Ivy would round and soften the outlines of the strong but cold gray stone. An Austrian pine with dark, severe foliage should guard one side of the gateway like a dignified sentinel. On the other side, in the curve of the wall, two white birches should ornament the space, their dark and tapering branches ranking as emblems of aristocracy among trees. For purposes of contrast I would plant a white pine near-by in order to atone for a certain degree of discrepancy between the severity of the Austrian pine and the grace of the birches.

Yet further contrast was needed. The birches should not stand in plebeian grass, but nestling at their feet I would have a bed of myrtle, bravely green in the wintertime when standing out above the snow, sprightly with new green and with blue flowers in the springtime, cheeringly green in the autumn at a time when other plants are littering the ground with fluttering memorabilia of a departing season. In addition to the myrtle, a rhododendron, stout of limb and gorgeous in spring days, should add to the glory of the white birches. Finally, a clump of decorative grass would afford a refined finish to the environment in which the birches were to grow to majestic proportions. Thus, twenty years ago, were the two aristocrats started on their career of beauty.

The little trees were then about five years of age, fit companions for the crickets under the myrtle and for the chipmunks which ran along the top of the wall, and they felt dignified indeed if a song sparrow honored them by alighting on their youthful branches. Year by year they grew apace, stretching their lower limbs out to the morning mists, their upper branches toward the sunset, and all of the beautiful things around them. The soft white of the bark arose in dainty frills of white. Natural decoration of tiny lines of dark brown barely perceptible to

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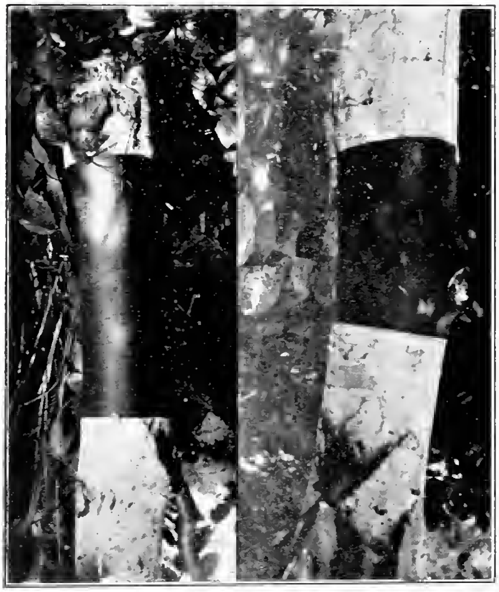
the eye was thrown into the color scheme by nature to vivify the white. In certain lights a rosy flush might be seen, a sort of radiant spirit shining from within.

Blue jays came to visit the two birches, and the red squirrel sprang from vibrant branches, adding blue and red as bright colors for the moment. The wayfarer sitting to rest for a moment stretched himself beneath one of the birches and exclaimed, "How beautiful!"

One day last week, some evil spirit in human form, fostered by Satan, came to the trees. With a sharp knife he girdled the delicate white bark of the birches and tore it away in great white strips, leaving the brown bark staring out in helpless protest to the world. The destruction of beauty does not so much distress me as does the symbol of civilized man's depravity now boldly placed on permanent record.



THE DESECRATION OF THE TWO BIRCHES.

One day many years ago, in the great forest in the north, I reached up to get a birch bark cup from a tree near a camp on an Indian trail. One of the Indians said, "Wait. Me go back." He went further away from the trail and brought the bark from a tree which from that point was invisible. I said, "You did not want me to take the bark from a tree near the trail." And he replied, "Kawin! nishishin." (No! too pretty.)

Somebody on the road to Stamford and calling himself civilized has done what a wild Indian declined to do in the primitive forest. Boy Scouts are given the freedom of my place. I hope that some one of them may be able to trace the miscreant. I feel that the act was not one of malice towards me personally. My neighbors on the Westover Road are all good neighbors.

Some years ago I sought to beautify a mile of public highway from Merribrooke toward Stamford, and two of my men spent two days in setting out some twenty-five hundred little pine trees along both sides of the way. When the pine trees had grown enough to be sightly youngsters, people in automobiles came, dug them up and carried them away. The only pines that are now left are a few that were injured by cattle. Whenever any of these develop tops which are attractive, aliens come along the road about holiday time and saw off the tops to be sold in town as Christmas trees. None of these people would think of beautifying the public highway themselves, but when some one else has done it they know how to dispose of the trees. In a free country every one is free to do what he likes to any one else. The loss of the pine trees is, on the whole, not so serious a matter as is the desecration of the birches. The pines are now mostly gone and out of sight, but for the next hundred years the two birches will exhibit the signs of man's depravity.

Higganum.

Winding down the road we come
To the ancient town of Higganum,
Pent between the stream and hill
Near the ugly, clattering mill—

Strung along a single street,
Broad and shady, with houses neat—
A pleasant place for one to come,
The Nutmeg town of Higganum!
—Don C. Seitz.

The Purple Bank

As to the railroad track it climbed,
'Twould most prosaic be,
Were it not that a royal purple flower,
That found it in a favored hour,
Had made it fair to see—
A spot most fair to see.
—Emma Peirce.

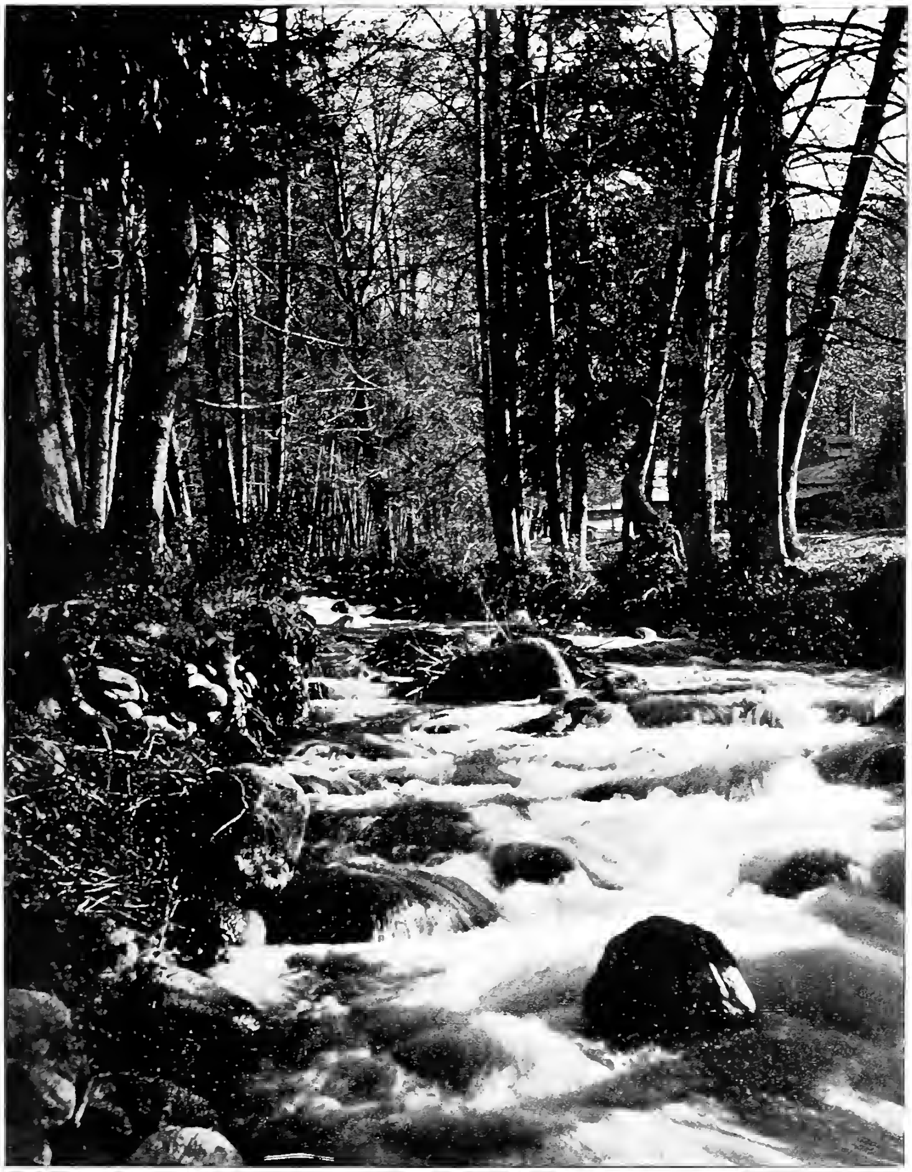
Where the Brook Rushes Swiftly.

BY CHARLES NEVERS HOLMES, NEWTON, MASS.

Out of silence and shade
Into sunlight and glade,
From a slender, lost rill
Purling down on a hill
To a river or sea,
Like some spirit set free,
Rushing restless and fast,
Flows a sylvan brook past.

Out of silence and shade,
In a constant cascade
Over boulder and stone,
With a deep monotone,
Foaming fiercely and white,
Like a torrent in flight,
Rushing restless and fast,
Flows a sylvan brook past.

The meadow, stretching toward the hills,
Always imagination thrills;
We long to flit o'er its flowery way,
To where the heights get break o' day;
For there a wide horizon waits
To show us nigh to Heaven's gates.
—Emma Peirce.



WHERE THE BROOK RUSHES SWIFTLY.
The publication of this brook photograph in our number for July inspired the poem by Mr. Holmes.

Billie Chuck.

BY DR. J. B. PARDOE, BOUND BROOK, NEW JERSEY.

Miss Emma Vandervort of Bound Brook, New Jersey, had many pets, but the most interesting of them all was Big Billie Woodchuck.

When a little fellow, about the size of a small kitten, Billie was taken, with his brothers and sisters, from his underground home dug by the mother in a bank along the Raritan River. His sisters and brothers all died young, probably from the loss of their mother, but Billie survived in spite of many a fight with stray dogs and cats. The cats were all afraid of him and would scurry up a tree with their tails twice their usual size. A stray dog was driven from the yard with his tail between his legs, calling "Ki yie, ki yie."

BILLY EATING THE CRUST FROM A SLICE OF BREAD.

Sometimes when there was more than one dog and things were getting too hot for Billie, he would retreat to his fortress, a hole which he had dug well back under the porch, and all the dogs in town could not drive him out. His mistress would drive the dogs away, and call, "Billie." He would come running from the underground hole, jump in her lap and look up at her gently chattering as much as to say, "They could not get me, could they?"

Billie grew to be very strong. One of his feats of strength was to roll a stone of forty pounds in weight from the top of a box in which he was often put to keep him out of mischief. Standing up on his hind legs, he would push with his shoulders against the board on the top of the box, and the stone would roll off and out he would go.

He had a fine appetite, and may well be nicknamed ground hog. At first he ate only vegetables but later he developed a sweet tooth, being very fond of chocolate candy and cake. In eating a loaf of bread, he would first eat the crust off by turning the loaf over and over in his front paws. The balance of the loaf he would not eat unless it was soaked in cocoa.

When Emma went to the store for her mother, Billy would meet her at the gate and beg for candy. Sometimes he tried to climb up on her shoulder. When mother got supper, he would follow her around the kitchen on his hind legs, begging. Emma's favorite stunt to show off Billie was to dress him in doll's clothes, and have a parade on the front lawn.

At the approach of winter, Billie gathered a lot of straw and made his nest in the cellar. Here he slept like dead until springtime, not even waking up when tickled, and he did not like to be tickled.

He died at the age of three years from some unknown disease. All available medical aid did no good.

More about Tame Pigeons Alighting in Trees.

BY R. W. SHUFELDT, WASHINGTON, D. C.

Since contributing the notes I did on the above subject to the July issue of THE GUIDE TO NATURE of this year (p. 25), it has occurred to me that about a year ago last winter, while photographing in the National Zoölogical Park at Washington, I saw some thirty or forty tame pigeons there fly up and alight in a tree—a maple, I believe—which was entirely devoid of foliage, as it happened to be in the wintertime. The tree in question was in the view I was photographing, and the birds may be seen on the negative—small as they are.

Upon recalling this incident, I communicated by 'phone with Mr. Hollister, the Superintendent of the Park, and he kindly informed me of the fact that what I had observed was an everyday occurrence with the big flock of tame pigeons that "infest" the Park—a flock numbering some fifty or sixty birds, possibly more.

Mr. Hollister is of the opinion that this flock of pigeons breed under the flooring of the great Connecticut Avenue bridge outside the limits of the park, and that they come to the latter at sunrise, remaining there until roosting time. They are a great nuisance, for when the wild fowl are fed at the ponds, the entire flock of pigeons alight there as the food is spread out, and, being rapid feeders, they soon consume a good part of it. When anything alarms them, the flock flies up and alights in some neighboring tree, "just like a flock of sparrows." So numerous have these pigeons become, and so expensive are they on account of the food they get away with that has been fed to the wild fowl at the ponds and other places, that recently it has become necessary to resort to the shotgun, in that their numbers may be kept within reasonable bounds.

However all this may be, I am still of the opinion that the alighting in trees of tame pigeons is a reversion to a habit possessed by the wild pigeons of ancient time, from which the present domestic pigeons are descended.

Tame Pigeons Alighting in Trees.

Villamont, Virginia.

To the Editor:

With reference to the note by Dr. R. W. Shufeldt of Washington, D. C., on the above mentioned subject, I am glad to have the fact stated by some one else, for it confirms my observations. There are a number of wild tame pigeons that make a fair share of their living on my hens' feed. As many as ten come around in the morning and help the hens to clean up the place if allowed, and they are really clever at it. As the day advances most of these leave and do not return until the following morning, but there are two which come around during the day. When I drive them off, they generally fly into the timber at the back of the house. This is so dense that it is difficult to see them after they get among the foliage. I have watched a light colored one, and am almost certain that it alights on the tall trees, as everything seems to indicate that it does so. I will do my best to make sure and report.

(Rev.) A. F. Gordon Mackay,
F. R. M. S.

"Can You See?"

Knoxville, Tennessee.

To the Editor:

In your July issue you have an interesting article entitled "Can You See?" by the editor of "Lepidoptera." Answernig the query for the vast majority of human eyes, I will say—very, very dimly! Through a glass darkly, I might say.

This morning while waiting for my street car, I called a neighbor's attention to the great number of bees working in the sweet clover. It interested him. After watching intently for a while he said, "Well, well, I never noticed any honeybees around here before." Within a radius of three miles of this man's home, there are more than a million bees. The air is virtually alive with the industrious little workers, yet he had never seen a single one.

Our country club felt the need of additional acres to enlarge its golf course. We were endeavoring to buy an adjoining field. An expert in laying out golf courses happened to be a guest of the club one day, and he quickly saw that by rearranging the course somewhat seven acres that had not been utilized would become available. Think of it! Seven acres of valuable land, seven acres that all of us had walked over and played over day after day for years, and not one pair of eyes could even see the ground we walked on!

How plainly we see the myriads of insects in the air when the sun's rays fall just right for our bedimmed and uncultivated eyes. Few of us see the beauties of this world. Our vision is clouded by indifference and ignorance.

Sight is by much the noblest of our senses. Addison tells us, "Our sight is the most perfect and delightful of our senses: it fills the mind with the largest variety of ideas; converses with its objects at the greatest distance and continues the longest in action without being tired or satiated with its proper enjoyments." Respectfully,

R. E. Gettys.

An Interesting Cave.

Allens Creek, Tennessee.

To the Editor:

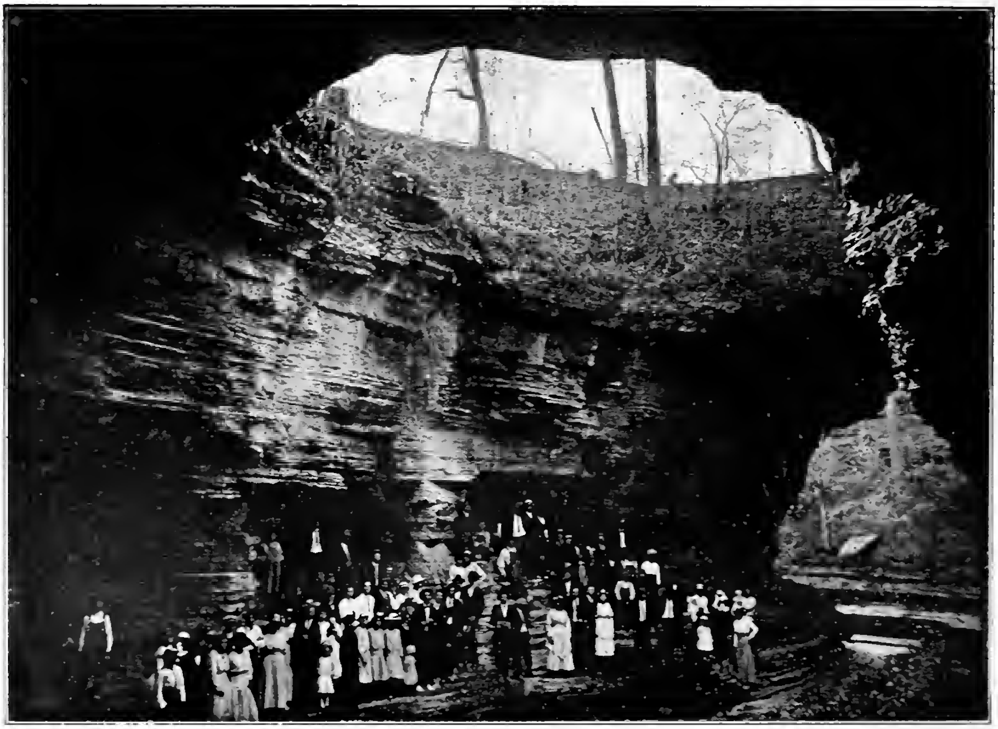
I submit a photograph of a cave situated on the beautiful forty-eight mile creek in the northern part of Wayne County, Tennessee. It is about five hundred feet long, forty feet wide, thirty feet high and is in the form of an elbow. A stream of cold, clear water flows through the center. It was formed by the water of a mountain stream cutting its way through a ridge. In some respects it is one of the most wonderful caves in existence. Here the mighty hand of nature has surpassed the efforts of the architects of the world, and has designed one of the grandest auditoriums ever beheld by man.

On each side are narrow passageways, back of which begin a series of seats arranged in tiers of ten in front of the natural stage and eight on the right and the left. These seats are in regular order and well adapted for comfortable sitting. They were carved by the water out of the solid limestone. Back of these tiers at the top are broad galleries running the full length of the cavern. Just over the center where the stage is located is a skylight some thirty feet square. It is shown in the photograph. At this point the cave makes the turn or elbow. At the back of this natural stage with its stone stand are two tunnels by which the performers might enter without passing through the audience. Five thousand people could be comfortably seated here and all be within range of a moderately loud voice.

Here for a thousand generations or more, the noble red man held his court and danced the war dance or smoked the pipe of peace. Here, when he swept down from the north with his mighty hordes of warriors, he found the peaceful mound builders. It is only a few yards from this cave to the partly closed entrance of another, far back in which are inscriptions and hieroglyphics that no scholar of modern times can translate.

At the mouth of this cave the beautiful forty-eight mile creek flows clear and sparkling and abounds with fish, including the famous blue trout and black bass. Many legends are connected with this cave. To it they add much interest and recall to mind the picture of the past with its joy and sorrows.

Lovic Meredith.



A WONDERFUL CAVE IN TENNESSEE.

TO KNOW THE STARRY HEAVENS

The Heavens in September.

NOTICE.

After writing "The Heavens in August," Professor Eric Doolittle was taken with a violent heart attack and has been in the hospital ever since in a very exhausted condition.

Professor Barton, Professor Doolittle's assistant, has written this article and will continue to write it until Professor Doolittle is able to resume work, which we hope will be in time for the October or the November article.

This article has been read to Professor Doolittle and has been approved by him. —Editor.

THE Milky Way stretching across the sky divides the sky nearly into halves. On the west of it lie the constellations of summer and to the east of it the constellations of autumn. The constellations of both summer and autumn are fainter than those of winter and spring. With the exception of Vega at A and Altair at B the brighter stars lie near the horizon, Antares in the southwest at C, Arcturus in the west at D, Capella in the northeast at E and Fomalhaut in the southeast at F.

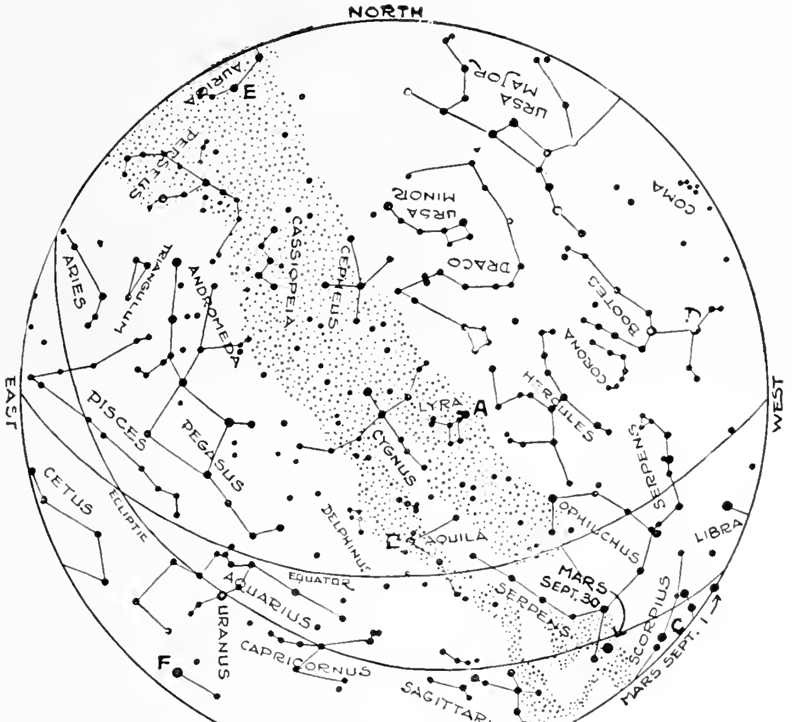

NORTH
AURIGA
E
PERSEUS
URSA MAJOR
URSA MINOR
COMA
DRACO
CASSIOPEIA
CEPHEUS
ARIES
TRIANGULUM
ANDROMEDA
BOOTES
CORONA
D
LYRA
A
HERCULES
EAST
WEST
PISCES
PEGASUS
CYGNUS
SERPENS
CETUS
ECLIPTIC
DELPHINUS
B
AQUILA
OPHIUCHUS
LIBRA
MARS SEPT. 30
EQUATOR
AQUARIUS
SERPENS
SCORPIUS
C
MARS SEPT. 1
URANUS
CAPRICORNUS
F
SAGITTARIUS
SOUTH

Figure 1. The Constellations at 9 P. M., September 1. (If facing south, hold the map upright. If facing east, hold East below. If facing west, hold West below. If facing north, hold the map inverted.)

Ursa Major (the big dipper), so useful for indicating the positions of other celestial objects, now lies low in the northwest and will be low in the north during the winter months. The great square in Pegasus in the east may well be used now as a reference constellation.

* * * * *

The Planets in September.

Mars is the only planet now visible to the naked eye. Its positions at the beginning and close of the month are shown on Figure 1. Mars passes Antares at C September 17. Mars will then be brighter than Antares and a little less than three degrees north of it. This conjunction of these objects is interesting because of the fact that the name of the star Antares is composed of the two Greek words anti and Ares, meaning the rival of Mars. The name, no doubt, is based upon the fact that both subjects are of a decidedly reddish color. Mars is a planet—that is, a body moving in an ellipse about the sun and shining because it reflects the sunlight which falls upon it. On September 17 it will be 120,000,000 miles from the earth. It is about a seventh as large as the earth. The sun is 8,700,000 times as large as Mars. Antares is a fixed star whose distance from us is too great for accurate measurement, but we can say that its distance is at least millions of times as great as that of Mars and that it is a body many thousand times as large as the sun and many billions of times as large as Mars or the earth. The motion of Mars is now rapid and a few nights' interval in observation shows clearly that it has moved. The observations should be made in the early evening before the planet is too low in the sky.

Uranus, which is now nearly as close to the earth as it ever is, is in the position in Aquarius shown on Figure 1. It is of the sixth magnitude, too faint to be seen with the naked eye but easily seen with opera glasses. It looks like a faint star. Saturn becomes a morning star on September 7. Venus is still too near the sun to be seen, but by the end of the month it will set an hour and a half after the sun and can then be seen dimly in the twilight. It will be conspicuous later in the year.

The Milky Way.

Those interested in the sky will find it very interesting and profitable to select a very clear and moonless night to verify the following description of the Milky Way. We shall begin in the south. The description follows that of Herschel. The Milky Way subdivides at Alpha Centauri (below the southern horizon) into two branches. One large branch cuts the southern horizon in a complicated series of interlaced streaks and masses which cover the tail of Scorpio and terminates in a vast and faint effusion over the whole extensive region occupied by the eastern part of Ophiuchus, extending northward to thirteen degrees south of the Equator, beyond which it cannot be traced, a wide interval of fourteen degrees free from all appearances of nebulous light separating it from the great branch on the north side of the Equator, of which it is usually represented as a continuation.

The other branch from Alpha Centauri collects in Sagittarius into a vivid oval mass about six degrees in length and four degrees in width, so excessively rich in stars that a very moderate calculation makes their number exceed 100,000.

Northward of this mass the stream has its course rippled by three deep concavities separated from each other by remarkable protuberances, of which the larger and brighter in Aquila forms the most conspicuous patch in the southern portion of the Milky Way visible in this latitude. Crossing the equator it runs in an irregular, patchy and winding stream through Aquila and Sagitta up to Cygnus. At Epsilon Cygni its continuity is interrupted and a very confused and irregular region commences, marked by a broad, dark vacuity sometimes called the "Northern Coal Sack," occupying the space between Epsilon and Alpha Cygni, which serves as a kind of center from which three great streams diverge. One is the branch we described. Another, very vivid and conspicuous, runs off through Beta Cygni in a southerly direction almost to the Equator, where it loses itself in a region thinly sprinkled with stars.

This is the branch which, if continued across the Equator, might be supposed to unite with the great southern effusion in Ophiuchus already noticed. The third branch runs from the zenith northward and will not now be described.

The southern portion of the Milky Way, by reason of its brightness, may be supposed to be nearer to us. It is interesting to notice the variation in brightness of the two branches. In Cygnus the western branch is much the brighter. This branch vanishes altogether in Ophiuchus. The other branch, which is faint in Cygnus, becomes very bright in Aquila and Sagittarius.

* * * * *

The Satellites of Uranus.

The planet Uranus has four satellites moving about it in nearly the same plane. These satellites are very faint and can only be seen in very large telescopes. There may be other satellites which have not been discovered. These satellites are peculiar in that they move about the planet in a plane which is nearly perpendicular to the plane in which the planet moves around the sun. In this plane they move in the backward or retrograde direction. By this we mean that the satellite moves about the planet in the direction which is the reverse of that in which the planet moves about the sun, as seen from the planet. The inclination of the satellites orbit can then be stated as the smaller angle between the plane of the satellite's and that of the planet's orbits. Astronomers, however, often express the inclination as the angle between the planes, the lines to be drawn in the direction of motion of the bodies. In this way of measuring the inclinations may be as large as one hundred and eighty degrees, and we need not state whether the motion is direct or retrograde as the method of measuring the angle determines it. Thus we may say that the inclination of the plane of these satellites is ninety-eight degrees, or we may say that it is eighty-two degrees and the motion retrograde. The satellite of Neptune and the outer satellites of Jupiter and Saturn also move in the retrograde direction. In Figure 2 we see the paths of the satellites of Uranus as they would appear from the earth with a telescope.

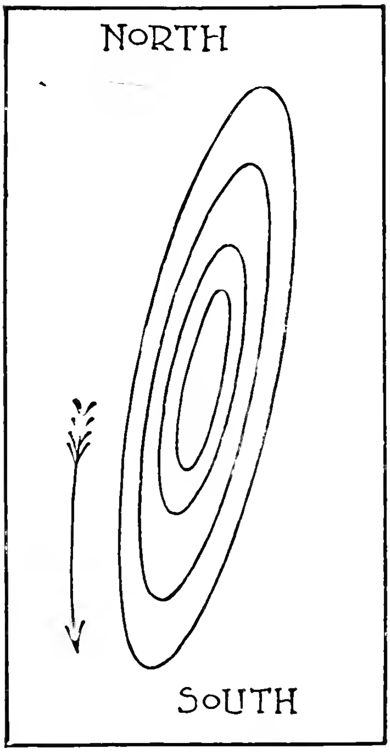


Figure 2. Paths of the satellites of Uranus as seen from the earth.

Autumn begins September 23 at 3:29 A. M. The full moon of September 27 is the Harvest Moon.

The Quiet Song.

BY HAROLD GORDON HAWKINS, WESTFIELD, MASS.

I heard a quiet song at sunset when an evening bell
Tolled through a peaceful valley its last farewell.
And hills were bathed in golden light and every flower
Gave of its fragrance to the passing hour.
The sky was radiant in the distant West
While Nature sank into a deep and slumbrous rest.

Only the west wind stirred, all else was still
Save from a cottage just below the hill
There came this quiet song—lulling a child to sleep
Within its mother's arms. Ah, that Power that doth keep
A careful watch through all the starlit night
Must love such quiet songs at evening when the light
Of glorious day dies in the sunset West
And bird and flower and tired child sink to a dreamless rest.

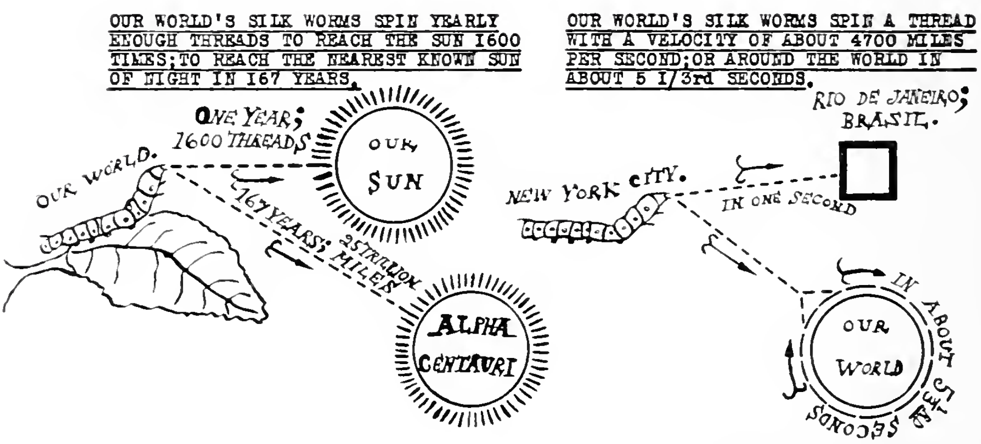
In a Florist's Window.

Fair primrose maidens, all in a row,
Blushingly coy and sweet,
A thrill of joy imparting to all
Who pass along the street.
—EMMA PEIRCE.

The Spinning Worm.

BY CHARLES NEVERS HOLMES, NEWTON, MASS.

The greatest spinners upon earth are the silkworms. The number of eggs laid by the female moth amount to five hundred or more, and these eggs hatch out into worms which begin to spin their cocoons when about six weeks old. It takes the worm about three or four days to complete its cocoon, first with an outer network and then with a continuous thread of blended strands. This silk thread of blended strands is produced by glands extending almost the length of the worm's body and ending in openings in its mouth. As it spins, the worm shrinks in size, the completed cocoon being only about one and one-half inches long.


OUR WORLD'S SILK WORMS SPIN YEARLY ENOUGH THREADS TO REACH THE SUN 1600 TIMES; TO REACH THE NEAREST KNOWN SUN OF NIGHT IN 167 YEARS.
ONE YEAR; 1600 THREADS
OUR WORLD.
OUR SUN
167 YEARS; 25 TRILLION MILES
ALPHA CENTAURI
OUR WORLD'S SILK WORMS SPIN A THREAD WITH A VELOCITY OF ABOUT 4700 MILES PER SECOND; OR AROUND THE WORLD IN ABOUT 5 1/3rd SECONDS.
RIO DE JANEIRO; BRASIL.
NEW YORK CITY.
IN ONE SECOND
OUR WORLD
IN ABOUT 5 1/3RD SECONDS

THE WORK OF THE SILKWORM VIEWED ASTRONOMICALLY.

After all life inside the cocoon has been destroyed by placing it in hot water or in a heated oven, the ends of several of the silk threads are united, and the threads are then unwound from the rest of the cocoon. Only a small part of each cocoon can be used in producing raw silk, about one-twelfth of the cocoon's total weight. Nevertheless, in its three or four days of spinning, this industrious worm manufactures on an average three thousand feet of its own silk, a daily production of over seven hundred feet.

Our world produces yearly about 60,000,000 pounds of raw silk. Now twelve pounds of cocoons make one pound of raw silk, and there are 370 cocoons in a pound. Therefore, to produce 60,000,000 pounds of silk, it is necessary that 266,000,000,000 silkworms die in constructing 266,000,000,000 cocoons. If the manufacturers obtain from each cocoon a silk thread nine hundred feet in length, then they will produce from 266,000,000,000 cocoons a silk thread 45,000,000,000 miles long. However, our world's silkworms spin in one year a much longer thread than that, because several of their threads are united in one thread to make the commercial thread. And, since each silkworm's thread averages three thousand feet, our world's silkworms spin annually a thread approximating 150,000,000,000 miles in length.

Autumn Has Come.

BY CLARA IRENE GOLDSTONE, NEW YORK CITY.

Autumn has come in robe of deep brown,
With graceful sleeve flowing,
A cup for leaves falling.
Yellow her wand and golden her crown.

Autumn has come to turn some leaves gold,
And others to russet,
And with wond'rous sunset
Paints azure skies with stroke swift and bold.

Autumn has come, the time of the year
When winds blow up briskly,
When squirrels scamp frisk'ly,
Begging for stores to cheer Winter's drear.

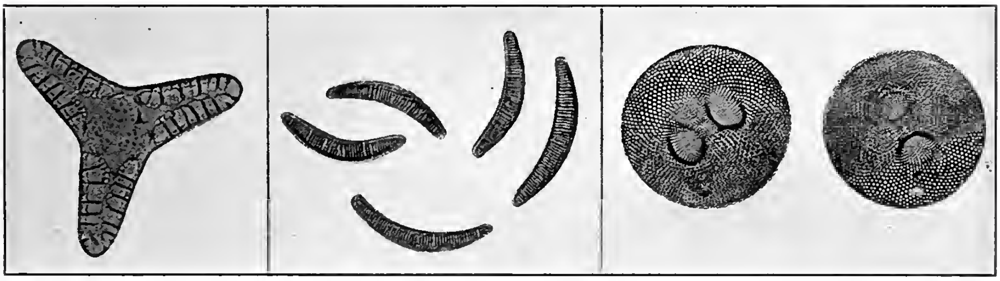
Autumn has come, together to link
The warm breeze of Summer
With cold winds of Winter,
Bringing good cheer, whate'er you may think.

RECREATIONS WITH THE MICROSCOPE

How to Begin the Study of Diatoms.

BY CHARLES S. BOYER, PHILADELPHIA.

Go to the nearest roadside ditch, pond or stream, preferably the slack water of a mill pond. Take with you two small bottles. Detach from the stems of submerged plants or from stones in the bed of the stream brownish masses floating in the water. Place these in one bottle. Pull out from the margin of the mill pond the stems of water plants, such as pickerel weed, and squeeze them over the other bottle, preventing the admission of mud. Now examine, under the microscope, the material by dropping some of it on a slide and placing over it a cover glass. In the material from the first bottle you will probably notice, with a quarter-inch objective, a number of needle-like forms which may prove to be Synedra. In the material from the second bottle you will almost invariably find some boat-shaped forms, pointed at each end, called Navicula. In the needle-like forms, if Synedra, you will see a fine blank line extending the length of the diatom and numerous fine, transverse lines. In the Navicula you will see a blank line down the middle, together with a dark line interrupted in the center of the valve, and, probably, some transverse or radiating lines. If you examine more closely you will see that the dark, longitudinal line in the Navicula is really a cleft known as the raphe, while in the Synedra there is no cleft at all but merely a blank line. In this way you will recognize at once the two main divisions of fresh-water forms, those with a raphe and those without. If there is neither a blank line nor a raphe you will probably have collected forms which may be Epithemia, Eunotia or Nitzschia, but these may be studied later. You may also notice round discs which may be Cyclotella or Meloseira, in which there is no raphe at all but the naviculoid forms should be studied first. If, after examining the living diatoms, noting their movements forward and backward, in the case of Navicula, and their peculiar, yellowish contents, called chromaphores, take a small quantity with a pipette and place on a cover glass. Heat the cover until it becomes red hot, if possible, on a thin metallic plate such as is used in taking tintypes, and, when cool, place it on a drop of balsam on a slide and heat it. You will then have mounted a slide containing numerous diatoms in various positions for study. You will notice that when the naviculoid form is lying at right angles to the usual view it will appear



DIATOMS ARE OF VARIED BEAUTIFUL FORMS.
See additional illustrations on page 44 of our number for August, 1919.

to be linear or quadrangular and that it is divided down the middle, showing that the diatom is composed of two parts, usually alike. You have now discovered the peculiar structure which separates the diatoms from all other kinds of plants. Each little cell, no matter what its outline or appearance may be, is covered by two separate shells, composed, more or less, of silex, hard and indestructible. Each shell is called a valve and the two are united to each other by a band on one valve which meets and overlaps the band on the other exactly as in a candy box. You will notice the bands more especially on large forms when seen in a view at right angles to that of the valve. In some diatoms the band is scarcely noticeable. Let us now examine separate valves, some of which will appear on the slide. If the valve is boat-shaped you will see fine or coarse lines radiating from the middle line or crossing the valve transversely. In the greater number you will find that these lines are really made up of minute dots which are supposed to be pores, in most cases, or the lines may be smooth, in which case you have under observation a Pinnularia. Suppose, however, you find long bands of numerous cells of diatoms placed close together and which separate with difficulty. These may be Fragilaria or Eunotia, or, if the cells are nearly spherical, Meloseira. In any case you will find that the box-like character prevails in all diatoms and that the variations are to a great extent in the arrangement of the markings of the valves. If the forms are circular you will see lines radiating from the centre; if linear, elliptical or lanceolate, the valve is divided by a line into two, sometimes unequal parts, or by a dark cleft. Thus, you have already divided diatoms into three main divisions, one with radiating lines and more or less circular outline, another with a blank dividing line and a third with a true cleft. All diatoms may be united under one of these three divisions, with the exception of certain long forms such as Nitzschia, or oval or ovate forms, as in Surirella, in which you will not see any line or raphe but which are known, or supposed, in some cases, to have concealed raphes on the side. If you once familiarize yourself with these differences you will be able to arrange nearly all of the diatoms found in this locality in their proper classes and later they can be divided into genera and species, the study of which will occupy you for the remainder of your life but it is well worth the trouble.

Two Good Observations.

Akron, Ohio.

To the Editor:

From your interest in the common objects of nature, did you ever take note of the inside of a cocoanut shell? There you will find the perfect form of a leaf with its veins and stem. I remember reading in a book on botany that all parts of a plant are formed on the plan of a leaf. This is a good example. The three holes or depressions are also interesting. One is for the emerging sprout, but why the other two?

When I was in France last year, about the most interesting natural objects that I saw were the snails. They seemed to be everywhere, on the trees, bushes and plants. Many of them were beautifully marked. We saw large ones for sale, sealed shut and about the size of a walnut. These were for eating. I intended to try some but some of the boys said they tasted like paper-hanger's paste, so I didn't. Then they have a pink slug over there, about four inches long. These come out early in the morning. As they are without a shell, I don't see what protection they have from birds. Anyhow the frogs eat them.

Very truly yours,
ERNEST C. GILBERT.

Pleasure and Money Mad.

This malady has now become an epidemic among the people of the United States. Foolish generation. The thoughts of self and a gratification of every material desire which will bring comfort to the individual is where both interest and efforts have been centered for months. The ultimate result will mean discontent and riot. It takes something greater than wealth to bring happiness. Only a life which puts self last and the other fellow first; which considers service, and an honest day's toil far above any monetary value can give a safe poise for any human being.—The Southern Fruit Grower.

EDITORIAL

Death of William Dutcher.

William Dutcher, the President of the National Association of Audubon Societies, died July 1, 1920, at his home in Chevy Chase, Md. On October 19, 1910, while at his home in Plainfield, N. J., he was stricken with paralysis which totally deprived him of the power of speech and the ability to write anything but his own name. For nearly ten years he lived in this most unfortunate condition. During the most of this time his mind was bright and he always took the greatest interest in reading or hearing of the developments of the National Association's activities. His name will always be revered and his memory cherished for the great work he did in the interests of American bird-protection during his active career in this cause, which extended over a period of fifteen years (1896-1910).—Bird-Lore.

Mr. Dutcher's death is regretted by all lovers of nature. He did wonderfully efficient work in the establishment of the Audubon Societies, with which he was actively connected for so many years. His example in devotion to a cause is indeed inspiring. The editor of this magazine made his acquaintance in the very earliest days of his work when he was carrying it on as a side issue to his duties as a general agent of the Prudential Life Insurance Company. His progress has not always been easy, but it has been the outcome of faithful work in spite of many discouragements. The editor of "Bird-Lore" magazine speaks of him as follows:

"He was the leader in many campaigns for bird-protective laws, conducted wide educational propaganda, and continued his great interest in the guarding of water-bird colonies and the establishment of Government bird reservations. His correspondence grew heavy and much of his writing was done at home in the evening after most men's work was over. He was at all times most kindly and lovable in his associations with others and by his zeal and unusual personality he drew many workers into the field of bird-protection."

In this every member of The Agassiz Association will heartily concur. The sympathy of this Organization is extended to the Audubon Societies and to the members of Mr. Dutcher's family.

War Against the Flowers.

BY MISS E. F. ANDREWS, ROME, GEORGIA.

I regret to say that I have to report a piece of vandalism that rivals the slaughter of the trailing arbutus described in the June number of THE GUIDE TO NATURE. On a Sunday toward the end of April, when nature was glorious in her spring attire, I counted, during a ride of two hours, from the foot of Walden Ridge, Tennessee, to the top of Lookout Mountain, twelve automobiles loaded down and almost smothered under the booty their occupants had ravished from this wonderful treasure house of nature. Great boughs of dogwood, redbud, silverbell, hawthorn and rhododendron, that must have left the trees maimed for life. Entire plants of azalea and wild hydrangea, torn bodily from their roots, were proudly flaunted by these ruthless spoilers as trophies of their industry—rapacity would be a more fitting word. It is not love of flowers that prompts such wholesale rapine, but a spirit of acquisitiveness that cannot enjoy the sight of a beautiful object without feeling a selfish desire to appropriate it. A part of the religion of every real lover of flowers should be never to injure any rare or beautiful wild plant without a good reason for so doing.

Snap-Dragons.

The spikes, rose-hued or golden,
Are brilliant and fair to see;
Their nectared hearts they open
To every wandering bee,
And their shell-like beauty offer
As freely to you and me.

—EMMA PEIRCE.

A Blackbird Thief.

BY GERTRUDE LUCAS, NEBRASKA WESLEYAN UNIVERSITY.

This observation was made from a third story window from which I could look into the top of a tall tree, in the forks of which was a robin's nest. The robins brought material and put it into the nest at intervals of from five to ten minutes. During one of these intervals a blackbird flew into the top of the tree and hopped from branch to branch rather cautiously until it reached the nest, when it began to pull out the straws and strings, throwing the straws on the ground, but winding the strings around the limbs of the tree by throwing them across the branch, then reaching around and pulling them to the other side until it had them firmly fastened. The blackbird did not seem to want either the straw or the strings, but the pieces of cotton which it took in its beak and flew away. After making several such trips, the blackbird came back and again started to rob the nest, when the robins saw the thief and chased him out of the tree. The next morning when I looked from the window the nest had been torn down. I have not since then seen the robins.

The Trailing Arbutus.

New York City.

To the Editor:

A copy of the clipping referred to in an editorial on page fourteen of the June number of The Guide to Nature has just been received, also a letter from the Pastor of the First Baptist Church of Poughkeepsie. The following quotation is from his letter:

"Each spray of arbutus was chosen with the same care by two adult Scout Officers, who for many years have been championing the cause which your Society advocates. No boys were present, no roots or plants were injured and there were acres and acres of arbutus. These are the facts."

It is evident from the above statements that the Boy Scouts did not exterminate the plant and we are glad to be able to make this correction and to learn that some of the leaders of the Boy Scouts are interested in its preservation. We regret that any mistakes have occurred and are sorry that we could not have had the facts before we published our criticisms. It is also cheering to learn that the station for this rare plant was not published, and we comfort ourselves with the thought that perhaps it will save the plant longer from extermination to remove the flowers carefully in small sprays, before others, who are less careful, pull it up by the roots.

Elizabeth G. Britton, *Secretary,*
Wild Flower Preservation Society.

Joe Pye weed, darkly crimson,
The glory of golden rod,
And the snowy white of asters
Fresh springing from the sod,
A feast of beauty gave us
That was worthy of a God.
—Emma Peirce.

The palm for patriotism
To blueberry-bushes small,
With the white of their early blooming,
And their flaming leaves in Fall,
While the blue of abundant fruitage
Is the crowning tint of all.
—Emma Peirce.

PEDAGOGICAL

The Girl's Self-Expression.

By Edward F. Bigelow, ArcAdiA: Sound Beach, Connecticut.

Many teachers and many parents have expended too much effort in developing the girl, and too few persons have taught her or encouraged her to develop herself. The general educational thought and tendency have too largely regarded the girl as something to be molded into form, rather than to be permitted to grow into it. If we may compare this treatment with a game in which something concealed is to be found we have put into the game too much of the centuries old situation in which are an active teacher and a dormant or silent class. Only in recent years have we begun to learn that the real value of the game lies largely in the enthusiasm and the activity expended in the search. I of course recognize that in the best of modern teaching there is a skillful stimulating of the pupil's interest and mental activity, and in teaching to follow the teacher's lead and to listen. But that is not enough. For most of the time the pupil should lead and the teacher follow. Aye, there is the point. I have much charity for those who make the mistake of depending wholly upon the pupil to follow the lead of the teacher, because I frankly admit that I made it myself for many years as a teacher and as a principal in the graded schools, as well as in the early half of my nearly a quarter of a century's work in high class private schools.

Perhaps not from my long experience as a teacher would I have emerged from the half truth to the whole, perhaps not even if that experience had been widened and deepened, because the purpose of a teacher is to shape by direction. In more recent years my own teaching attitude has been gradually, yes, even startlingly, changed and developed along new lines because of two factors: the first as a parent and grandparent, the second as a biologist and naturalist. These four subdivisions of the two classes are accustomed to watch, study and admire growth. The teacher is always centripetal, the parent-naturalist is always, no, not always is, but always should be centrifugal: the one is compression, the second expression.

Why is a girl diffident and self-conscious? Because she has been too repressed, and allowed too little outward expression. She has been made to feel, and to feel unjustly perhaps, that her parents, her teachers and even her friends in their solicitude for her welfare are constantly watching and criticising her. Her friends have, unintentionally of course, so tight laced her that she is not free and natural, and we all know that lack of natural freedom is always lack of natural grace. So many persons have exhibited so solicitous a care of her that her own abilities of expression have become atrophied. She is not mentally deficient but mentally repressed and compressed. All the attributes are present, they are inactive. The result is a self-consciousness commonly but mistakenly known as diffidence and awkwardness. I claim no discovery of this situation. It is painfully self-evident to many a teacher and parent, but I do claim originality in the cure. Yet in this I do not ask for any special credit. The remedy was forced upon me almost against my will, and would have come to anyone in similar circumstances as naturally as effect follows cause. The causes that brought about this effect have already been explained, but to them is added the factor of the widest personal experience and association with girls that any other man has ever had. A man is needed to understand a girl, because a man can get a better perspective view from the vantage point of sex.

For about the same reason a naturalist will get a better view of the valley after he has climbed to the mountain top, and a better view of the mountains and valleys of the moon than of those on the earth, and for the same reason that he understands his own youth better in advancing years than he understood it while he was young. If the distance is not so far as to dim the vision, the perspective adds to the successful seeing. But too frequently adults get so far away from their youth that the result is not a better perspective but a poorer focus.

To overcome these self-evident needs of the girl all sorts of new-fangled pedagogical inventions and contrivances have been suggested. But the girl does not need the application of this theory or that, she needs to be free and untrammeled, to find herself, to express herself through natural methods: she needs to be allowed to grow in all that is good and beautiful. Mother Nature is preeminently feminine. She seeks and cares for her own when she and her own are not forcibly separated. The girl should be permitted to express herself through nature, Per Naturam ad Meum—a parallel of the divinity of her own right.

For a decade of years, and more strongly in the last three or four, this great truth has been impressed on me more and more strongly almost in spite of myself. Within the last two or three years I have gradually come to let an understanding and helpful friendliness spring up between nature and the girl. I have found, both in theory and practice, that this method does not apply to the boy, for the simple reason that East is not in the same direction as the West, nor the positive the same as the negative. I would not for a moment lessen in even the slightest degree the value of nature for the boy. One of the grandest slogans for modern civilization is "Back to nature." But every person must seek the joy that he especially needs. For the boy there are many values, chiefly physical. For the boy I sincerely hope that some one, and perhaps that some one will be a woman, will find an equally efficacious but entirely different plan. After a long experience I frankly admit that I have not been able to find it, but I have faith to believe that somewhere, somehow, the boy will yet come into his highest and best relations to nature. While this confession is somewhat humiliating, a little consolation is that others with an equally extended experience in nature have admitted practically the same thing. When such masters as Henry David Thoreau and John Burroughs have shown and to a certain extent confessed that the point of view of their self-expression through nature is essentially feminine, then I take heart in acknowledging myself as a girl specialist. There are boys who are just as lovable as there are girls, and are just as good material for personal development in self-expression. God speed the efforts of the man or woman who will find for the boy what I have found for the girl.

I also recognize that there is a limit to one's own personal endeavors. In youth all the world in air-castle building is to be conquered and such victory seems possible. But in later life one is forced to recognize the fact that there is a limit to one's endeavors and that it is better to do one or a few things well than many things badly.

Again it is true in all thought and work that one believes in what one best knows. A specialist knows one thing well and has sympathy in other pursuits. My own experience with nature and with girls has forced me to be a specialist with both. I joyously accept the position in which heart and circumstances have placed me.

Never fear for a girl, whatever work she undertakes, if you know her to have been bred in all high-mindedness, for she carries with her in every fibre a charm against disaster. On the other hand, if she has been bred to follow after pleasure and to desire admiration, she must be watched at every turn to prevent her making a fool of herself. —From "Girls" in "The Atlantic Monthly."

The Grace of Naturalness.

BY EDWARD F. BIGELOW, ARCADIA: SOUND BEACH, CONNECTICUT.

"Have you always stuttered?"

"N-n-n-no. I-I-h-have ssss-s-tut (whistle) tered only when I have talked!"

Judging from the various periodicals in which this alleged joke has appeared, many editors have recognized its humor. Careful analysis teaches that it is pedagogically significant.

"Are you always awkward and diffident?" "N-n-n-o. I am only so when I attempt to speak before people."

"Do your ideas get mixed and tumble over each other?"

"N-n-no. It is only when I attempt to send these ideas out to others that I get confused. In my air-castle building I am clear in thought and eloquent in expression."

There is the pedagogical key to the whole situation. Fluency of ideas, eloquence of expression, grace of manner are attained only by naturalness, by annihilating self-consciouness. In method of thought, in manner of action every human being is practically perfect when alone. It seems therefore that sins of expression like social sins are only matters of association. The individual lives in a Garden of Eden so long as he is alone or so long as he is completely within the shell of his own individuality.

I stood on the bank of the meadow, and with admiration for the grace and beauty of their motions I watched the workmen digging a ditch. It was a study for an artist. But if I go down to that ditch and ask those men to let me photograph them, at once they become awkward and constrained. If I am to picture their graceful attitudes I must take them without awakening their self-consciousness. It is only a great actor that can act before other persons in perfect naturalness.

At my home in Sound Beach, Connecticut, there are, in the early spring, acres and acres of dandelions to which come the Italian women of Stamford. They dig up these succulent plants, fill big bags with them and then trudge picturesquely homeward. I have never seen these workaday women gathering dandelions or trudging homeward, but I have exclaimed to myself, "What perfect grace, what beauty of expression." A queen in a drawing-room could not more charmingly converse with her friends than do these Italian workers with theirs.

But let me approach with a camera and so awaken their self-consciousness, and how awkward and embarrassed the whole situation becomes. I have longed to get their expressions as they chat with one another on their homeward journey, but I am not able to do so because the advent of the camera is followed by ridiculous and awkward movements. If I could be half a mile away and completely hidden I should get a masterpiece of genre photography. Anyone who studies that type of photography in the leading magazines devoted to the camera will observe that not only mechanical perfection helps in securing the first prize, but in some manner the photographer must counteract that "I am being photographed" expression.

I recall that a good many years ago, when I was a young boy, I attended a meeting of the voters of the school district in the backwoods where a certain matter was considered of tremendous and vital importance. While waiting for the meeting to be called to order, several of the farmers expressed themselves so eloquently that in my boyish soliloquy I said, "This is the way Pat Henry or Abe Lincoln must have done it to gain fame." One man was particularly eloquent. He had the power to stir the entire company and to elicit tremendous applause. As he ended his address his brother entered the schoolhouse. After a few minutes of social chat and jocose bantering, the chairman called the meeting to order. The minutes were read, the subject of the evening was introduced and somebody made a motion that Mr. ———, who had studied up the question thoroughly, should present the matter formally to the meeting. Mr. ——— arose, hemmed and hawed, coughed, fumbled with his coat and apologetically explained that he was not much of a speaker and pitifully labored through his argument. He made his points fairly well but was ridiculously self-conscious. That scene in that country schoolhouse made a lifelong impression on me. I then and there learned the lesson that has followed me for life, that grace of manner and ability of expression have a strong and active enemy in self-consciousness and formality. I have often queried, "What was that man afraid of? Was it his own brother, the only one who had entered the room since his eloquent oration, or was it the secretary's calling of the meeting to order?"

The answer is simple. His sin of awkwardness, like any other personal sin, was wholly a matter of his own self. Get one's own personality right and everything that follows will be right.

I once read the jocose reply of an editor to a correspondent who asked how oratorical ability is to be obtained. The editor replied that the speaker must think of every member of his audience as a cabbage head. Psychologically the editor was only partly right. If he had told that would-be orator to think of himself as a cabbage head and be as completely oblivious of the members of his audience as is a cabbage in the garden to the other cabbages, then he would have expressed the gist of the matter.

I once attended a series of lessons in a famous school of oratory and I heard reiterated this statement as the secret of good reading or reciting: "You must get wholly into the spirit of your author." I at once made the deduction or corollary: it must be equally true that to be eloquent in originality one must get wholly into the spirit of one's self and be oblivious to the thoughts of anyone else.

To be shut up like a clam, paradoxical as it may appear at first thought, is one of the essentials of self-expression. Why is it, as Richard Grant White says, that a letter from a servant girl to her lover may be more eloquent than an elaborate and learned essay? Simply because the girl is thinking only of her love, and out of her heart she is self-expressive, while the pedant is thinking more of his learned language than of letting himself loose.

Thirty years as an editor has brought to my desk a great variety of self-expressions, and some of the most charming have come from very young folks who were not old enough, or I should say not self-conscious enough, to make the mistake of thinking that the editor is especially in love with language that flows from a dictionary or an encyclopedia.

For years I was taught, I learned and I taught that the best way to express an idea was like the fish in that old story of how to cook a fish. You must first catch the fish. That philosophy is not correct. One does not catch fish until one has learned to dangle a hook and line and to know a good many things that will not frighten the fish. That is the grace of the fisherman and I am more and more convinced, in establishing my new philosophy of self-expression, that using a mental writing machine or one's own talking machine is much like using a typewriter. The first thing is to get freedom of action.

When a woman buys a sewing machine she is not instructed by the skilled dealer to get a pretty pattern and an expensive piece of cloth and she will then acquire the ability to run the machine. No, he first shows how to operate the treadle; he puts on the belt and runs the machine, then he takes any piece of cloth and shows her how she must get a motion that must not be jerky and jumpy but smooth, easy and steady. In other words, the more the self-consciousness of the operator gets into that machine the more jumpy and jerky and ridiculous will be the result.

The farmer with his new mowing machine does not strike at once into his heaviest field of herd's grass. He drives up and down the road, throwing the machine into gear to have the horses get used to it and to be sure that he himself knows how to handle the lever and throw the cutting arm over the stones. When he has mastered the machine he is ready to cut the hay and not until then. The dealer that sold the machine may be an expert of the highest order and may have sold machines the country over, yet he logically knows that the first thing is to run the machine before it can be set to work.

In my method of teaching self-expression to girls and young women I follow common sense business methods, which in this respect are exactly the opposite of that time-honored statement, "Get the idea first." If I could get the young people to obtain first-class ideas I would not be guilty of having them lose good material by running it into a creaky and badly operated expression machine. Diffidence, awkwardness, lack of grace, blushing self-consciousness are never the lack of mental efficiency. For grace and naturalness of manner it would be hard to find anyone in all the world that can excel an idiot. He does not know enough to be self-conscious. He is literally a cabbage head of self-expression.

"But I can't get her to express herself," exclaims the teacher. Nor could you get her to run a wheelbarrow load of pig iron. Perhaps it is not lack of ideas. It may be a case of piling on too big a load. Let us first of all practise running the empty wheelbarrow and learn to do it gracefully, then we may gradually load it until we reach the limit of wheelbarrow transportation.

To sum up. What is the most valuable possession of every human being? Personality. Did you ever know of anyone who wished to change himself, to be somebody else? Working therefore along the line of least resistance and best value, the greatest thing that a human being can do, as Ruskin has said in other words, is: "To see and to think and to tell." When these three points of life are well filled, the heights of happiness have been reached. There is nothing greater that any human being can do. To see the glorious, to think logically about it, to tell effectively will make a heaven of any environment.

ANNOUNCEMENT.

These two articles

"The Girl's Self-Expression"
"The Grace of Naturalness"

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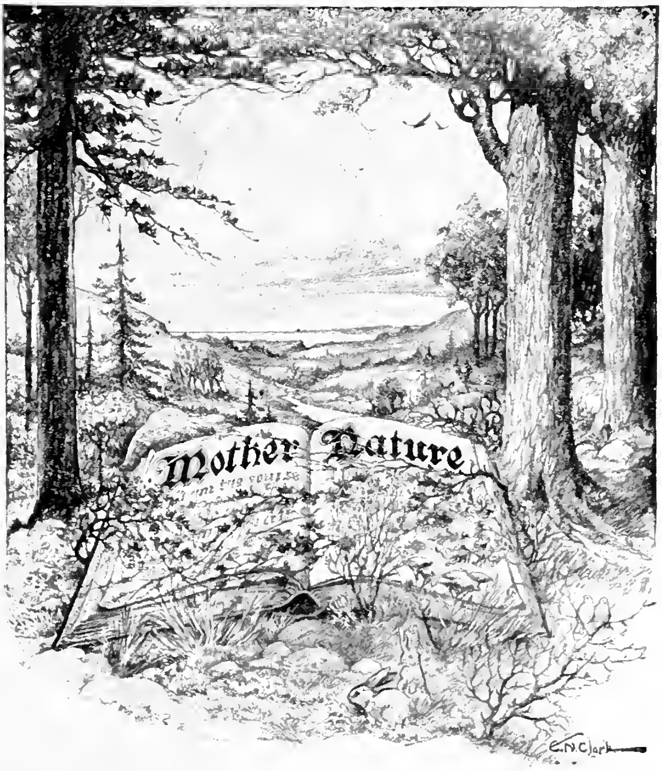

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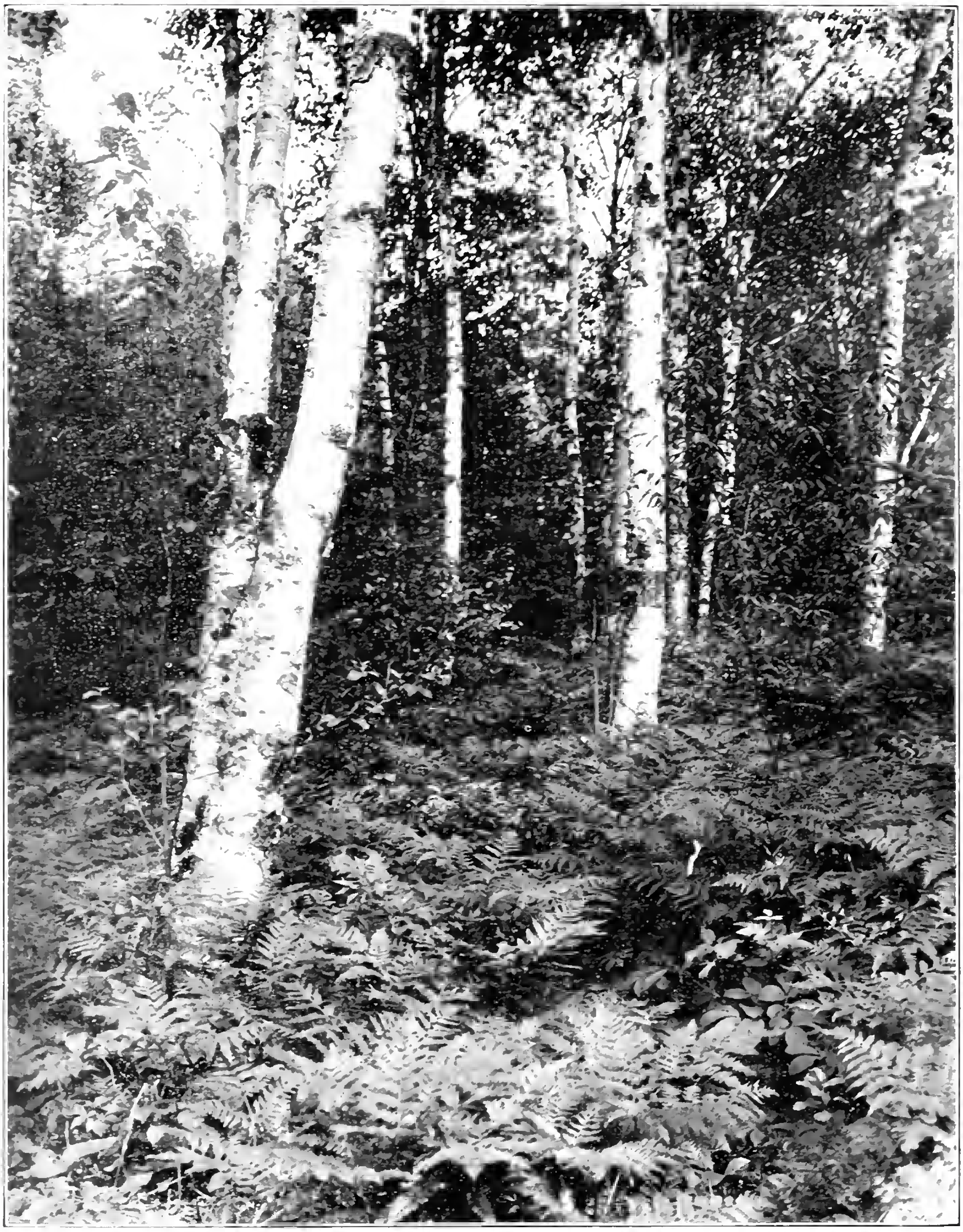

FERNS IN THE WOODS.

The Poetry of Earth.

"The poetry of earth is never dead," said one who knew more about it than most of us; and it is certain that the beauty of the natural world is as varied as it is inexhaustible. It is not necessary to go far to seek the beauty, to travel in strange countries, or to explore wide waters. The most appealing and the most exquisite loveliness is all about us every day, throngs in upon our senses, once they are awake to it, with a delight sufficient to obscure and banish the haunting misery of life. And the loveliness is most abundant in common things. The delicacy and the secret, creeping growth of casual weeds and insects, the large and quiet drift of summer clouds in the unfathomable sky, are endless revelations of beauty, everywhere and at all times accessible

Such ample and enduring pleasures are not confined to a small class of the leisured or the wealthy. The capitalist, with all his millions, may not grasp them; the poor laborer or the simpl child may have an instinctive enjoyment of them that money cannot buy or privilege confer.

Yet how many, rich and poor alike, and wise and simple, are completely insensible to them. We pity the grossly blind, whose eyes are obviously shut to the necessary vision of even the common things of life such as are essential to our animal needs. But we do not think of the far greater number whose spiritual vision is sealed, so that they are utterly unconscious of all those rich possibilities of joy, which need only be seen to make us happier and calmer and therefore more profitable to ourselves and to others. How many millions of men and women there are who live in the self-secluded isolation of Peter Bell:

> A primrose by a river's brim
> A yellow primrose was to him,
> And it was nothing more.

No doubt the poets can help us greatly to the vision of the poetry of earth. They can unseal our eyes and help us to use them. Best of all, they can quicken the imagination behind the eye.

But, after all, it is our own imagination and our own eyes that must be of service to us. We must learn to give our imagination rein. We must learn to open our eyes and not let care and trouble seal them. "I am a man for whom the visible world exists," said Théophile Gautier. Can you say it?—The Youth's Companion.

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The Wayside Altar.

Only an old stone wall
Under the maples tall,
Doing its bit to guard the field inside;
But morning glories white
As snow on Winter's night
Had made it into a wayside altar wide.
—Emma Peirce.

FIELD KEY TO THE GENERA OF THE GILL MUSHROOMS. By Louis C. C. Krieger. Baltimore, Maryland: The Norman, Remington Company.

This unique little publication will interest many of our readers. It consists of a large sheet with numbered and illustrated spaces, and will doubtless be helpful to students of gill mushrooms.

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(No doubt I have died myself ten thousand times before.)
—Walt Whitman.

Something Missing

A city youngster was paying his first visit to his uncle's farm. Among the animals on the place was a rather small colt. As the boy stood gazing at the little creature his uncle said:

"Well, what do you think of him, Johnny."

"Why—why, he's all right," said Johnny, "but where's his rockers?"—Cleveland News.

Bird of Paradise Orchid

Lightly poised, as if ready for flight,
All in orange and purple bedight,
This blossom that by name of bird we call
Among other forms equally strange,
And with colors of infinite range,
It yet is the stateliest orchid of them all.
—Emma Peirce.

February 4. Newspapers take up much time,—too much by a great deal; but one can hardly help it now when any moment may bring the greatest tidings.—Henry Wadsworth Longfellow.

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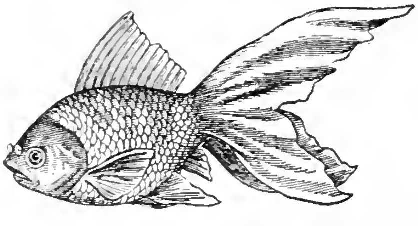

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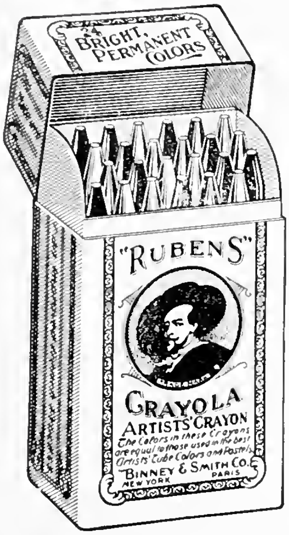
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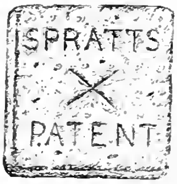

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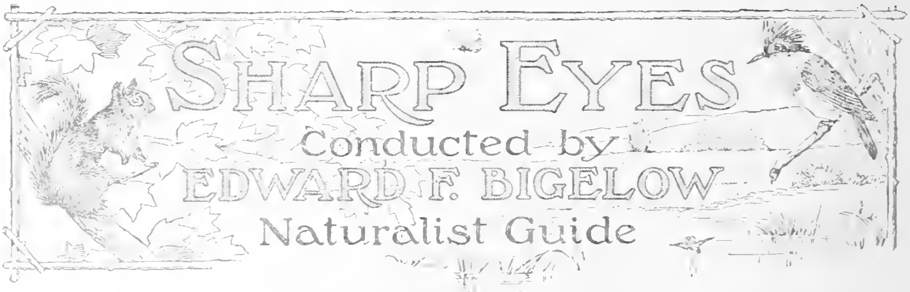

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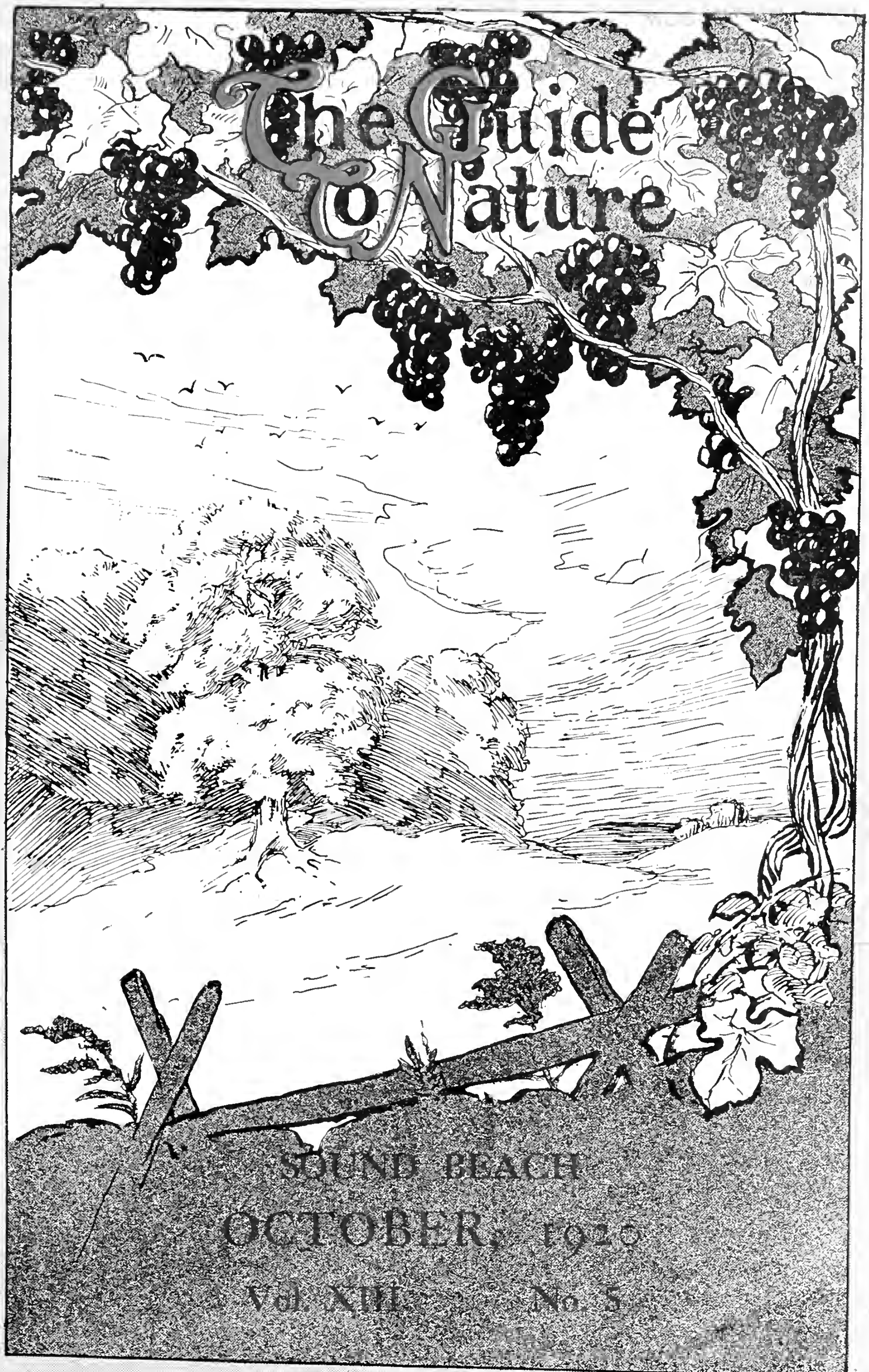

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SOUND BEACH
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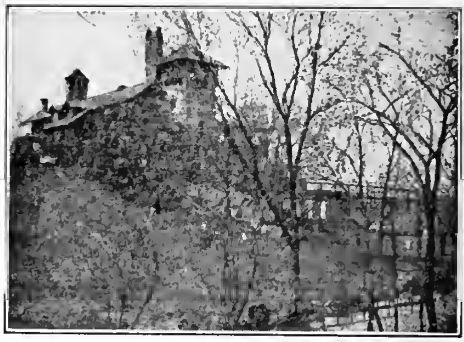

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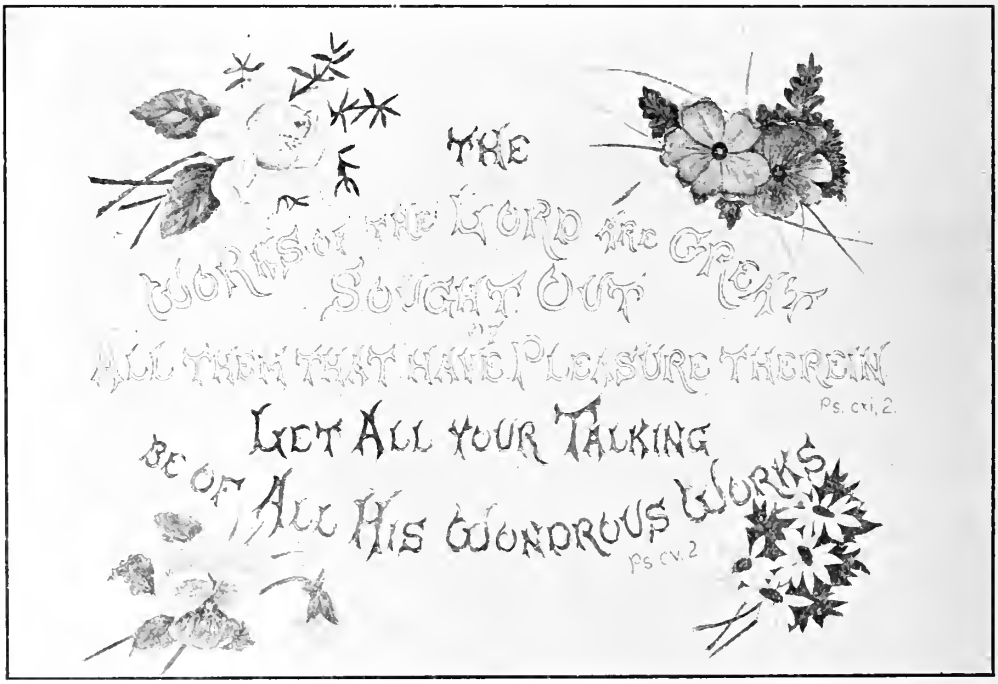
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"Sure, I killed a lot of them," said he.

"Which hand did you use?" asked she.

"This hand," said he.

"May I kiss it?"

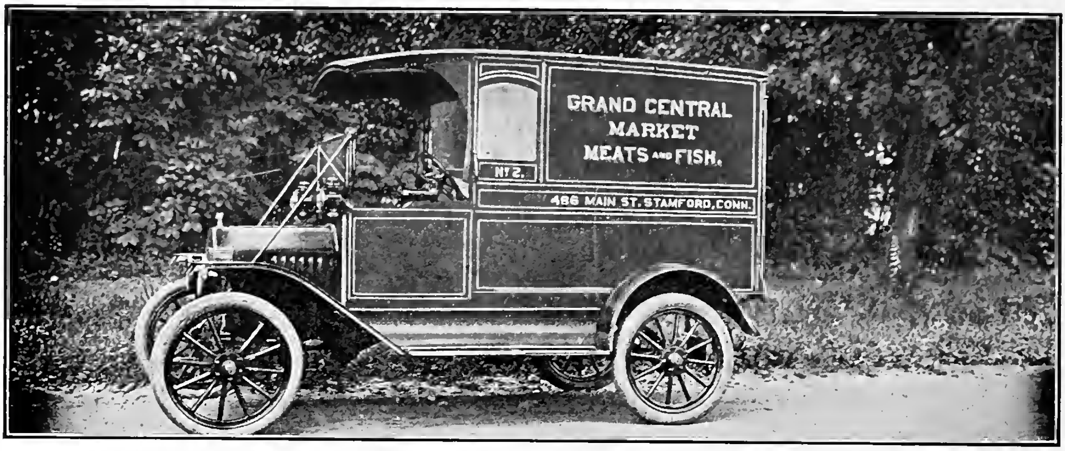
"Surest thing you know."

She did.

Then his buddy butted in: "I killed a couple of Germans!"

"Which hand did you use?"

"I didn't use either hand—I bit them to death!"—Roycroft.



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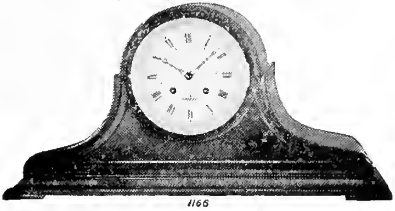

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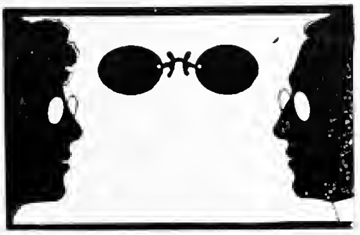

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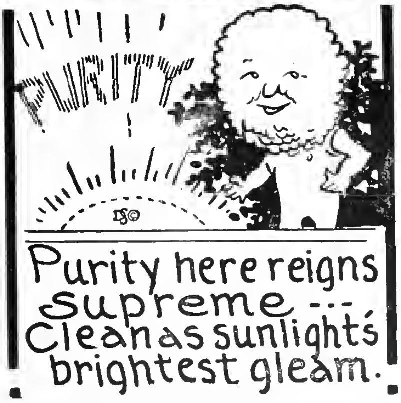
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Stamford Horticultural Society.

We congratulate the Stamford Horticultural Society upon its wonderful growth and on the success in obtaining the beautiful building at the corner of Greyrock Place and Forest Street. That building is now undergoing the repairs and alterations necessary to ideally fit it for the needs of the society and its friends, but in a later number we plan to say more about this building and about the wonderful achievement of the organization in providing itself with a home.

A Preliminary Schedule of the Fourth Autumn Exhibition has just been issued. That exhibition will be held on November 5, 6 and 7, 1920. Entries should be addressed to Alex Geddes, Chairman, or to George B. Cannon, Manager, 43 Atlantic Street, Stamford, Connecticut.

Announcing a Change in Our Merchandising Policy

For several years past we have not been active in the sale of electrical devices. We have carried only a limited stock of irons and other small utensils, but have not handled washing machines, vacuum cleaners, or many other of the more important labor-savers.

We desire to announce that we are preparing to take up actively the sale of electrical devices of all kinds. Owing to the difficulty of obtaining material, our stocks will not be complete in all lines at once, but we have placed orders for a large quantity of goods and hope to be able to meet all demands for electrically operated devices within a short time. We believe we can offer our customers a real service in connection with the supplying of their electrical needs.

We have the agency for an excellent line of washing machines and vacuum cleaners. Our washing machines are now on display, and our vacuum cleaners will arrive very shortly. We are prepared to offer favorable terms on the sale of these.

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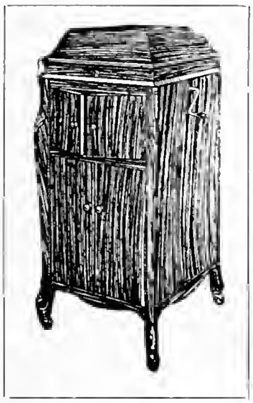

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There is abundant production in most of the factories of the country—some have even closed down or shortened hours, because of surplus stocks. There should be no shortage anywhere—especially since the railroads have recently improved their service.

Prices of many things are lower than they have been, and higher prices are quite right and mostly among things that people don't really need to buy.

The merchandise has been pleasingly improved in many lines and the Fall Apparel is really delightful in its originality and artistic lines and colorings.

All the desired goods are here—
Prices are pleasantly moderate—
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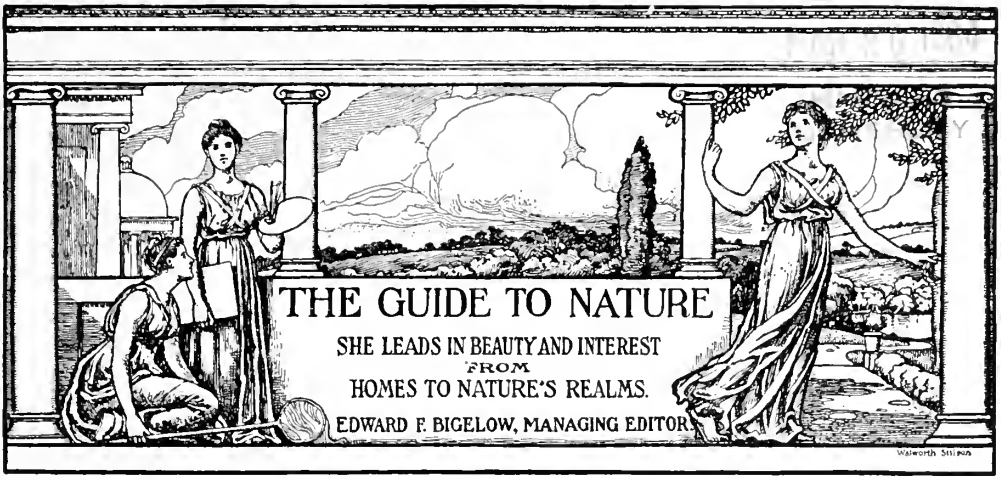
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SHE LEADS IN BEAUTY AND INTEREST FROM HOMES TO NATURE'S REALMS.
EDWARD F. BIGELOW, MANAGING EDITOR
Walworth Stilson

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Volume XIII. OCTOBER, 1920 Number 5

THE FALL CRICKET.

Written under the trees near ArcAdiA. By Ethan O. Smith, New York City.

How many of those who enjoy listening to the "lonely" chirp of the fall cricket at this season of the year have noticed just what effect the temperature has on this little songster? There must be many who have not, for diligent inquiry for many years among friends and acquaintances has failed to find one who had ever done so. The writer discovered it only by accident, and does not wish to claim it as the result of exhaustive scientific research. It is a fact, however, that the little body is a perfect thermometer more sensitive and accurate than many made of glass and quicksilver. I have always been fond of listening to the chirp, and for many years have noted the date on which the first one was heard—usually about the middle of August. To many people it means "six weeks to frost," but this has its variations like most other signs relating to the weather.

Some years ago, I decided to capture a cricket and take it into the house where I could listen to its music at short range. Like many other good resolutions it was more easily made than kept. I soon found that the little green grasshopper is very shy indeed and, as it lives among the tree tops and as a rule sings only at night, it is difficult to see one and much more difficult to capture it. But success finally rewarded my efforts, and by following his chirp I saw for the first time how he does it.

The little hopper is about an inch long exclusive of antennae. Its wings of light green gauze are just the shape of a snowshoe, and indeed under a microscope, or rather a magnifying glass of low power, look very much like one. In "singing" the wings are raised to a vertical position over the back and then rubbed quickly together. The friction thus made causes the note or chirp which we hear with such rythmic precision all through the lengthening evenings of autumn.

After a number of unsuccessful attempts I finally captured my little songster, took him into the house and put him in a bunch of golden-rod. Then I listened for hours but he steadfastly refused to sing. I came to the conclusion that he did not feel like singing in captivity, for which he could not be

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blamed, so I started to release him. Then I decided to give him a trial in the woodshed, where it was dark. After another long wait I was rewarded by the plaintive notes of my tiny musician. I noticed, however, that he was singing much faster than his friends outside. This was something unusual, for the crickets always sing in rythmic unison, but I supposed it due to the excitement of his capture and the different environment, and that after he became accustomed to his new surroundings he would get into time and tune. But his tempo did not change.

I began to wonder if the temperature had anything to do with it. I took the temperature outside and counted the number of chirps per minute, and then I took the temperature of the woodshed and counted the number of chirps there. I found that in the shed it was seven degrees warmer than outside, and that my captive was chirping just twenty-eight more times per minute than were the others. This gave rise to the very interesting theorem that for every degree of rising temperature the chirps are increased four per minute. Further investigation proved this to be a fact, and I soon had a working basis for finding the temperature whenever the chirps could be heard. I found that at a temperature of seventy the chirps are just one hundred and twenty per minute. If the increase is four for every degree of rising temperature the decrease must be four for every degree of falling temperature. By reducing our theorem to the vanishing point, that point will be found at a temperature of forty, though as a matter of fact the cricket rarely ever sings when the temperature is below fifty. But if it did its song would vanish at forty. Now beginning at a temperature of forty, if the increase for a rise of a degree is four for each minute, the increase must be one for each quarter of a minute. Therefore, from the foregoing data, the following axiom may be readily deduced: *The temperature equals the number of chirps in fifteen seconds plus forty.* This simple rule will be found infallible and it has afforded the writer a great deal of pleasure and amusement for many years. After the crickets come, in the evening I often say to my friends, "I think I can tell the temperature more nearly than any one present." The challenge is usually taken up. After all have guessed at random, I take out my watch, gaze at it intently for fifteen seconds and announce the correct temperature, to the wonder of all. Some one is sure to exclaim, "Well, who ever heard of telling the temperature by a watch!"

Perhaps the commonest night song, however, is that of the snowy tree cricket (*Oecanthus niveus*). This insect has a day song as well as a night song, varying much in intensity. There is a distinct relation between the temperature and the number of notes per minute. Professor Dolbear has reduced this to a mathematical formula. He says:

Let T = temperature in degrees Fahrenheit; N = number of chirps per minute. Then

$$T=50+\frac{N-40}{4}.$$

This would give 100 chirps for 65 degrees Fahrenheit.

This formula has been tested in Massachusetts by Dr. Robert Edes and Mr. Walter Faxon, who find that from actual records the temperature is about 63 degrees to 100 chirps, with an error of variation of one degree or less in four-fifths of the cases.—The Insect Book (Howard).

When Young Wrens Leave the Nest.

BY A. ASHMUN KELLY, DOWNINGTOWN, PA.

It is a common belief that young wrens when about to leave the nest for the last time do so at night, but this was not true of four that we observed. The young birds left the nest early one forenoon and played around the bushes in the yard for several hours. After a while they disappeared, but returned in a short time, followed subsequently by another flight, after which they flew about in the open fields, flying well and gaining confidence in their powers. Best of all, they stayed well above the earth, out of the way of lurking cats.

The parent birds appeared in the yard July 1, found a box and occupied one week in getting the nest built, after which came the eggs, then the hatching, with both birds attending strictly to business.

The Great White Shark.

BY DAVID STARR JORDAN, STANFORD UNIVERSITY, CALIFORNIA.

While sharks are reputed to destroy human life in the tropics, they have very rarely allowed their voracity to overcome their natural timidity on the temperate coasts. For that reason, the assaults on our Atlantic Coast a few summers ago were as unexpected as they were unwelcome.

It is interesting to know what species of shark is responsible for this and similar acts of destruction. They have been laid to Milbert's shark *(Carcharhinus milberti)*, one of two species of "dusky shark" found on our Atlantic Coast. But while this species, with its fellow, *Carcharhinus obscurus*, grows to a considerable size and has sharp teeth, it has never been known to attack a man before, and it is probably innocent. The sand shark, *Carcharias littoralis*, has sharp teeth and a bad temper, but it is too small to be accused of these deeds. Much larger, swifter and fiercer are the three species of mackerel shark, *Isurus punctatus*, *Isurus tigris* and *Lamna nasus*, all three with long, sharp, fanglike teeth capable of doing mischief if they tried. But these species are busy with the schools of mackerel and very rarely come near the coast, certainly never to the beaches. While we may hold these species as suspect, they are probably innocent, as we have one culprit of which we are sure.

A few years ago there was taken in New York Bay a partly grown example of the great white shark, *Carcharodon carcharias*. If we can ever trust a fisherman's word, this species is a real man-eater and always has been whenever it has had a chance. Its teeth are more than an inch long, flat, triangular and saw-edged, perfectly fitted for biting off legs. It lives in the seas of the tropics in both oceans as well as in the Mediterranean. It ranges northward in the summer, but Mr. Nichols, the fish expert of the American Museum, tells me that there is no other record of its appearance within fifty miles of New York. Whenever taken it will be known by its evenly triangular, strongly serrated teeth in five rows, about twenty-four in each row, and by its tail, the two lobes almost equal, and the side of the tail before the fin with a strong keel. The mackerel sharks have a similar tail but their teeth are lancetlike and without sawlike serrations. All the other sharks on our coast have the upper lobe of the tail much longer than the lower.

The writer secured a full-grown one of these off Soquel in California in 1880. It was thirty feet long and had a partly grown sea lion, weighing about one hundred pounds, whole in its stomach.

We may be reasonably sure that the attacks on bathers along our Atlantic shore were due not to our ordinary hungry but timid sharks, nor to any sudden change in their nature, but to the presence of one or more of the true "man-eaters," the great white sharks, at home in the West Indies and strayed shoreward from the Gulf Stream. If this is the case, the affair is not likely to occur again. Dr. Nichols, who has given the record of the capture on July 14, 1915, says that the occurrence of the great white shark about New York is "therefore unprecedented and coming just after the unprecedented accidents clearly incriminates *Carcharodon.*"

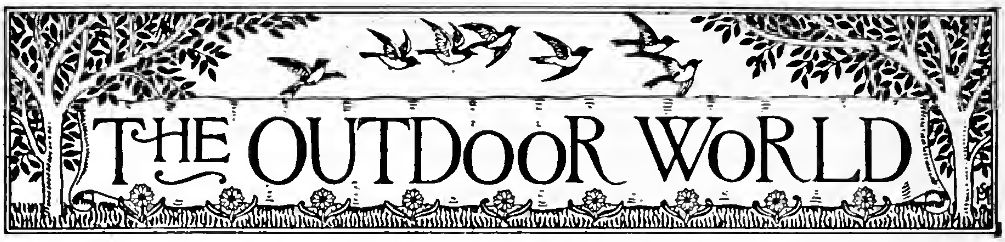
An extinct species of this type, *Carcharodon megalodon*, must in Miocene times have been the terror of the seas. Its teeth are found in abundance in the phosphate beds of South Carolina, and in the near-by deposits of California, especially in the oil regions about Bakersfield. A living white shark thirty feet long has teeth one and one-fourth inches long. The teeth, exactly similar in form, in the fossil species reach a length of six inches. This indicates a shark from one hundred to one hundred and twenty feet in length. The mackerel sharks of that day were excessively abundant and, judging by the teeth, the species then existing, *(Isurus) hastalis* of Agassiz, must have been from forty to fifty feet long.

To our primitive ancestors a dip in the warm sea may have been a rare and risky novelty.

An October Day.

The sun flashed gold upon the hill,
And silver ran the stream,
The colors blazoned on the wood
Surpassed an artist's dream;
White cloudlets drifted in the blue,
The air was soft as May.
Oh, isn't it good to be alive
On a rich October day!

—Emma Peirce.



THE OUTDOOR WORLD

1920 Kineowatha Camp for Girls.

There are two classes of camps for girls which may be illustrated by the following divisions:

1. Kineowatha at Wilton, Maine.
2. All others.

That does not mean that Kineowatha is the only good camp in this country, nor does it disparage any of the others. It means only that Kineowatha is in a class by itself so far as ideals and management are concerned. These are decidedly different than those of other camps, marking it distinctly as the de luxe inland camp for recreational development along physical and literary lines. It does not necessarily follow that every one should prefer this camp. Indeed, I have found a number of families who zealously cling to the old-fashioned idea that the more roughly and the more uncomfortably one can be treated by nature the better it is for him and nature too.

I have not only respect but admiration for those persons who so adore nature that they will suffer any hardship to see her at her wildest. There are enthusiasts of the most admirable kind that love all the comforts of civilization but explore the wilderness and brave the wild animals of Africa and the cold of the Frigid Zones. Even some young girls enjoy hardships and look disdainfully upon anything that savors of comfort. To state that Kineowatha is more comfortable than other camps does not necessarily imply that it is better but only that it is equipped for those who like wild nature with a reasonable number of the comforts of civilization. It is evidently for daughters of homes where culture, refinement and high educational ideals prevail. Kineowatha is a comfortable summer institution of nearness to nature, and its board of managers are skilled experts.

For 1920 the enrollment was increased from some seventy-five to a little more than a hundred, but the increase of facilities more than made up for this increase in numbers. I venture to say that every one of the hundred had a greater number of comforts this year than had any one of the seventy-five of previous years. This was notably true along the lines of increased Main Bungalow facilities and Assembly Home for the Middlers. A special building known as Walla-Walla was erected for the comfort of the naturalist, the swimming director, the riding instructor and other men whose services were required. Many minor improvements and conveniences brought the 1920 Kineowatha to the highest degree of perfection.

A marked increase in the interest and value was occasioned by the long outings, notably a trip to the seashore and the use for headquarters of the new camp there situated. With the facilities afforded by pure water, an inland lake available on a wonderfully sandy beach, with excursions to the mountains, to farms and places of popular interest and to the seashore, nothing more could be thought of except an aviation excursion to the moon, which I am sure Kineowatha, with its enterprise, will add to its list as soon as our scientists make such a trip available and practical. It is true that the threefold management has devised and put into practice everything possible at present for the comfort, recreation and instruction of the girls.

An astonishing educational feature is the magazine, "Kineowatha Kamper." In it the campers exhibit literary talent so remarkable that it surprises friends and parents as much as do their achievements in the water sports. While two or three evenings are devoted to astronomy, it may be stated in the words of Emerson that it is the spirit of the whole camp for the entire two months influences the campers to hitch their wagons to the stars. The ideals are high, the enthusiasm is great, the skill and hard work are proficient and notable, while the entire camp unquestionably embodies at the present time the highest ideal for a girls' camp. The editor of this magazine, assisted by his daughter, took with him this year twelve girls from Connecticut, New York, New Jersey and Canada. No matter how good a camp may be, the difficulties are in the personal introduction. No matter how perfect the facilities may be, it needs a friend to make them fairly available. It is in connection with personal introduction and care that the editor of this magazine gave special attention to his guests. He and his daughter arrived with the twelve girls at the opening of camp and remained during the month of July. Then he returned for the closing days of camp and delivered to their parents, and without a single mishap, the campers that had been placed in his care.

Directed Effort in the Woods.

BY FRANCIS ROLT-WHEELER, BEE TREE, NORTH CAROLINA.

Camp life is valuable, directed camp life is invaluable. Many campers, however, girls especially, lose much of the value of a stay in the Big Woods because they scatter their energies. Few girls intend to become hunters of big game, and there is not the same urgency for them to become crack shots or keen trailers as there is for boys.

Fortunately for the world, the feminine character tends to the finer sides of life and beauty of mind is an even more valuable asset than beauty of figure or beauty of face. Camp life, then, should combine the development of mental beauty with physical health.

Beauty possesses its own laws. One of the first of these is single-mindedness. No girl or boy can know *all* about the woods, all the birds, all the trees, all the ferns, all the fungi, all the insect life, but any girl or boy can go deep enough into one subject to penetrate beneath the superficial husk and find the beauty within.

These are but generalities. Let them be placed in concrete form. How exquisite a thing is the veining of a leaf! How varied! How decorative! How infinitely superior to the daintiest lace ever made by patient fingers! Yet to skeletonize leaves is an easy thing to do. Place them in a little rain water containing a pinch of yeast. When the membraneous portion becomes soft, it can be washed away with an ordinary paint-brush, in running water. A border of skeletonized leaves attached to the margin of a white china plate with balsam and then washed over with silicate of soda—liquid glass—can create the daintiest patterns imaginable.

Leaves and flowers of all sorts can be preserved in their natural colors. Some of the bigger blossoms take a little trouble, but almost every one can be done.

Few people use a camera effectively. photography should be directed. One girl left a fixed tripod and, every evening, photographed the sunset from the same point. The result was a series of one hundred photographs, unique studies of clouds and sky. Another sought and found the most noble specimens of trees, each of a different species. Another learned to photograph the wild flowers, and so on, through a long list.

Learn to do one thing well, and you will learn to love it. Each morning will hold the promise of some new beauty in that thing. But, if the day comes, without a plan, without there being any quest, there is grave danger that the day may dribble along and be lost. Concentrate on one thing until the beauty of that one thing takes possession of you.

Look for Thoughts in Nature.

Afterwards I went to look for thoughts. Every day now I do look for thoughts in flowers. Sometimes they are hidden away in the flower-bell, and sometimes I find them on a wild rose, and sometimes they are among the ferns, and sometimes I climb away up in the trees to look for them. So many thoughts do abide near unto us. They come from heaven and live among the flowers and the ferns, and often I find them in the trees. I do so love to go on searches for the thoughts that do dwell near about.—Opal Whiteley—when seven years of age—in "The Atlantic Monthly."

The beauty inherent in Nature
Must in our souls abide,
If we would thrill with pleasure
Whene'er we come beside.
—Emma Peirce.

ORNITHOLOGY

Going, Going, Gone.

BY DR. J. B. PARDOE, BOUND BROOK, N. J.

Dr. Frank M. Chapman in his book, "Birds of Eastern North America," says of the screech owl that out of two hundred and fifty-five stomachs examined ninety-one contained mice. This would seem to prove that this common red and gray night flyer is a very good friend of the farmer, an agriculturist in general. By helping to clear the orchard of mice he does a lot of good and should be encouraged as much as possible. In the thick grass in an apple orchard this spring, after the heavy snow had dissolved, I found five mouse nests under one tree—balls of grass in little hollow places on the ground. Owing to the deep snow and scarcity of food, many small trees were girdled or had the bark eaten from around the trunk near the ground. In this case the owls could not get at the mice, for they were hidden under the snow banks, as shown by many little burrows and holes under the snow.

GOING.

One morning in early June, after a severe storm the night before, I visited our old apple orchard to see what had happened in birdland. Going to an old stump that had blown down, I was delighted to find five baby screech owls that were more like white balls of down than birds that had been living in a decayed natural cavity in the old apple tree. Taking these bright, blinking babies in my hand I carried them to the house, intending to take full charge of them. I thought, "What interesting pets they will make, and how many photographs I will take." I fixed up a

GOING.

GONE.

little home for them under the woodshed with a large dry goods box and some poultry wire.

They grew rapidly and became more interesting each day. I fed them raw meat and pieces of chicken heads and mice cut in pieces, including the bones. As they grew older they were able to swallow mice whole, as the accompanying photographs plainly show. Two of the owls became quite tame indeed, coming to me when called, flying very silently with their soft feathered wings. They would light on my hand or coat sleeve and sometimes shoulder, coaxing for food. Sometimes I put a mouse between them so that each got hold. Then they had a real tug of war, pulling for all they were worth, chattering and scolding at the same time. The winner flew away at once and soon swallowed the prize. I never saw the loser give chase, but it began looking and coaxing for another. Once as a variety to the diet I tried a live crawfish. It was soon killed and swallowed in two parts. A live bullfrog proved a novelty. Holding the frog in its claw, the owl bit or pinched it over every part, finally killing it and then swallowing it headfirst, the legs sticking from the mouth for about fifteen seconds. A June bug was also eaten.

I never knew the owls to take a drink of water. One old guide told me it would kill them to give them water and that all they require is the blood and juices of mice, etc.

After feeding, the birds would generally get sleepy and sitting close together on a limb, slept peacefully. If disturbed they opened their eyes just a little, seeming to say, "Don't bother me." If really alarmed, as they sometimes were by dogs, they opened their eyes wide and snapped their bills loudly, giving a cry of alarm. If they saw a dog or a cat coming they sat up and drew themselves together, becoming as small as possible so as not to be seen. They looked very much out of shape and ridiculous. An owl under such circumstances might well be called a scarecrow bird.

Owls with their howls make many men growl. It is said to be bad luck to have an owl hoot near-by when some one is sick in the house. Like all old superstitions it rarely comes true!

The cuts for this article are lent to us by that wonderfully good camera magazine, "Photo-Era," of Boston.

Red Clover.

BY RAY H. GROSS, PHILADELPHIA.

How often when in happy boyhood's days
I drove the cows through shady lanes to graze
In dewy pastures, we'd startle from its nest
Woodcock or plover;
Or hear the squirrel scold, or blue-jay's cry,
See timid rabbits run as we trudge by,
Then—bars are down, and little calves at rest,
Stand deep in clover.

Its memory follows me throughout the years;
The picture of that sunlit field appears
To my glad vision, as I weary fare
Through earth a rover.
I throw my window wide, the dawn to greet,
And through the heated air of city street
Imagination brings the perfume rare
Of sweet red clover.

What though the hair is silvered on my brow,
And steps once firm are growing feeble now;
Rich recollections of the past abound
When youth is over.
And when the vale of shadows is in sight
I'll rest more sweetly in the quiet night,
If on the mound above me, and around,
Grows the red clover.

Tame Pigeons on a Hackberry Tree.

San Antonio, Texas.

To the Editor:

We have a neighbor who keeps a number of tame pigeons that can daily be seen alighting on one of our large hackberry trees. I beg to submit a photograph showing two of them on the branch of the big tree, of which only a small part is depicted.

In the July issue of THE GUIDE TO NATURE I noticed an interesting article anent tame pigeons alighting on trees, the author stating that this trait is but rarely witnessed and urging readers to report their observations.

TAME PIGEONS ON A HACKBERRY TREE.

Here, in our southern climate, and particularly in my own home town, San Antonio, Texas, this is not rare but is rather often seen throughout the city, especially toward noon, when large numbers of pigeons congregate on the branches and among the foliage. Toward evening nearly all of the birds again fly to the tree and roost there overnight. In the fall many are seen fluttering and clinging to the smaller branches and feeding on the ripe hackberries.

There were a number of pigeons on the tree when this photograph was taken but dispersed among the dense foliage beyond the focus. Sometimes as many as fifteen could be counted at one time.

R. MENGER, M. D.

Another Victim of an Air-Gun Pellet.

BY R. W. SHUFELDT, M. D., WASHINGTON, D. C.

Early one morning, last July, I was returning home through the streets of Washington when, upon passing along a connecting alley, I caught sight of a dead nestling robin, lying directly in my path. Picking it up, I found it had met its death only a very short time before, as its body was still warm and perfectly limp. I soon discovered that it had met its fate at the hands of some boy, who had shot at it with his air gun, the pellet entering at the little victim's back and causing its instant death. Apparently, the boy had not the slightest use for the specimen, or he would not have left it there—in other words, the taking of the life of this young robin amounted to nothing less than a piece of wanton viciousness, as in all such cases, and the perpetrator should at least be instructed as to the nature of the crime committed.

Our robin is one of the most charming of all our songsters; and had this little murdered one not met with the untimely death that it did, it is quite possible that it might, through mating, have become the head of a line of hundreds of robins, these stocking our meadows, woods and fields for ages to come. There is nothing more charming in all the world than to listen to the lovely notes of the robin after a shower, on an early spring evening, and in hundreds upon hundreds of instances those notes have had a most beneficial influence upon the minds of the ones who have attentively given ear to them. That infamous little leaden pellet was responsible for the silencing of a great volume of such song in the years to come and, from another point of view, responsible for destroying a host of future enemies of all those insects that help ruin many of our wild flowers, garden vegetables, shrubs and trees—by which is meant the descendants of this robin and the mate it would have chosen. To be sure, robins do not live entirely upon insect pests, as they are very fond of cherries, poke-berries, and similar kinds of fruit; they also love angling-worms. But in addition to these items of diet, they help to check the dangerous multiplying of insects that militate against the economic interests of man.

There are many sides from which we may consider the killing of a young robin—or any other kind of young bird for the matter of that, and the consequences cannot be too often brought before the boys of the present generation. As a rule, boys take kindly to such instruction, and in the long run the best-minded of them—if they ever were young bird killers—give up the practice entirely, and are quite content to turn to other objects for their targets. Mind you, I believe in American boys being crack shots with a gun; and that all others who believe as I do are right in the matter has been proven by what the grown-up boys did at the front in France. On the other hand, the sniping of helpless little birds has nothing to recommend it; besides, it is cowardly and cruel, and no manly boy aims to be anything of the kind.

"NOTHING LESS THAN A PIECE OF WANTON VICIOUSNESS."

Ah, Bob White!

BY A. ASHMUN KELLY, DOWNINGTOWN, PA.

In the early part and middle of summer I, with exquisite pleasure, heard this cheery call, and always at such times recur to me the words from "Little Brown Hands":

They drive home the cows from the pasture,
Up through the long, shady lane,
Where the quail whistles loud in the wheat field,
That is yellow with ripening grain.

It is the male, of course, that whistles, "Ah, Bob White." It is his call to his lady love. Audubon said that if two males chanced to meet in one field they would battle until one was driven away.

The clarion call of the barnyard rooster is perhaps the most extraordinary sound emitted by any animal or bird. The song of the whippoorwill is next, with the bobwhite following close after. I read the other day in a paper that a man in Pocono Mountains, Pennsylvania, in one evening counted four hundred and forty-six calls by a whippoorwill without a stop; the bird then halted for a few seconds, then resumed and ran up to one thousand without a stop. We hear that in the western part of Pennsylvania quail are scarce, and that the whippoorwill is almost extinct.

A Snapping Turtle Catches a Hen.

BY A. ASHMUN KELLY, DOWNINGTOWN, PA.

A neighboring farmer's wife one morning, hearing a hen squawking in a most distressed way, investigated and found that the hen was stuck fast in a stream of water that ran near-by. Then she saw that the bird was being dragged downstream, *nolens volens,* by a big turtle. With a broom handle she whacked the turtle over the back, and so surprised him that he liberated the hen, that lost no time in getting away.

Daybreak.

White mist in the valley, a light on the hill,
A glory of color the heavens to fill,
And a glad new day in the east is born,
With a star looking down on the pageant of morn.

—Emma Peirce.

TO KNOW THE STARRY HEAVENS

Just as we close this number of our magazine information reaches us of the death of Professor Eric Doolittle of the University of Pennsylvania. For many years he has contributed the monthly article, "To Know the Starry Heavens."

The Heavens in October.

By Professor Samuel G. Barton of the University of Pennsylvania.

THE brilliant stars Arcturus and Antares are no longer seen on our map, as they have been carried from view by the progress of the seasons. The popular group, the Pleiades, at A, and the bright star, Aldebaran, at B, just appearing above the eastern horizon, are harbingers of the colder seasons of the year. The Great Dipper is now in an inconspicuous position low in the North. Fomalhaut at C, the southernmost first-magnitude

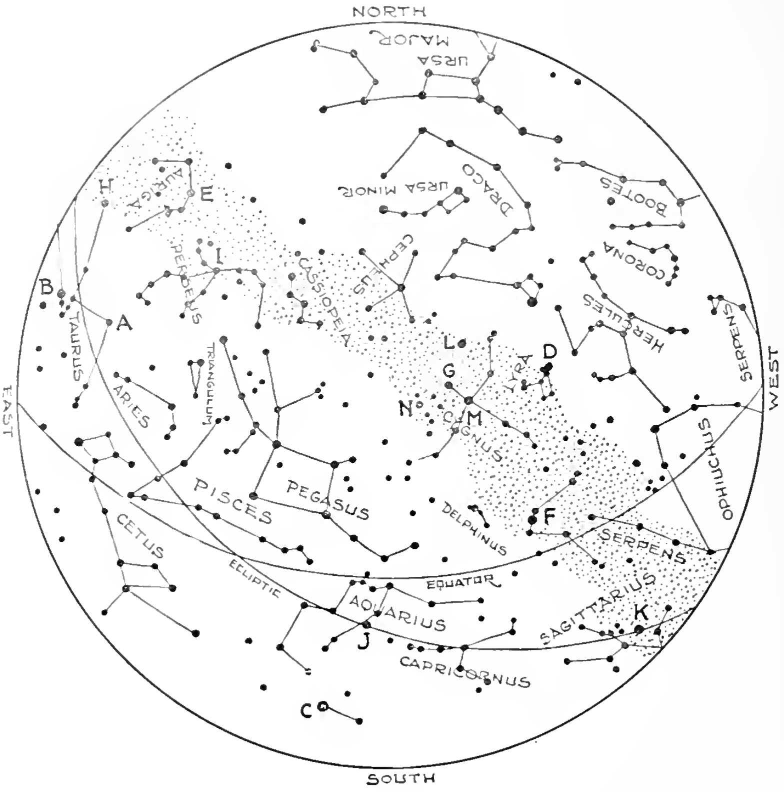

NORTH
URSA MAJOR
URSA MINOR
DRACO
BOOTES
CORONA
HERCULES
SERPENS
WEST
OPHIUCHUS
CEPHEUS
CASSIOPEIA
AURIGA
E
H
PERSEUS
I
B
A
TAURUS
EAST
ARIES
TRIANGULUM
L
G
D
LYRA
N
M
CYGNUS
PISCES
PEGASUS
DELPHINUS
F
SERPENS
CETUS
ECLIPTIC
EQUATOR
AQUARIUS
J
SAGITTARIUS
K
CAPRICORNUS
C
SOUTH

Figure 1. The Constellations at 9 P. M., October 1. (If facing south, hold the map upright. If facing east, hold East below. If facing west, hold West below. If facing north, hold the map inverted.)

star ever visible here, is now at its best in the South. Some of the stars farther south can be seen from the States in the extreme South.

In all there are forty stars in the heavens which are brighter than the second magnitude. Ten of these are too far south to be seen in the United States, excepting extreme points. The October map contains but eleven of these, which are fewer than are contained on the map of any other month.

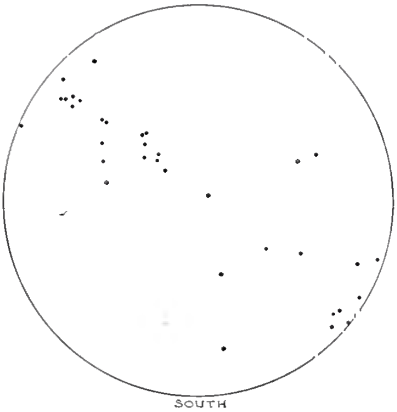


Figure 2. Location of star clusters in region of October sky (Figure 1).

These are Vega at D, Capella at E, Altair at F, Aldebaran at B, Fomalhaut at C, Deneb at G, Beta Tauri or Nath at H, Alpha Persei at I, and three stars of the Big Dipper. It may be noticed that most of these lie near the horizon and are thus not as bright as they would be if high in the sky. It is also true that there are no planets visible. As the darkest hour precedes the dawn so the faintness of the October sky precedes the brightness of the sky in the months which follow, for the number of bright stars visible in December and the months which follow is twice as great as now. The sky after midnight will have twice as many bright stars as does the map, which is for nine o'clock.

* * * * *

The Planets.

There are no bright planets which are conspicuous. Venus can be seen low in the west in the evening twilight. Jupiter can be seen in the east in the morning twilight. Mercury also will be visible in the east in the morning twilight for a few mornings about October 25. Uranus alone lies within the region of our map. Its position is marked in Aquarius. It cannot be seen with the naked eye. Mars is still visible low in the southwest. At the first of the month it is in a portion of Ophiuchus not shown on our map. At the end of the month it is at the position marked K. It may be well to explain my statement that Mars is in the constellation Ophiuchus. The sun, moon and planets all move in paths which lie near the ecliptic, the position of which is marked on the map, Figure 1. For this reason this part of the sky is particularly important. The zone which extends eight degrees on each side of the ecliptic is called the Zodiac. The Zodiac is subdivided into twelve equal parts called the signs of the Zodiac. These signs are named with the same names as twelve constellations along the ecliptic. When named the signs and constellations were nearly coincident, but the precession of the equinoxes has now separated them. While the twelve signs fill the entire Zodiac, the twelve constellations do not, and although a planet must always be in one of the twelve signs, it is not necessarily in a constellation of the Zodiac. Mars, for example, is now in Ophiuchus, which is not one of the twelve zodiacal constellations. Ophiuchus is not shown in its entirety on our map. If one of the maps for preceding months or any map showing the whole constellation is examined it will be found that while the greater portion of this large constellation lies north of the ecliptic and outside the Zodiac, the southern portion extends south of the ecliptic in two places. Theta Ophiuchi, one of the brighter stars of the constellation, is south of the ecliptic. Scorpio, the constellation of the Zodiac south of Ophiuchus, is almost entirely south of the ecliptic. Eight other constellations encroach more or less upon the Zodiac. In particular Orion and Cetus have portions close to the ecliptic. Neither, however, crosses as does Ophiuchus. The northern boundary of Cetus has been marked upon Figure 1.

* * * * *

Eclipse of the Moon.

In the early morning of October 27 there occurs a total eclipse of the moon. The conditions of the eclipse are such that the people of the United States will see but little of it. The eclipse begins at 12:26 P. M., Greenwich time. This is 7:26 A. M. Eastern Standard time, which is after moonset. It is 6:26 A. M. Central Standard time. There the moon sets at nearly this time. Those west of this longitude (ninety degrees) may see the eclipse begin. The total eclipse begins one hour and three minutes later. The middle of the eclipse is forty-three minutes later still. Only those on the Pacific coast will see this as the moon will then have set for the others in the United States. None here will see the entire eclipse. Asia and a part of the Pacific ocean are in the region where the entire eclipse can be seen. Eastern United States and the Atlantic ocean will see none of it. This portion, however, will see the partial eclipse of the sun, which occurs next month, and Asia will not.

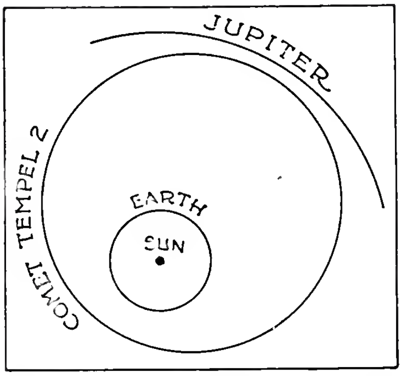


Figure 3. Showing the paths of Comet Tempel, Jupiter and the earth.

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The Star Clusters.

It is a well-known fact that star clusters are more numerous near the Milky Way than elsewhere, while with nebulae the opposite is true. In Figure 2 the location of thirty-four star clusters, said to be visible in a three-inch telescope in the region of the sky contained in Figure 1, is shown. A comparison of the two figures shows very strikingly that these clusters are nearly all in the Milky Way. The position of the Milky Way could easily be told by merely examining the positions of the clusters.

* * * * *

Tempel's Comet.

Late in July Tempel's second periodic comet was observed on this return. This comet was first discovered by Tempel in 1873. Observation soon showed that it was an unusual comet in that it moved about the sun in an ellipse and thus, unlike ordinary comets, it would not leave the sun and perhaps never return. Its period was found to be about five and a quarter years and its greatest distance from the sun four and seven-tenths times that of the earth. It was expected to be visible again in 1878. It was seen then with difficulty. It was not seen in 1883 and 1889. It was seen upon the next returns in 1894, 1899, 1904 and 1909, but not in 1915.

With the notable exception of Encke's, this is the comet of shortest period known and moves about the sun in a small orbit not reaching out as far as the orbit of Jupiter. This orbit is shown in Figure 3. The giant planet Jupiter has captured many comets and caused them to remain in the solar system. The fact that the outer end of the comet's orbit lies near Jupiter's orbit shows Jupiter's influence. This comet is one of the most important of Jupiter's family.

* * * * *

The New Star.

On August 21 announcement was made that Denning, in England, had discovered a new star located in the constellation Cygnus. Unfortunately, this was too late for discussion in the September article. This star is in the position marked L in Figure 1. By a new star is meant a star which appears where before no star, or perhaps a far fainter star, was seen. Temporary stars or novae are other names for such objects. Astronomers know this object as Nova Cygni No. 3, meaning that it is the third nova which has appeared in the constellation Cygnus. The first appeared at M in 1600 and the second at N in 1876. Both were as bright as the third magnitude. On examining the photograph of the region about L made on August 9 it was found that no star as bright as 9.5 magnitude was present in the position of the new star, for the plate would show stars that faint. On August 19 the star was present of 4.8 magnitude. On August 22 it was 2.8 magnitude. It increased in brightness to 1.9 magnitude on August 23 and then began to fade out as such stars do. By the time this is read it will probably be invisible to the naked eye.

About forty such stars have been observed and recorded. In earlier times only the bright ones were seen. Now, when the sky is photographed, fainter ones are found. Most of the recent discoveries have been found upon examination of photographs of the same region taken at different times. In this way the star may have disappeared before its existence was discovered. It can be seen that the appearance of a new star, or at least their detection, has not been a common event. The appearance of one as bright as this is quite rare. It is true a brighter one appeared in Aquila as recently as 1918, but that one was brighter than any since 1604.

Temporary stars rise from obscurity to conspicuousness in a very brief interval and then fade out much more slowly. There are frequently flashes of increased brightness as it fades in general. There is no undisputed case of a star long known which has disappeared nor of one which appeared and remained permanently visible. We do not know what causes these outbursts. It has been suggested that they are caused by some sort of a collision. This may be true, but there are objections to this explanation. We do not see the outburst until long after it has occurred. If the distance of the star is one hundred light years then the outburst occurred one hundred years ago. The distance is more likely to be much greater than this.

Figure 4 shows variations in the magnitude of the new star which appeared in Perseus in 1901, while it was visible to the naked eye. It shows the sudden rise to a maximum brightness and the gradual decline in brightness, with occasional flare-ups. Other novae act similarly.

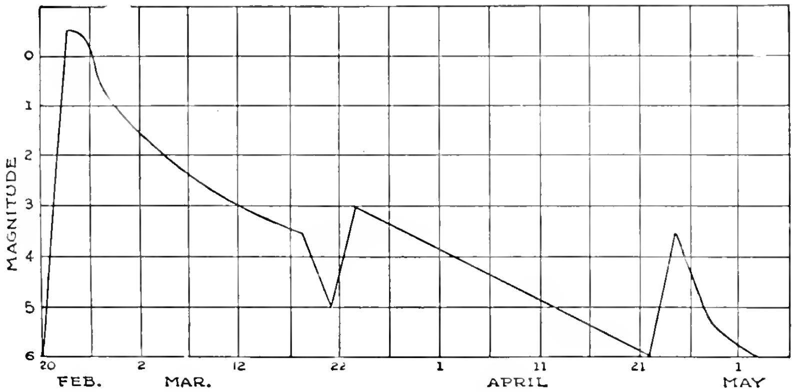

Figure 4. Light curve of Nova Persei which appeared in 1901.

Work for Amateur Telescopists.

It is with much pleasure that we call attention to The American Association of Variable Star Observers that has been so well developed by the Secretary, William T. Olcott, 62 Church Street, Norwich, Connecticut. We advise every one who has a telescope and can spare the time to get busy at once in this enjoyable work, and every one who is interested in astronomy but has no telescope to obtain at least a small instrument at the earliest possible. The Association is growing rapidly. Last year forty new members were elected and thirty more have joined the ranks since May, the total membership now being two hundred and four. Everybody who knows anything about astronomy knows that the study of variable stars is enjoyable and opens to the amateur a splendid field for useful work.

A Picture.

Beyond the gold of ripened grain,
The blue of distant hills,
O'er the rim of which the setting sun
The world with glory fills.

The low, round hills are crowned with gold,
The gold of ungarnered grain;
Rare beauty erst their summer dower,
Now wealth comes in its train.
—Emma Peirce.

EDITORIAL

The Apiary at ArcAdiA.

The Agassiz Association believes not merely in nature for recreation and education but in the utility of nature. While it does especially favor pure science, it always has kind assistance for the practical. We believe first of all in nature for her own sake and for her educational and recreational values. All the achievements of modern science, or nearly all, have been developed on that principle. It has been the amateur camerist and the amateur fisherman and the amateur astronomer, yes, even the amateur gardener, that has developed all these lines to high ideals and efficiency.

Primarily it has been love for the honeybee and not love of the honey that has developed ArcAdiA's apiary. The honeybee is justly regarded as one of the most wonderful insects, and that wonder is not lessened by the fact that it is the only insect from whose labor mankind obtains food. The honeybee has the same aesthetic and practical relation to the body that the silkworm has to wearing apparel and its decoration. Both combine in a rare manner the aesthetic, the mentally marvelous and the practical.

OUR EDUCATIONAL, SCIENTIFIC, ALTRUISTIC APIARY.

The editor of this magazine began his studies with honeybees some twenty years ago in a simple building on Grove Street, Stamford, where for several years the work was continued personally. That building and the equipment were moved to Sound Beach at the establishment of the first ArcAdiA under the ownership of The Agassiz

Association, but not until the second ArcAdiA when all the buildings were moved across the street and fields to the present location did the apiary become the property of The Agassiz Association. Under these auspices it has been wonderfully developed and extensively utilized as headquarters for information. Through its influence twenty apiaries at least have been established in Stamford, Greenwich and vicinity and innumerable apiaries in other states. For several years the editor of this magazine has lectured before school-teachers through the West, the far West and the South, and in many of these places has included a lecture on honeybees and made liberal distribution of literature supplied by The A. I. Root Company, Medina, Ohio. That company, as well as practical beekeepers everywhere, have liberally cooperated in the growth, development and efficiency of the ArcAdiA apiary. Twenty-five queen breeders in various parts of the country have supplied the choicest queens for experiment and report. Manufacturers and inventors have given the best of their product to this apiary. There is hardly a modern invention in the market that is not here shown and explained to students and casual visitors. The correspondence on apiarian subjects has also been large, notably for some three years with the Boy Scouts of America following publication of articles in "Boys' Life" by Dr. Edward F. Bigelow as Scout Naturalist of the Boy Scouts of America.

Four sets of motion pictures have been taken at this apiary and shown over all the world. Indeed, we think this apiary in the millions of people that know it has had the widest publicity of any other apiary in the world.

Photographs of honeybee interests have been published in many of our leading American magazines and in the large illustrated magazines of London, England. Large numbers of photographs have been sent to French and German publications. At one time a photographic clearing house of New York City devoted a large part of its energy to buying ArcAdiA negatives, making prints therefrom and retailing to various publications. Similar work has been carried on extensively by the Stamford and New York City Publishers' Photo Service. The apiary in this extensive work has been developed and made efficient by contributions from many apiarists and by cash contributions to The Agassiz Association by those who take especial interest in the apiarian information that it has disseminated. It is probable that the ininfluence of this apiary in promoting beekeeping both educational and practical has been greater than that of any other establishment in the country. Four types of hives have been invented and placed in the market without being patented. One, an elaborate affair known as the Bigelow Educational Hive, is in itself a complete apiarian laboratory. The one supplied in walnut wood is a thing of beauty as well as a joy of convenience and comfort in experimenting. These hives have attracted much attention at World's Fairs and at apiarian exhibits in Madison Square Garden, New York City, and at various other places.

Another invention, the product of this apiary, is the only form of hive ever put in the market especially for the use of little children. For this purpose the Pearl Agnes Hive has become famous the world over.

At this apiary a variety of traveling hives has been invented. "The New York Tribune" at one time devoted nearly a page to an illustrated article entitled "Ten Thousand Miles with Ten Thousand Honeybees." That no exaggeration. One of the traveling hives has been more than ten thousand miles with more than ten thonsand honeybees. Perhaps the most skillful and novel of all inventions was the magnifying feeder invented put in the market a few years ago. By this for the first time the observer is able to see the action of the honeybee's tongue as it takes up the nectar. As the name of this invention implies, a lens magnifies the tongues where the bees are feeding by extending their tongues or proboscides between two sheets of glass between which the nectar or syrup is placed.

In the room devoted to microscopical projection every detail of the honeybee's anatomy is shown on a large screen and in marvelous dimensions. A honeybee's tongue thus projected may appear to be eight feet in diameter and when passed in sections across the screen, one hundred and fifty feet in length. The brain, the facets of the eye, the optic nerves extending from each facet have been projected twenty-five feet in diameter with every detail clearly visible. Thus the brain and the eyes of the honeybee may be made larger than the apiarian building itself. The muscles controlling the legs of the honeybees are projected to look like huge cables with every fiber plainly apparent. The hooking together of the wings on each side of the bee is clearly shown, with the hooks on one wing engaged in the folded edge of the other, the magnification being some fifteen or twenty feet in length. It is not at all unusual to show to visitors and students greatly magnified views of the feet of honeybees and occasionally the sting is shown in actual operation and enormously magnified.

So intense and devoted has been the scientific care of the honeybees that never in the whole twenty years have we had a case of foul brood or of any other disease. The official inspectors have always pronounced the apiary as of the highest possible standard.

This last summer among the many other experts that visited the apiary from time to time was our occasional visitor and good friend, Mr. L. C. Root of Stamford, Connecticut, well-known as the veteran expert beekeeper in this part of the country. He happened to be present as a thunderstorm was approaching and sending the worker bees rushing in from the fields. His enthusiasm was intense and he declared that never in all his experience had he seen so beautiful a sight as that home rushing of the field bees. He predicted a wonderful crop of honey.

He was right. Never in the two entire decades has there been such a store of honey as we have this year. Every super, every section, every frame has been brought into service and all have been filled to the extreme edges, and more than half the sections were graded, in the terms of the market, as "fancy." We have had a deluge of high grade honey, and not a pound of it has been sold. The teaching "Freely receive freely give" has been literally accepted. Every visiting party has been treated to honey, and none of the friends of the apiary that have visited it has gone away empty handed. We hardly dare tell how many hundreds of pounds of high grade section honey have thus been distributed. The management felt that in the present high

(Continued on page XI.)

ONE OF THE MANY CLASSES OF YOUNG FOLKS IN DIRECT ACQUAINTANCE WITH THE BEES.

STOP

LOOK

LISTEN

In these times of unrest, heed the good advice in Washington's Farewell Address:

"Promote, then, as an object of PRIMARY IMPORTANCE, institutions for the general diffusion of knowledge."

Contributions to Little Japan.

Mr. Clifford Cronk, Monterey, Mass.	$1.00
Seely Chapter, Stamford	3.00
Miss Lora A. Mix, Stamford	2.00
Mr. Irving E. Raymond, Stamford (A. A. Vantine & Co., New York City)	25.87
	$31.87
Previously acknowledged	2,319.30
Total	$2,351.17

Miscellaneous Contributions.

Mr. Robert Stewart, Sound Beach. Sugar for apiary.

Mr. Charles P. Titus, East Orange, N. J.: Wasp nest showing hexagonal cells in center and round cells outside.

J. B. Pardoe, D. D. S., Bound Brook, N. J.: Borioclor tooth paste, Borinated tooth powder and Borine mouth wash.

Master John Earl Potter, Sound Beach: Eyed elater.

Miss Louise Lee Willing, Sound Beach: A peculiarly marked and a peculiarly shaped egg.

Mr. A. H. Mead, Greenwich: *Thalessa lunator*.

Miss Frances M. Tollett, Great Kills, N. Y.: Potato balls.

Mrs. I. M. Leslie, Sound Beach: Horned toad.

Mr. Edward A. Finch, Sound Beach: Seedless grapes.

Mr. Isaac Ferris, Sound Beach: Caterpillar of royal walnut-moth, *Citheronia regalis*.

Mr. Carl Neuendorf, Sound Beach: Pupa of polyphemus moth, *Telea polyphemus*.

THE GUIDE TO NATURE is splendidly informative, and I look regularly for it.—John M. Sheridan, Brooklyn, New York.

Increasing Your Insurance.

Our good friend, advertiser and trustworthy real estate and insurance agent, Mr. Laurence Timmons, of Greenwich, Connecticut, has issued a timely announcement regarding increasing insurance to keep up with the increasing values of properties. Think carefully of what he says, and do not forget that he carries automobile, theft and liability insurance.

"We had contracted to sell a house in Greenwich for $20,000 and in closing the sale the matter of fire insurance came up—the new owner wishing to take over the insurance.

"We were very much surprised to find the following fact: The house carried but $8,000 insurance.

"We started to ask our friends who own property and household furniture and found that almost every one was underinsuring their holdings—that is, practically every one was carrying the same insurance today that they did five years ago.

"Consider this carefully. Real Estate and Household Furniture have increased in value about 100%. *Are you fully covered?* In case of fire what can you duplicate your home for?

"Why not look into this matter and, if underinsured, have us write a policy for the difference?"

October 1. I always write the name October with especial pleasure. There is a secret charm about it, not to be defined. It is full of memories: it is full of dusky splendors; it is full of glorious poetry. Will it be so for me? —Henry W. Longfellow.

New 'Stein Theory.

Now—Well, they say that money makes the world go round.

Fast—That's nothing; so does whiskey.—Lehigh Burr.

(Continued from page 84.)

price of honey it would not be right to sell at so exorbitant a rate, and on the other hand it would not be justice to our beekeeping friends to cut the price in the market. We have put into practice the principle of altruism that pervades all the work of The Agassiz Association; we have sweetened the community and we have done missionary work in behalf of beekeeping as widely and as wisely as possible, and as we have distributed honey we have distributed apiarian literature and information.

In building this great successful, educational and experimental apiary we have from time to time acknowledged contributions of various kinds, and we especially wish to express gratitude to The A. I. Root Company of Medina, Ohio, for their liberal cooperation.

To a White Orchis.

Orchis, springing from your sheath
As gleaming as a star,
If rose be queen, on throne of green,
Then you a princess are!

—EMMA PEIRCE.

Wonders About Naturalists' Pay.

Ernest Thompson Seton, naturalist, is to make his debut in vaudeville, this evening, in Proctor's Theatre, Port Chester, and the announcement is that he "will present a variegated sketch of twenty-five minutes' duration, said to be the finest production ever afforded to the theatre-going public." Right on the heels of this, it is not surprising to find the press agent saying that Mr. Seton is to receive a salary of $3,000 per week, and "has been contracted for a coast-to-coast tour on the biggest circuits." Wonder what would be the proper pay for dear old John Burroughs, or the enterprising naturalist of ARCADIA?—The Stamford Advocate.

It surely is encouraging to note that naturalists are coming into their own! Of course all of us have known all along that three thousand dollars a week is the proper salary, and we congratulate Mr. Seton upon having found it. All naturalists recognize his unique abilities along financial lines, and that he has done great good for the Cause.

A Well Guarded Pear Tree.

The Reverend Dr. Barney of the First Congregational Church of Sound Beach tells with a good deal of glee and with the spirit of a real naturalist how he found policemen guarding his pears this year. Down at the rear of a long yard is a pear tree that in season has always been heavily loaded, but nearly every year almost all the pears have been stolen before they were ripe. This year, in the intervals between the preparation of his Sunday sermons, he has been philosophizing, trying to ascertain why this year's crop, which is fully up to that of any previous year, has not been stolen. So far as he has observed not a pear has disappeared.

Recently in a spirit of self-congratulation he went to pick some of those pears, dreaming dreams of dishes of delicious pears stewed and otherwise. Probably there came to him visions of the Biblical trees of the Garden of Eden and of Zacchaeus and his tree as with basket and stepladder he arrived on the scene of action. And indeed that expression is literally appropriate for on that pear tree was the liveliest action that ever took hold of a member of the clergy. The police were right there on guard, and for several days Dr. Barney consulted his son as to what the colleges teach about remedies for hornet stings, and he has inquired of all the naturalists in the vicinity as to the general habits of hornets. Within a few days after the active demonstration by those faithful guards he was able to put on his coat and began to be able to see a little.

He knows those pears are perfectly safe for the rest of the season, and that any one of thieving habits will very dearly pay for any pear that he does or does not get. Dr. Barney states that he has heard much of newfangled war appliances, but if this country wishes to be perfectly safe from attack the War Department should at once employ all the naturalists in securing a liberal supply of hornets.

We walked through a commonplace
country lane.
Unadorned by bird or flower:
But the summer wizards of sun and rain,
Transformed it, ere we went again,
Into a wild-rose bower.

—EMMA PEIRCE.

Ward's Natural Science Establishment.

It is with much pleasure that we call the attention of our readers to a beautiful new catalogue issued by the Ward's Natural Science Establishment, Rochester, New York. This large and long established institution has done a great amount of good work in assisting naturalists, sportsmen and museums in the preparation of specimens and in supplying all sorts and sizes of birds, mammals, shells, minerals and indeed everything down to the mounted microscopical slide of the tiniest diatoms. At Ward's one may get an elephant or a humming bird. The Establishment can furnish all the scenic material and specimens for an extended museum, or the amateur collector may find many novelties for his cabinet. Nothing apparently is too large and nothing too small for this well equipped institution.

The new catalogue contains illustrations of beautiful specimens of the taxidermist's art with a large list of taxidermist's supplies.

And now to see if with suffrage the quality of apple pie falls off. Let every woman up and at it.!—New Haven Journal-Courier.

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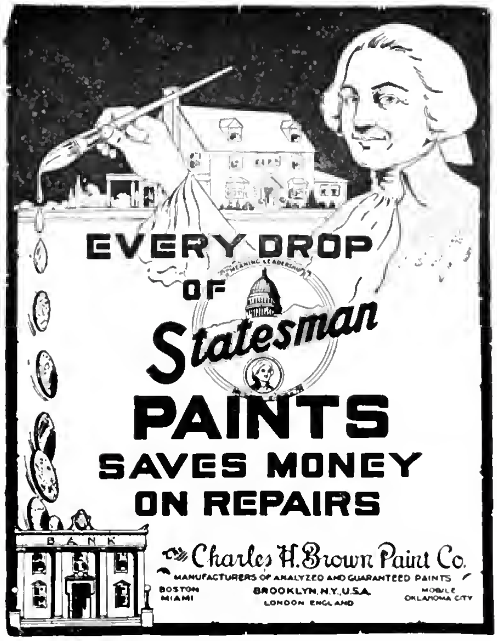

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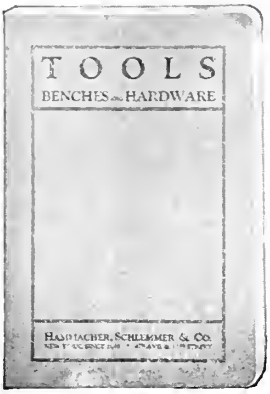

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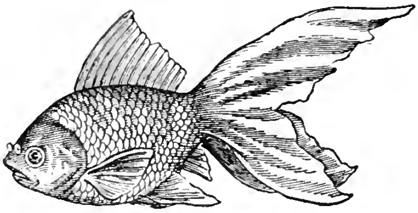

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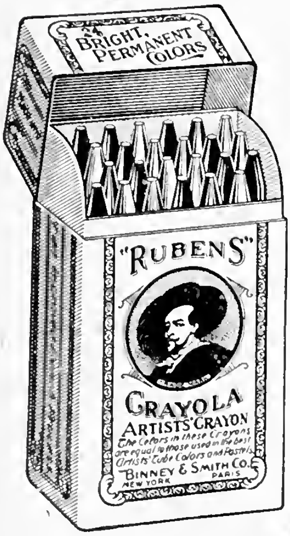
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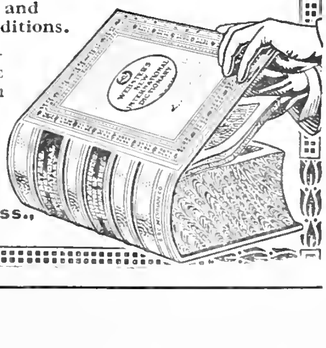

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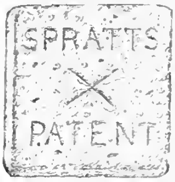

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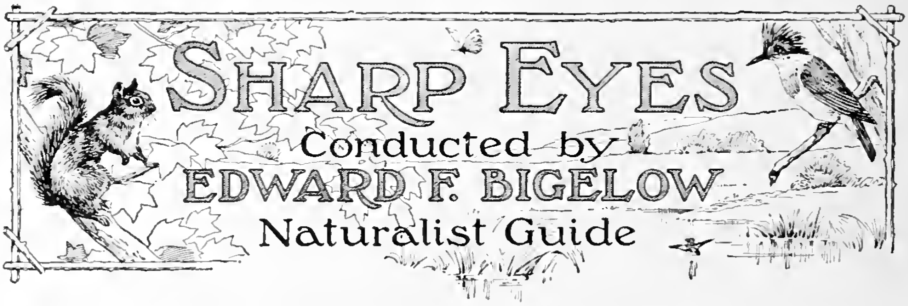

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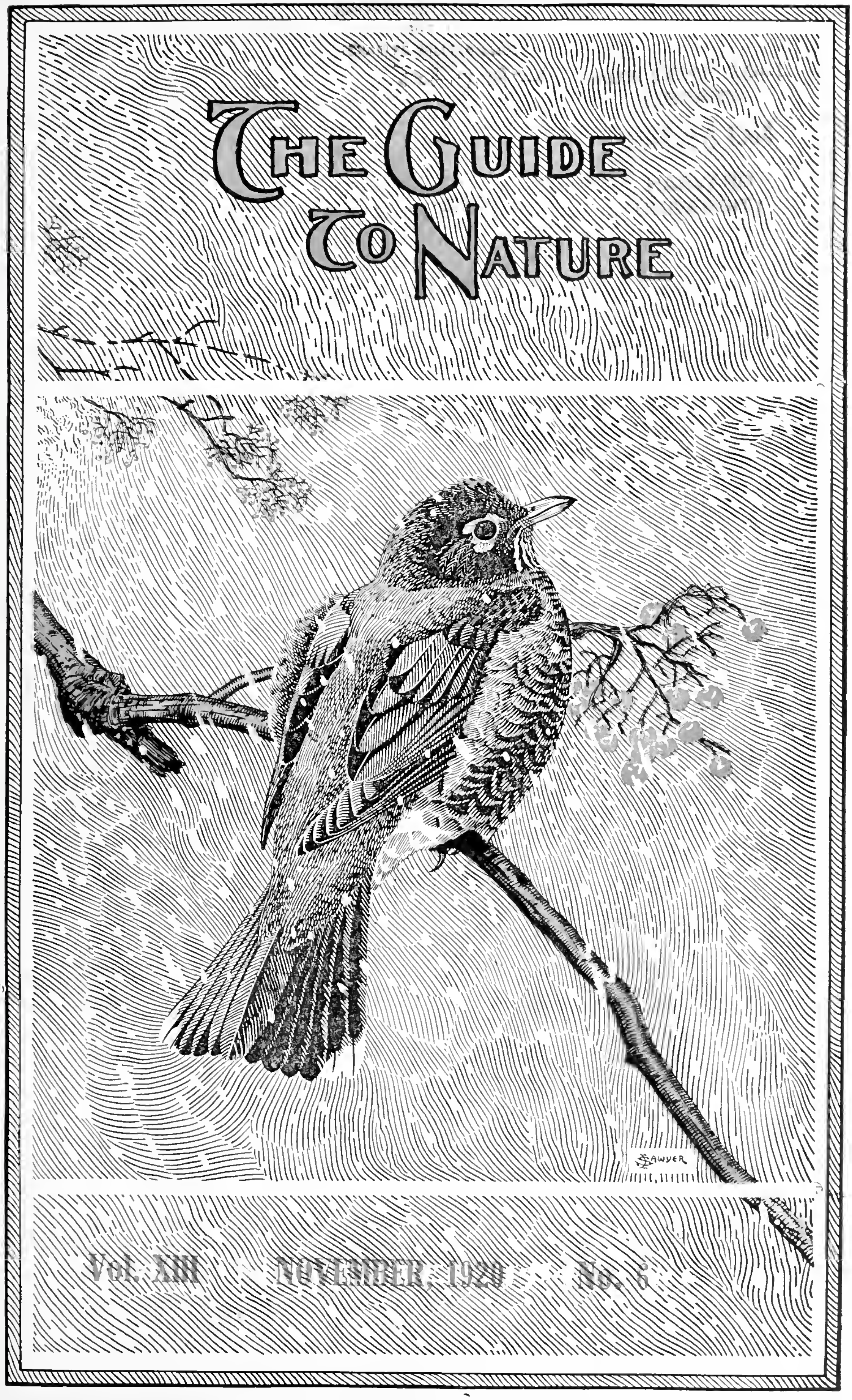

Vol. XIII NOVEMBER, 1920 No. 6

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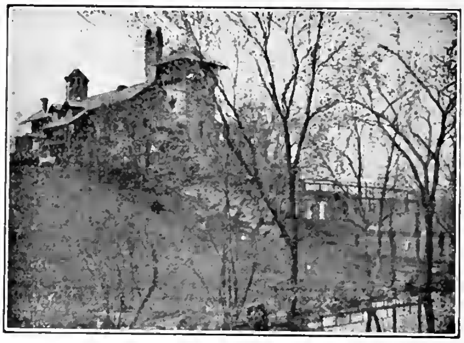

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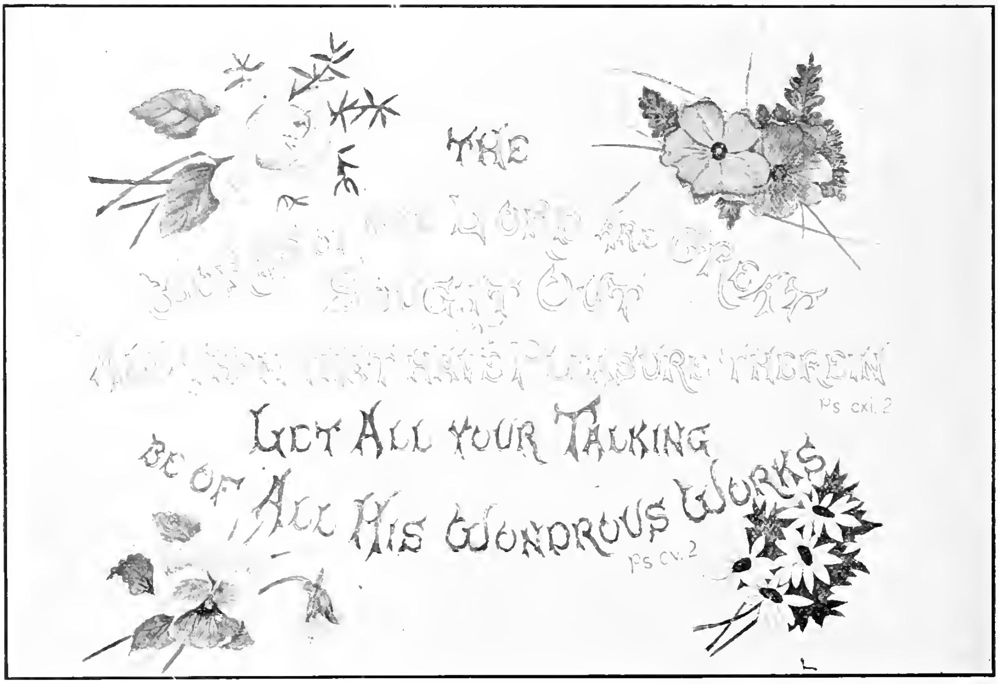
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"He said his name is Boyd," replied the boy.

The teacher looked inquiringly at him as she heard the odd pronunciation.

"How do you spell it?"

"It's Boyd, ma'am. I spose you spell it B-i-r-d."—Ropus Magazine.

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They had just become engaged.

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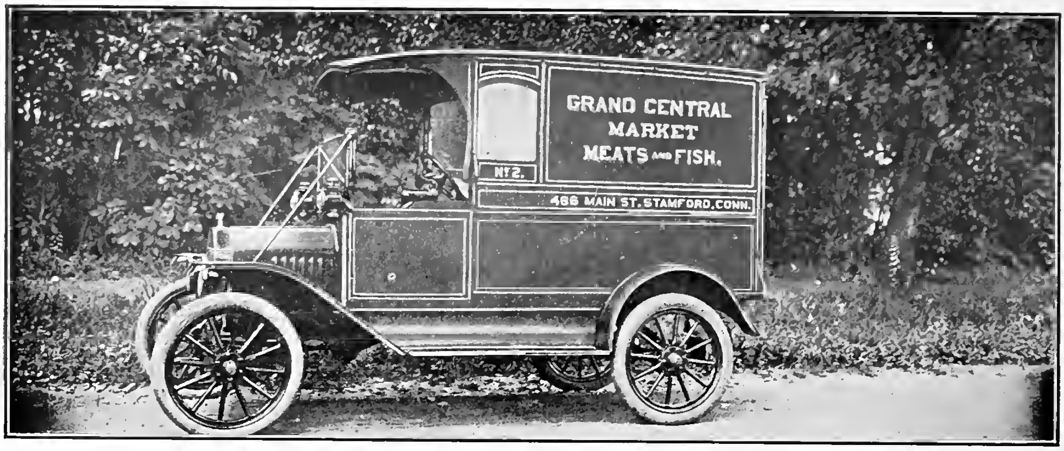
"But, darling," he purred, "I have none."

"No," she agreed, "but I mean when we are married."—Dallas News.



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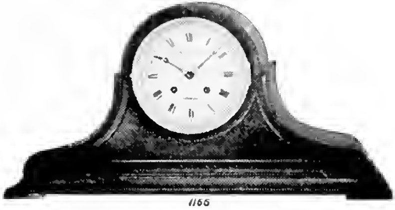

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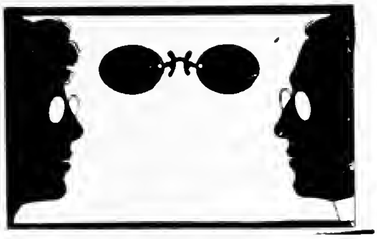

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A little girl stood at the bottom of the stairs calling:

"Here, Fido! Here, Fido!"

A man who likes puppies stopped a moment to see what kind of a pet the little girl had.

When the pet made its appearance he exclaimed in surprise:

"Didn't I hear you call it Fido?"

"Yes," the little girl replied complacently. "I know it is a cat, but I am having it for a dog."—Youngstown Telegram.

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Many others have a mental struggle each time they face the dishes after every meal every day.

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Fae—"He started to, but I nipped it in the bud."—Philadelphia Bulletin.

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Fifty-three years of catering to the best patronage of Stamford and vicinity has placed this store in a position of unquestioned supremacy. This supremacy is the direct outcome of the unusual degree of confidence that has always been attached to our goods. Every section of the Store is co-operating to make this Fifty-third Holiday Sale a record breaking event.

Each department is overflowing with splendid merchandise, which is fully up to our high standard.

Best of all is the

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It means your dollars will buy more this Christmas.

Special displays of Christmas Gift things. Many new lines of Holiday Goods.

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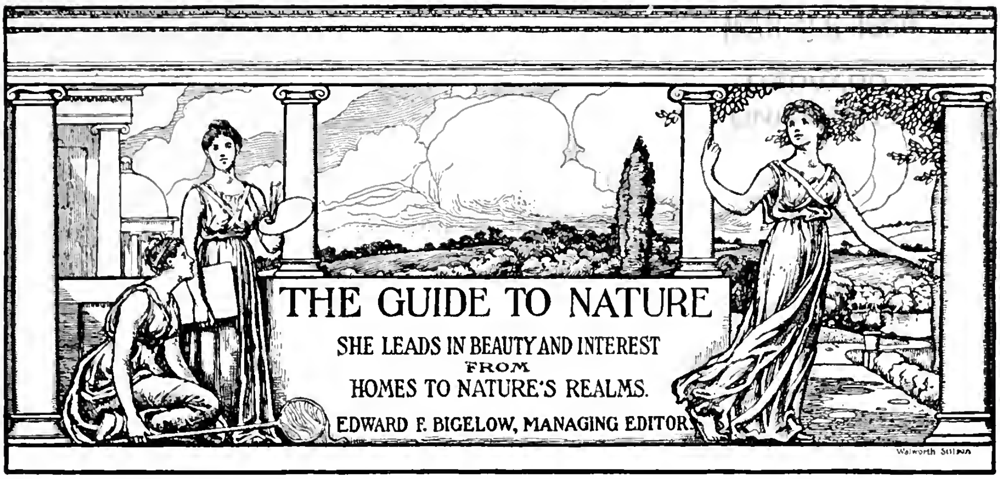

THE GUIDE TO NATURE
SHE LEADS IN BEAUTY AND INTEREST
FROM
HOMES TO NATURE'S REALMS.
EDWARD F. BIGELOW, MANAGING EDITOR

Published monthly by The Agassiz Association, ArcAdiA: Sound Beach, Connecticut.
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Volume XIII. NOVEMBER, 1920 Number 6

Sound Beach and The Agassiz Association.

Residents of Sound Beach for more than ten years readily recall the little primitive post office building that stood on a cape in the central part of the town at present known as "the village of business." I say "cape" because it was on a little point of higher land that jutted out into a swamp or frog pond used in the winter by the boys and girls as a skating pond since the days of the Indians. If it had not been for The Agassiz Association coming to Sound Beach there is every reason to believe that that long unpurchasable lot would still be held for the unknown future. But when The Agassiz Association arrived trucks and carts began to move and the frog pond and skating pond, a revelry of swamp growth, beautiful in any situation other than the business center of the town, was filled in at a cost of more than one thousand dollars. The influence of the AA did that and later in the changes of the removal of ArcAdiA to its present location that land was made available for business purposes.

But what became of that little post office? It did not take wings and fly away but was put on a truck and rolled off like a lunch wagon, which it resembled as it advanced down Sound Beach Avenue.

Every Sound-Beachite more than ten years old knows of those days, a matter merely of remembering what seems to have occurred only yesterday in the rapid flight of time, but few know that The AA came to Sound Beach to exploit this beautiful summer resort through the mails so that soon increased post office facilities would be needed and Sound Beach would begin to grow rapidly.

The earliest plans called for putting the administration building, shown in the accompanying illustration, against that little post office and to pass magazine and first-class mail through a chute direct from our mailing room into the post office, and in quantities soon so enormous that the little building could not stand the pressure and would necessarily be removed and a larger one take its place. That mail chute was labor saving and effective but it was never actually put into practice for the simple reason that in the interior arrangements of the administration building it was found necessary to have the mailing department at the other end of the building. But that

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is a mere matter of method. The effect was the same. The first plans of that building called for a real estate office with an enterprising promoter of Sound Beach community interests working in co-ordination with the extensive publicity facilities of The AA.

These plans are now for the first time made known to the public that saw only a new building standing against that little post office and regarded only as a natural history establishment. It was that and more. Let us repeat in a little more definite form. The prime purpose of The AA in coming to Sound Beach was to be, as it was definitely and emblematically expressed, a light for this little community and a light for the greater community of the world that looks to The AA for guidance.

It was to be a community center not only for nature but all sorts of community interests, churches, schools, civic organizations, etc.

It was to be a real Arcadia or, in common terms, a picnic ground, and the plans included trees, shrubbery and flowing fountain with goldfish, lilies, etc.

It was to be a nature institution, a bureau of free information for people at home and far away.

All this threefold dream has been realized beyond the most optimistic imaginings of those who were in the secret of the original plans. All these dreams and plans have never been lost sight of for a moment. We are now more than we ever even hoped for the promoters and builders of Sound Beach. We are as a community center more than we there could have been and we point with pride to our tall community flagpole and to our delightful Little Japan and commodious, restful Welcome Reception Room.

SOUND BEACH BEGAN A NEW ERA OF PROSPERITY WHEN THE AA OFFICE CAME ALONGSIDE THAT LITTLE OLD LUNCH WAGON POST OFFICE.

Breathes there a Sound-Beachite with soul so dead who does not take pride in our rapid growth during these ten years and in the present favorable prospect for the future. Sound Beach has its own telephone exchange, and work is now in progress for our own bank. We have our factory, The Dalton Manufacturing Company, that gives every indication of bringing good things with increased business and supply with none of the objections often so prominent in some manufacturing enterprises. We are proud of it.

We note with satisfaction our real estate office and think of the days ten years ago when there were plans and plans of such a center of real estate. The only difference between plan and fact is that in the early plans the buildings were to be south of the post office rather than north of it. We note with pride the activities of other real estate agents in this town. They have been good friends of The AA and they deserve a share in the increasing business that our efforts have brought here.

Frequently in our daily paper and otherwise we hear of the pressure upon the Sound Beach school. We are glad of it because we know that the present disadvantages mean a larger and better Sound Beach, mean that our efforts are rapidly bringing forth fruits.

We, of The AA, recognize that our next door neighbor, the golf club, has also been a factor in the upgrowth of Sound Beach but similar good efforts in such other local institutions as our high grade Greenwich Inn and other summer hotels are circumscribed within their own clientele. In all these eleven years the great, general publicity agent, larger and more influential than all other Sound Beach influences combined, has been The Agassiz Association, its magazine, The Guide to Nature, and ArcAdiA, its beauty spot.

Our eleven buildings, some four to five acres of ground, our hundreds of big trees, small trees, shrubbery, flowering plants, our miniature formal garden, our wild Nymphalia, our majestic Agassiz Grove, our great experimental apiary, our astronomical observatory, the best in this part of Connecticut, have all along been the show place of Sound Beach. Here is where the residents bring their friends and rightly say with pride, "This is our ArcAdiA."

But how has all this been brought about? When that administration building was first butted against that little lunch wagon post office we did not have a half dozen subscribers in this community. Now The Guide to Nature reaches regularly most of the homes that are of literary or public-spirited tastes. Large numbers of our Sound Beach citizens have been liberal contributors to ArcAdiA and its work and some score or more have enrolled as regular Members. When we think of some of those early misunderstandings, and perhaps some of them were justified, we are proud of the cordial welcome that Sound Beach has given and grateful for it. But Sound Beach is growing. Hardly a month goes by without bringing new families to the place. To these newcomers and to all the older residents who have not yet come with us we extend a cordial invitation to become a Member or at least a subscriber. No institution is more altruistic and none more generously devoted to the public good than is ArcAdiA. That fact is generally recognized.

Those were great days when on September 19, 1909, and two days following, the original buildings were open

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THE SOUND BEACH REAL ESTATE OFFICE AND GARAGE.

to the Sound Beach public. Throngs of people, young and old, in real pride, in strong hopes for the future or in idle curiosity, strolled through our buildings. We welcomed them all and some of even the doubters are now numbered among our best friends and have stood by us faithfully for more than a decade.

But Sound Beach friends, in the very success there is a danger to you and to the management of ArcAdiA. There is danger of our stopping and saying, "There it is. We have done it. Could anything be better?' Once in a while I frankly confess that I feel like saying with you, "Isn t it beautiful? Isn't it efficient? What more can heart desire?" Then it comes to me overwhelmingly, as I want it to come to you, that Sound Beach is worthy of the best. Do not let us be complacently self-satisfied with anything we have done. We are going to have better school, better churches, better business facilities, better roads, better surface drainage and a better ArcAdiA. The thing that does not grow is dead. In this world there is no standing still. If Sound Beach and its ArcAdiA do not go on to better things, if they do not constantly win new friends, if new families do not come and build up Sound Beach's idle acres, if we do not have improved facilities of every kind, if ArcAdiA does not grow into a gigantic Nature University, then it has failed to fulfill its mission. "The greatest good to the greatest number of people" must be the ambitious slogan of the community and its community center.

We are at the very beginnings of things and I sincerely hope to live to see the time when I shall print in this magazine and call the attention of Sound Beach people to the ArcAdiA of 1920 and it will excite a smile at its present primitiveness as much as does that original little lunch wagon post office.

Think, my friends, think of the tremendous possibilities of Sound Beach and think of what The Agassiz Association has thus far accomplished for it. To the ends of the earth it has made the place known. Let us go on to bigger and greater achievements. Your dollars in this Institution have always yielded good returns. Now frankly admit it. Dividends beyond your wildest expectations, yet not for a moment, not one of you, no, not even the management itself, in those early days dreamed of what it would now be accomplishing in 1920.

Pause, if you please, as I pause and with satisfied feeling look over the past but let it be for only a moment. On, let us go on, to the great Nature University, on to have Sound Beach the

A BEAUTIFUL BLOCK WAS MADE POSSIBLE AND AROSE OUT OF OLD ARCADIA.

FRONT VIEW OF ARCADIA—SOUND BEACH'S "SHOW PLACE" AND COMMUNITY CENTER.
Photograph October, 1920.

finest community of homes, the best public spirit, the kindest of good will to all in that grand old town, Greenwich, the town de luxe of the world.

Cordially yours,
Edward F. Bigelow,
ArcAdiA: Sound Beach, Connecticut.

"Would a Naturalist Starve?"

There is a shock, a comedy, a tragedy, a philosophy, a sermon, a liberal education in that question which comes to us from a woman editor of a magazine requesting an article on that subject.

"Would a naturalist starve?" How strange that inquiry sounds to a naturalist! What volumes of perverted ideas it contains, into what limited sphere is the naturalist placed by that question. "Would a naturalist starve?" Ye gods, what a question! The whole world would have starved, there would have been no people in this world with modern cviilization if it had not been for the naturalists. It is the naturalist that supports everybody else. It is the labors of the naturalist primarily, supplemented by his classified knowledge that gives him the name in addition to that of scientist, that have produced every good thing on earth that makes life worth living. It was a naturalist who early studied animals and plants and demonstrated them and he has been doing it and improving it ever since. It is the naturalist that studied the soil and found out how to treat it and adapt fertilizers to it and bring those fertilizers sometimes from the most distant parts of the earth. It was the naturalist who studied the woods and how they are adapted to a variety of purposes. It was the naturalist who found the coal and oil in the depths of the earth. It was the naturalist who found the minerals and metals and then to those other studies of a naturalist applied their principles and thought out the myriads of their uses. It was by the naturalist, and largely in every case from the love of it at first rather than any possibility of utility, that thousands of things have been studied and been brought to the use of humanity. Without the labors of the naturalist at present and in past humanity could not have lived for a day.

Good health is due to the naturalist who has studied how best to care for the human body. Hospitals are due to the naturalists who have studied how parts of the human body may be removed and made over and the broken parts put together. To the studies of the naturalist we owe every automobile that goes by or every flying machine that whirls overhead. Every food storage building contains the products of the thoughts and labors of naturalists.

All the joys of this world and all the hopes of the next are based on the seeing and the thinking of the naturalist. There is not a religion worth having from that of the savage to that of the highest theological seminary that does not first of all have its basis in the manifestation of the works of God in the realms of nature. Everything that makes life worth living now or will make it worth living in the future owes its origin to the source of all life, Old Mother Nature, and the naturalist is simply one who loves and studies her and tries to know her better, to know what she wants of the human offspring and how best she shall care for them. Back of all supplies for the dining room, back of all comforts of heating the home, back of all excursions into foreign lands, back of all recreations are the labors of the naturalist.

Then comes the appalling thought, how comparatively few they have been, how thoughtless has been the great part of humanity! A few have served and supplied and others have received the abundance of these few thoughtlessly, yes, even ungratefully. The great mass of humanity has turned on their supplying friends, the naturalists, and given them indifference and, alas, too often ridicule. The most poorly supported sections of our modern schools are the biological departments. "Oh, let us have something useful," forgetting that out of biology has come every good thing for the human race. How soon the inventor, who is merely a thoughtful naturalist in the realms of physics, is forgotten. There are the hue and cry of revelry in the enjoyments of his products but who stops to say, "Blessings on the naturalist who thought this thing out, who studied the laws of nature and who made this thing work for our benefit and joy!"

"Would a naturalist starve?" The question implies this belittling idea to which we have referred. He is thought to be a man who knows only "bugs and things" and pulls up strange and unknown plants and tests a fungus here and there and tries to ascertain whether a berry is poisonous or not. Yes, he does that. He always has been doing that but his feast of good things should not for a moment even in thought be limited to his newer experiments as he explores into new realms. He has the great storehouses of all cereals, all fruits, all vegetables. They have been brought out by members of his ilk and clan. All the best of the realms, all the resources, all the accomplishments, all the storehouses, all the food are the possessions of the naturalist.

Then what a question is that, "Would a naturalist starve?" God pity the human race if the naturalist ever should have the desire and the power to take his own and keep it. All other thoughtless human beings would then be like a howling pack of starving wolves in the darkness of the natural world. The naturalists would all be secure in the comfortable homes of civilization with what their thought, their energy, their enthusiasm have provided, furnished and supplied, with the abundance of good things.

"Would a naturalist starve?" What an awful slam upon the great majority of the human race! Yes, such is the baseness of ingratitude. Millions of people would indifferently let him starve, they would take and enjoy the accomplishments of the past and provide not a dollar for the future, though he is stimulating thousands to research in nature, to better appreciation of her. Alas, Mrs. Editor, I think you are right. They would look at his institution, wag their heads and wink their eyes, and say, "Ha ha, he he, hi hi, let us pass thoughtlessly by. 'Let the naturalist starve.' It is no concern of ours."

Autumn.

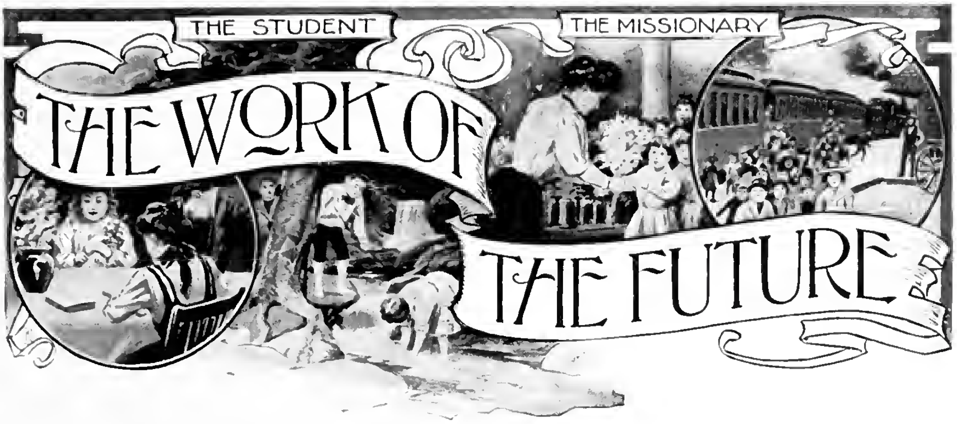
BY ROBERT SPARKS WALKER, CHATTANOOGA, TENNESSEE.

The summer's come and gone again,
Jack Frost is tramping through the fen;
On every hand
In pasture land,
The spiders weave their pictures grand.

The crickets pitch their voices high,
And songbirds toss as they pass by,
A farewell kiss,
To friends they'll miss,
When trees are bare and cold winds hiss.

'Tis time for boys and girls to go,
And rake the leaves where breezes blow,
Round Rocky crags,
Where nut-twig wags,
For those below with begging bags.

Jack Frost the laughing earth may brown,
And shrink its face in freezing frown;
But there's a tune
In hearts immune,
That brings to us the warmth of June!



THE WORK OF THE FUTURE

The Agassiz Association is perennially young, ever going on in enthusiastic endeavors to portray nature more entertainingly, more upliftingly and more educationally. Hardly a day goes by that we here at headquarters do not feel the great need of broader and more effective work. Here is an association forty-five years young this summer. It cannot be said to grow old, for never in its history has it been so enthusiastically engaged with plans for the future and for effective work for broadly disseminating its teaching.

Nature study, commonly thought of as especially for youth, is equally needed by the adult. From actual experience we know that old age finds it a resource no less than does youth. Many of our members are beyond threescore and ten. When one considers an organization so long established as this ,reaching so wide a range of humanity, it is indeed pitiful to note the meager financial support that it has had. There is only one consolation. Every dollar we have ever received has yielded a higher per cent for education and humanity than has any other dollar that has gone into other organizations. We have done the most with the least money of any other organization. Does not that appeal to the careful investor in philanthropy and education? Thousands and thousands of children everywhere do not wish to specialize along the lines of specialized organizations. They do not want to restrict their attention to birds nor to kindness to a cat or a dog nor do they feel satisfied in the humanized work of the costumed organizations for young people. All those organizations and many others are good but The Agassiz Association is the broadest and best of all. It reaches all ages under all conditions and hampers no one with rules and regulations. Its work emanates from the individual. Co-operation is, as it has been for almost a half century, its central thought and basic principle of work. We issue no handbook or instructions. We prescribe no costumes, no rules and regulations. We believe in the democracy of the individual and the Chapter. Singly or in groups our Members of all ages take their delight in whatever they wish to do and they do it in their own way with a confident feeling that, if their students write, all the rest of the organization through the Home Office is ready to render aid when it is needed.

The most astonishing phase of The AA is that it has not millions of dollars at its disposal to carry on effectively such a great, grand, broad reaching and effective work. In school and home, in camp and church the principles of The AA are broadly applicable and have been found by its loyal followers to be the very best of any organization that has ever existed in the study of nature. With broad sympathy for every other organization this grand old Agassiz Association has just entered upon the last five years of its first half century. We are sure that our friends, our students, our members, our hard workers will make this half decade the best that it has ever had. Oh, what a grand celebration, what a feeling of

WE REALLY EXTEND A "WELCOME" TO ALL.

satisfaction we are going to have in five years! It will be a record of a half century unequalled by any other organization that has ever existed.

Safety Only in Nature Education.

America's future, the world's future, the future of the race is in food, is in the "fruit of the earth," is the result of farm life.

Just as there can be no heaven without people who believe in heaven to go to heaven, so there will be no permanent food supply, no permanent race without lovers of country which makes people educate children to believe that their best future is in the country.

You can live on canned stuff, dried stuff, pickled stuff, in a city, but you can have no canned goods, no dried fruits, no pickles unless somebody believed in the farm and taught children a generation ahead of time to believe in farm life.—Dr. A. E. Winship, Boston.

Wanted: A Nobler Objective.

If joy riders and pleasure-seekers were forced to devote a part or all of their time wasted to productive labor, great relief would come to the rural district. Young men and women today are shunning honest labor. Our parents and our forefathers grew strong physically, wise mentally and rich spiritually on honest labor well performed. They did not shirk duty because it meant hard work. They did not leave a task in order to chase pleasure. They understood fully the nobility of honest toil, and did not watch the hands of the clock go round. Such was the character of the people who made the United States the best and strongest nation in the world. Now pleasure seeking threatens all that our forefathers established through days of hard work and sacrifice. They left us richly endowed with a vision which if constantly kept before us will tend to make ours still a strong nation. We are about to lose this vision and in the confusion it sometimes looks hopeless. But we still have faith in humanity and it is our belief that men and women will soon arouse from their stupid dreams of pleasure and gold and work for a more noble objective.—The Southern Fruit Grower.

SAMUEL PUTNAM AVERY.

In the death of Samuel Putnam Avery on September 25 at his home in Hartford, Connecticut, we have lost a Member and one of our best friends. Mr. Avery's interests were more with art than nature but he had a kindly regard and willingness to aid all educational and philanthropic causes. He always had a kind word for our work. He was of delightful personality that won a large number of friends.

TO KNOW THE STARRY HEAVENS

The Heavens in November.

By Professor Samuel G. Barton of the University of Pennsylvania.

IN August the Milky Way extended across the sky through the zenith in a nearly north and south direction. Since that time it has seemed to turn about the zenith as on a pivot, the south end moving toward the west until now it lies in a direction which is nearly east and west. This motion continues until February, when the direction is again north and south. After this time the Milky Way leaves the zenith and lies near the horizon until August. The great square in Pegasus lies high in the sky south of the zenith, and Cassiopeia north of the zenith. Cygnus, the northern cross, now stands in its natural upright position in the west. Orion, the prince of winter constellations, is now on the eastern horizon, as shown on the map.

* * * * *

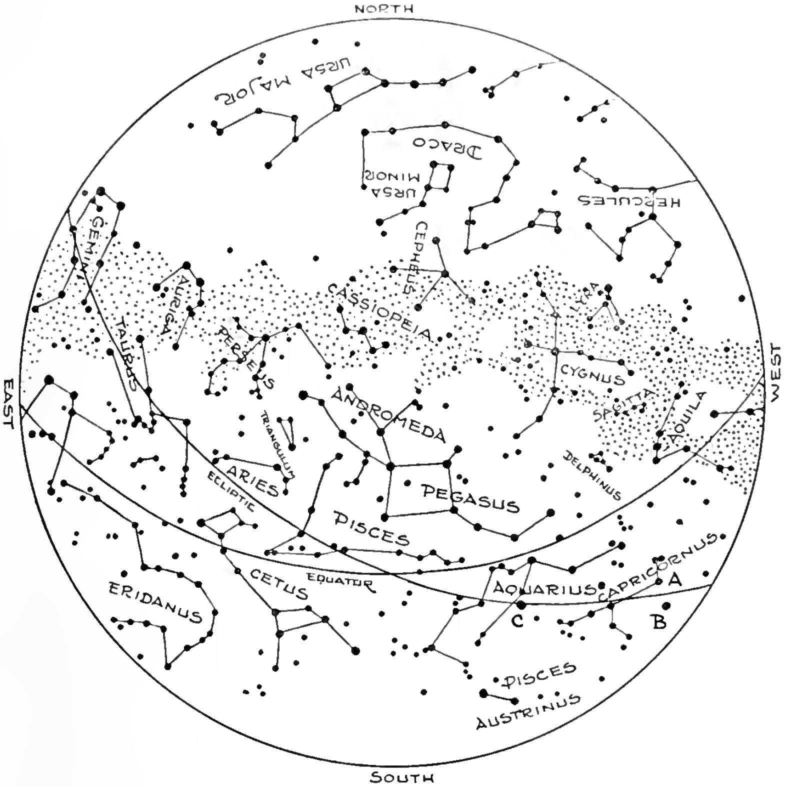

NORTH
URSA MAJOR
DRACO
URSA MINOR
HERCULES
CEPHEUS
CASSIOPEIA
GEMINI
AURIGA
TAURUS
PERSEUS
LYRA
CYGNUS
SAGITTA
AQUILA
EAST
WEST
ANDROMEDA
TRIANGULUM
DELPHINUS
ARIES
ECLIPTIC
PEGASUS
PISCES
CETUS
EQUATOR
AQUARIUS
CAPRICORNUS
A
B
C
ERIDANUS
PISCES AUSTRINUS
SOUTH

Figure 1. The Constellations at 9 P. M., November 1. (If facing south, hold the map upright. If facing east, hold East below. If facing west, hold West below. If facing north, hold the map inverted.)

The Eclipse of the Sun.

The only eclipse of the sun visible in the United States this year occurs on November 10. No part of any other eclipse of the sun will be visible in the United States until 1923. This is a partial eclipse. The moon being in the light of the sun, casts a great conical shadow. When this shadow strikes the earth those within the shadow have a total eclipse and those near the shadow who receive some but not all of the light of the sun have a partial eclipse. If any part of the earth is in the shadow the eclipse is called total. In this case the moon is so much north of the sun when they pass that the shadow cone does not touch the earth at all, so that no one has a total eclipse, but the shadow comes close enough to bring a part of the earth in the region from which a part of the sun's light is cut off. These people see a partial eclipse of the sun. The point of the earth which comes nearest to the center of the shadow and thus has the largest partial eclipse is a point on the Atlantic ocean. There about three-quarters of the sun's diameter will be concealed. At Orono, Maine, 0.44 of the diameter is hidden, which is about the largest amount for any place in the United States. Figure 2 shows the parts of the earth which will see the eclipse. Within those parts enclosed in the loops the sun is near rising (left loop) or near setting (right loop) while the eclipse is in progress, hence the whole eclipse is not seen from these places.

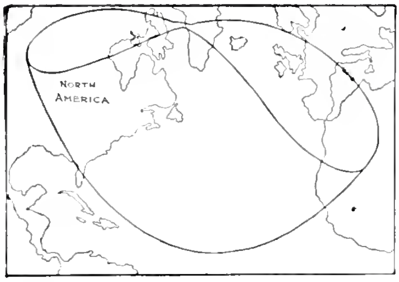


Figure 2. Regions in which the eclipse is visible.

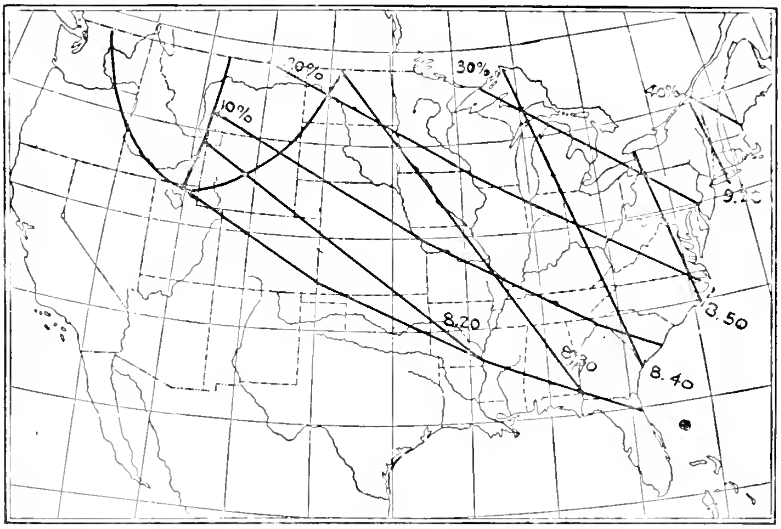


Figure 3. Showing the Central Standard times of maximum eclipse and magnitude of the eclipse as seen in the United States.

The time at which an eclipse of the sun begins or ends and the magnitude and appearance of the eclipse are different at each place so that it is not possible to give a picture of conditions which will suit all places, as can be done in an eclipse of the moon. Figure 3 shows the parts of the United States from which the eclipse can be seen. It will be seen that some of the States in the West and South will not see the eclipse at all. On this map lines are drawn marked 10, 20, 30 and 40. These represent the places where this percentage of the sun's diameter is covered by the moon. Other lines marked 8.30, 8.40, etc., show the places where the middle of the eclipse occurs at the given Central Standard time. If the place uses Eastern Standard time an hour should be added; if Mountain Standard time an hour should be subtracted. The time and magnitude of the eclipse at places not on the lines can be estimated from the distance of the places from the two lines between which they lie.

In all cases it is the northern part of the sun which is hidden.

The eclipse is naturally more interesting in those places in which the eclipse is largest. This occurs in the Middle and New England States.

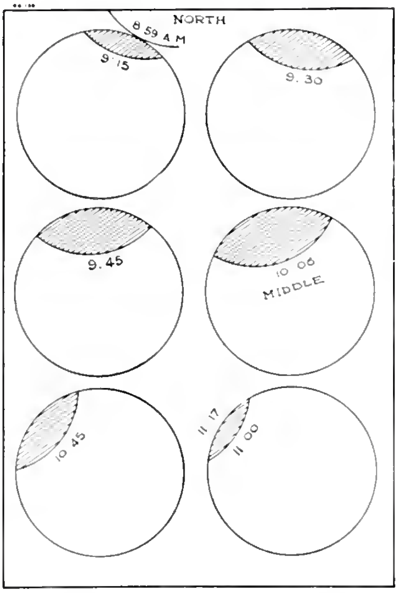


Figure 4. Appearance of eclipsed sun.

Philadelphia lies on the line which shows that thirty per cent. of the sun's diameter will be hidden, and Figure 3 shows that the maximum eclipse occurs at 8.55 Central or 9.55 Eastern Standard time.

Figure 4 shows the appearance of the sun at eight times, from the first contact which occurs at 8.59 until the last contact at 11.17. These drawings represent the conditions approximately for places at a considerable distance from Philadelphia, such as New York or Baltimore.

The eclipse may be watched through smoked or colored glass or the sun may be made to shine through a small hole and its image viewed on a white background, such as a piece of paper, placed behind the hole.

* * * * *

Occultations.

Just as the moon passes over the sun and eclipses it, the moon also passes over stars and eclipses them, or occults them, as astronomers call it. Early on the morning of November 8 the moon passes over the bright star Spica. As seen from Washington, D. C., the star disappears at 5.12 A. M. and reappears at 6.35. This would be a very interesting occultation by reason of the brightness of the star occulted if it occurred at a more convenient time and if the star were not so close to the horizon when occulted.

On November 16 the star Beta Capricorni is occulted. As seen from Washington it disappears at 4.27 and reappears at 5.58 P. M. The star is well up in the sky when the occultation occurs. Daylight will interfere with the view of the disappearance. The star is of 3.2 magnitude. Opera glasses or a telescope will be needed for satisfactory observation of the occultation, although the star is easily seen when not near the bright moon. Beta Capricorni is the star marked A on Figure 1. There is another star of 6.2 magnitude quite near Beta Capricorni. Opera glasses will show it. This star is also occulted. It disappears and reappears just ten minutes before the bright star. The bright star is yellowish, and the fainter, which is just south of the brighter, is bluish. Both of these stars are double. When the brighter star was occulted in 1883, as it now is, it was found that it did not disappear all at once, as is usual, but that the light was suddenly reduced and a second later vanished altogether. It was hence suspected of being double, and when examined with a larger telescope the suspicion was confirmed. The fainter star is a spectroscopic binary—that is, it is a double star with its components so close together that only the spectroscope reveals the fact that there are two. The times have been given for Washington and they do not apply exactly at other places. By noting the relative positions of the moon and star about this time one can easily estimate closely when the occultation will occur. The moon moves through a space equal to its diameter in an hour.

* * * * *

The Planets.

Venus may be seen low in the southwest in the evening twilight. It is now far south of the equator and not favorably situated for northern observers. It will be farther north when at its best next spring. Venus cannot be shown on Figure 1. At the beginning of the month Mars is in Sagittarius, which does not lie within the limits of Figure 1. At the end of the month it is at the point marked B, in Figure 1. It is low in the southwest, in poor position for observation. Jupiter in Leo and Saturn in Virgo, not far away, can be seen only late at night. On November 6 the earth will be in the plane of the rings of Saturn, so that we can see merely the edge of the rings turned toward us. As the rings are very narrow they often disappear altogether for a time. The earth lies very near the plane of the rings until August 21 and is in the plane again in March and August. A fuller explanation will probably be given then when Saturn is visible earlier in the evening. Uranus is at C, Figure 1.

The November meteors may be seen on the evenings about November 15. They appear to move in all directions from the constellation Leo. They are not visible in the early evening.

Eric Doolittle.

[From The Evening Bulletin, Philadelphia.]

Professor Eric Doolittle, distinguished astronomer, died at 10:30 A. M. September 21 in the University Hospital of heart disease. He was fifty years old.

The professor had been in the hospital since June 24. Mrs. Doolittle fractured her leg on September 2 while picking flowers near her home on West Chester Pike, near 69th Street, for her husband. She also was a patient at the hospital and was taken into the professor's room in a wheel chair just before he died. Dr. Doolittle had been sinking for two weeks, and his death was not unexpected.

Professor Doolittle, regarded as one of the world's greatest astronomers, was professor of astronomy and director of the Flower Observatory of the University of Pennsylvania. He was recognized as the greatest authority on double stars.

Professor Doolittle was born in Ontario, Lagrange County, Indiana, July 26, 1870. He was the son of the late Professor Charles L. Doolittle, also prominent as an astronomer and mathematician, and Martha Cloyes Farrand. The family moved to Bethlehem, Pa., in 1876, when Professor C. L. Doolittle was appointed professor of mathematics and astronomy at Lehigh University.

After a preparatory school education, Eric Doolittle entered Lehigh University, graduating in 1891 with the degree of civil engineer. After getting some practical experience as assistant to the city engineer of Bradford, Pa., he was appointed instructor in mathematics at Lehigh University in 1892, where he made some few observations of Jupiter's satellites and other heavenly bodies in the Sayre astronomical observatory.

ERIC DOOLITTLE.

Professor of Astronomy and director of the Flower Observatory of the University of Pennsylvania, who died September 21 in the University Hospital. He was fifty years old.

In 1893 he was appointed instructor in mathematics and astronomy in the State University of Iowa, Iowa City, Ia., where he remained for two years. From there he went to the University of Chicago, where for two years he studied graduate astronomy.

In 1895, Professor Doolittle was appointed instructor in astronomy in the University of Pennsylvania. He had been connected with the university since that time. He engaged in research work at the Flower Observatory, Upper Darby, then under the directorship of his father. His work here was principally the observation and discussion of double stars.

South of the Equator.

In the August-September, 1920, number of "Popular Astronomy," published at Northfield, Minnesota, Mr. S. C. Hunter of New Rochelle, New York, has a very interesting article, "South of the Equator." We wish we had room for the entire article, but the following quotations give so good a taste of the spirit of the whole that I am sure our readers will want to send for a copy.

"We eagerly sought for a glimpse of that much lauded asterism of the southern skies, the far famed Southern Cross. We were not immediately rewarded, however, as it was rising late. In fact so late that it could not be found until we were across the equator, and even then it was at first only dimly discernible in the horizon mists. But as we continued our southward journey, it rose higher and higher on the Milky Way, and soon we were able to study at leisure this most popular of all objects in the southern hemisphere.

"To say that it was disappointing will not be surprising. Nearly everyone seeing it for the first time seems to agree about this. The impression is unavoidable that its chief claim to fame must rest in the tradition which clusters about it in song and story.

* * * * *

"Perhaps the general impression of topsy-turvydom is the most striking sensation experienced by the northern observer who visits the Southern Hemisphere for the first time. It is very difficult to get accustomed to the violent displacement of familiar objects in the sky. Orion standing upside down and directly overhead is one of the apparent abnormities. Then the unusual course of the sun as he sweeps in his diurnal circle northward, instead of southward. It also gives one a start to observe the young moon in the northwest, with the horns pointing apparently northeast.

"It is all very well to tell about these things and to try and explain them, but there is nothing quite equal to the shock of making their acquaintance for the first time by actual observation.

* * * * *

"We looked at the wonderful Kappa Crucis, otherwise known as the 'Jewel Casket.' Words seem quite inadequate to describe the startling telescopic cluster here disclosed, as it is always difficult to express color verbally, especially when it sparkles with the peerless brilliancy of a dewdrop in the morning sun. Here was a handful of bright liquid points of colored fire scattered upon a dark background, looking for all the world as if they had been just carelessly dropped there. The chief feature is a pendant of three stars in close alignment, as if Beta Cygni contained a third star, bright red, between the golden and blue one. The other surrounding stars vary in degrees of red, yellow and white. There is, of course, nothing like this anywhere else in the heavens and it can never be forgotten by anyone fortunate enough to see it.

* * * * *

"But after all it is the glory of the entire visible heavens which appeals to the imagination of the thoughtful observer, and the wonders disclosed by telescope and camera are enough in all conscience, whether to the north or south, for endless speculation and theory to explain anew the processes of creation."

Popular Lecturer on Astronomy.

Miss Mary Proctor, daughter of the distinguished English astronomer, Richard Proctor, paid a flying visit to this country in July to arrange for a lecture tour in 1921; she sailed for England on July 24. She will lecture in England and Wales this summer, and in 1922 will go to Australia. Miss Proctor's lectures are entirely devoted to astronomy, covering the latest discoveries in that field, and are illustrated with the best photographs that have ever been made of celestial objects. During the four years of the great war Miss Proctor was engaged in government work in England. She will find a most cordial welcome on her return to this country.—The Monthly Evening Sky Map.

Miss Proctor was for many years an assistant of the present editor of this magazine in editing "The Observer," published at Portland, Connecticut.

Chorizema.

In orange doublet and kirtle of rose,
This little floweret fairly glows.
—Emma Peirce.

Visible Occultations of Algol for the Season of 1920-1921.

BY WILLIAM A. MASON, IN THE MONTHLY EVENING SKY MAP.

The following table gives the visible minima of the occultations of the variable star Algol for the season of 1920-1921. The time given is the middle of the occultation, which begins five hours earlier and lasts five hours later than the hours indicated.

The ephemeris has been corrected by the accumulated acceleration of the stars former period of revolution, which now brings the minima one hour earlier than the standard tables.

The time given is U. S. Eastern Standard time. Algol is visible evenings in the northeast in the fall, overhead in the winter, and in the northwest in March and April.

1920.	1921.
Oct. 4, 9:30 P. M.	Jan. 1, 6:50 P. M
Oct. 7, 6:20 P. M.	Jan. 18, 11:40 P. M.
Oct. 24, 11:15 P. M.	Jan. 21, 8:30 P. M.
Oct. 27, 8:00 P. M.	Jan. 24, 5:20 P. M.
Oct. 30, 4:50 P. M.	Feb. 8, 1:25 A. M.
Nov. 14, 0:55 A. M.	Feb. 10, 12:25 P. M.
Nov. 16, 9:45 P. M.	Feb. 13, 7:00 P. M.
Nov. 19, 6:35 P. M.	Mar. 2, 11:55 P. M.
Dec. 6, 11:30 P. M.	Mar. 5, 8:45 P. M.
Dec. 9, 8:15 P. M.	Mar. 8, 5:35 P. M.
Dec. 12, 5:05 P. M.	Mar. 23, 1:35 P. M.
Dec. 27, 1:10 A. M.	Mar. 25, 10:25 P.M.
Dec. 29, 10:00 P.M.	Mar. 28, 7:15 P. M.

A Good Observation.

In the latter part of August, in connection with a talk on astronomy, the editor of this magazine distributed a few copies of the August number at the camp of the Boy Scouts in Stamford. Almost immediately a bright-eyed Scout called attention to the fact that if the cut on page 41 is held with the letter E at the top then all the volcanoes on the moon stand out like heaps of earth, while if the picture is reversed and the E is at the bottom they look like holes in the ground. Perhaps some one equally observant and thoughtful can explain why in the first position the volcanoes are convex while in the second position they are concave.

The same Scout also observed that a similar effect is not produced, or not in so marked a degree, with the illustration of the moon on page 42 of that number.

A Call to Young Men.

Your first duty in life is toward *your afterself*. So live that the man you ought to be may in his time be possible, be actual.

Far away in the years he is waiting his turn. His body, his brain, his soul, are in your boyish hands. He cannot help himself.

What will you leave for him?

Will it be a brain unspoiled by lust or dissipation; a mind trained to think and act; a nervous system true as a dial in its response to the truth about you? Will you, Boy, let him come as a man among men in his time?

Or will you throw away his inheritance before he has had the chance to touch it? Will you turn over to him a brain distorted, a mind diseased, a will untrained to action, a spinal cord grown through and through with the devil-grass, wild oats?

Will you let him come and take your place, gaining through your experience, happy in your friendships, hallowed through your joys, building on them his own?

Or will you fling it all away, decreeing, wantonlike, that the man you might have been shall never be?

This is your problem in life—the problem which is vastly weightier to you than any or all others. How will you meet it, as a man or as a fool? It comes before you today and every day, and the hour of your choice is the crisis in your destiny!—David Starr Jordan.

The Marshes.

'Tis the gala time of the marshes,
In dull November weather,
When the brilliance and beauty of all things else
Have flown away together.

'Tis then they come into their own,
Are rich beyond compare,
The mahogany and tawny shades,
Aglow in the mellow air.

And when dark clouds are hanging low,
And sodden, all things, with rain,
It does but deepen the wondrous tints,—
They fairly bloom again!
—Emma Peirce.

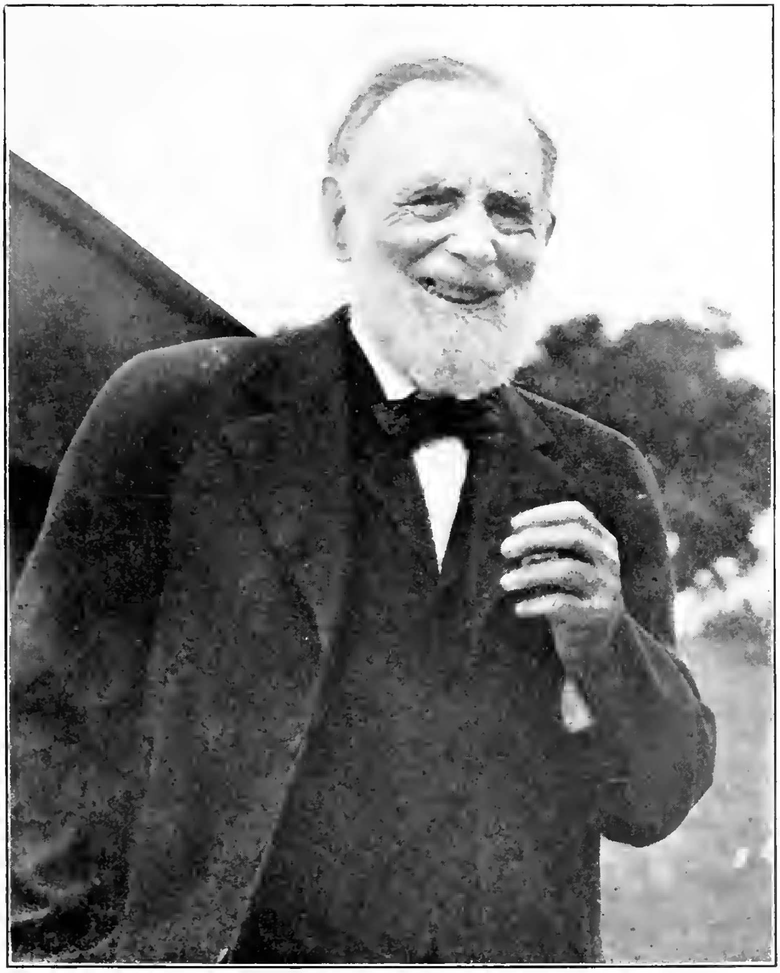
EDITORIAL

Death of an Esteemed Beekeeper.

We are pained to learn, as we do from "Gleanings in Bee Culture" and the "American Bee Journal," of the death of Dr. C. C. Miller, the beloved friend of all beekeepers. He died on September 4, 1920, in his ninetieth year, after an illness of only five days. "Gleanings in Bee Culture" says:

"There was no dimming of his personality during the later years of his life. Until the very last he remained at his best, ever alert, genial, full of enthusiasm, always radiating a great-hearted love that embraced all nature and all mankind. Dr. Miller's life was one of the richest blessings of the beekeeping world, and his writings will be a most prized inheritance for years to come."

Dr. Miller ideally carried out into practice the spirit of The Agassiz Association. He was always interested in teaching some one who did not know.



DR. C. C. MILLER, AGED NINETY YEARS, DIED AT MARENGO, ILLINOIS, SEPTEMBER 4.

Cut by courtesy of "Gleanings in Bee Culture."

He always had a cordial regard for the other fellow and for that reason he inspired and accomplished a great amount of apiarian work. He began to keep bees when he was a young boy, one of the first colonies being kept by his father in a barrel. In 1861 he became especially interested in a runaway swarm that his wife captured and hived in a barrel. This colony during the first year produced ninety-three pounds of honey, and taught Dr. Miller much that he did not previously know about bees. In 1876 his interest had so increased that he had ninety-nine colonies and from that time he made beekeeping his business. The record crops were remarkably good. The best was an average of 266.74 sections from 72 colonies. His best colony that year produced 402 sections.

The editor of this magazine enjoyed correspondence with Dr. Miller for many years but never had the pleasure of meeting him. He had the spirit of the real naturalist. When other commercial beekeepers were unfavorably criticizing the thesis that honeybees do not build hexagonal cells, Dr. Miller became much interested in the question and, though he never positively admitted that he agreed with that point of view, his letters showed that he was strongly inclined that way but evidently did not wish wholly to break loose from most of the commercial beekeepers who opposed.

We extend sincere sympathy to the members of the family in the loss of this efficient beekeeper, this thoughtful naturalist, this great and good man.

Woodbine in November.

The woodbine bereft of leaves
Is like writing on the wall;
In its cabalistic signs
We glean the tale of Fall.

But between the lines we read
Of a resurrection day,
Its fresh young shoots and tendrils
Will soon be spelling May.
—Emma Peirce.

The Chrysanthemum Window.

Big pompon chrysanthemums, showy and full,
And singles, like daisies in summer we pull;
Some like gold buttons, adorning a vest,
Yet holding their own among all of the rest;
Some large as peonies, snowy and chaste,
Others quite flushed, as arriving in haste;
A few red and gold, the true colors of fall,
More climbing upward, stately and tall;—
With all, big and little, delighting our gaze,
'Twere indeed hard to mention which most deserved praise.
—Emma Peirce.

Tall thistles purpled the roadside,
And above, like a sunset cloud,
Hovered hosts of orange butterflies,
A brilliant, wingèd crowd.
—Emma Peirce.

In a Florist's Window.

Fair primrose maidens, all in a row,
Blushingly coy and sweet,
A thrill of joy imparting to all
Who pass along the street.
—Emma Peirce.

"THE LEAVES WHERE BREEZES BLOW."

DELTA ALPHAS AT ARCADIA.

A Methodist Class Entertained by Dr. Bigelow.

[From The Daily Advocate, Sept. 29.]

Last evening a group of twelve girls representing the Delta Alpha Class of the Methodist Sunday School was royally entertained by Dr. Edward F. Bigelow and his family at ArcAdiA, Sound Beach. Though the heavy rain in the afternoon threatened to spoil the outing, it proved after all to have been no serious handicap, for immediately upon their arrival Dr. Bigelow supplied a number of girls with brooms, and in a short time the out-of-door platform was cleared of water and leaves and made ready for the banquet. All of the splendid kitchen equipment of ArcAdiA was placed at the girls' disposal, and they made good use of it. About eight o'clock the company sat down at tables which fairly groaned under their weight of good things—sandwiches, boiled corn, tomatoes, lemonade, cake, grapes, bananas, etc. The cries of a screech owl high up in the trees; the rustling of the wet leaves, and the occasional dropping of a hickory nut from the branches overhead, gave a real woodsy atmosphere to the occasion which the girls keenly enjoyed. Dr. Bigelow said that this was the first party that had had such a banquet in Little Japan after dark.

Supper over, dishes washed and kitchen put in order, the girls were next taken by Dr. Bigelow to the astronomical observatory, where they learned some of the methods of studying the heavens, and are now looking forward to accepting Dr. Bigelow's invitation to come again, on a clear night, and view the moon and stars through the big telescope.

Then the company went to the Welcome Reception Room, and were entertained with music and a stereopticon talk upon camp life and nature-study. One of the girls who contributed a few locks of her hair for a microscopical slide was surprised to see them appear a moment later on the screen looking very much like a brush heap, and was still more surprised to find that, when standing before the screen with both arms outstretched, she could barely touch both edges of one hair as it appeared in its greatly magnified form.

Some musical selections on the Edison Diamond Disc phonograph brought the evening's program to a close, and as the girls left ArcAdiA they were profuse in their expressions of gratitude to Dr. Bigelow for the fine time he had given them.

Screech Owl at a Banquet.

On Tuesday evening, September 28, despite the hard thunderstorm in the late afternoon, Miss Ida Davenport and her Sunday school class of the Methodist Church of Stamford gathered at ArcAdiA for their annual banquet. Two long tables in the center of the Pavilion of Little Japan were heavily laden with an abundance of good things, though the floor was wet and covered with falling leaves and the trees dripped at every rustling breeze. Notwithstanding the unfavorable conditions there was a novel brightening of the situation by a screech owl that came to one of the trees almost directly over the festivities and enlivened things by its long, tremulous whistlings. This was of course hailed with delight and it is the first time that ever an evening party in the wilds of ArcAdiA has been serenaded by an owl.

West Hill.

The hillside formed the vision splendid,
Touched by Autumn's finger cold,
Oak and beech in richness blended,
With high lights of birchen gold.

—Emma Peirce.

Contributions to Little Japan.

Mrs. S. O. Edmonds, Stamford	$10.00
Mr. E. C. Converse, Greenwich	20.00
Mr. Russell A. Cowles, New York City	5.00
Mrs. Zenas Crane, Dalton, Mass	10.00
Mr. Esau Hartwright, Sound Beach	5.00
Miss Elizabeth D. Ferguson, Stamford	15.00
Mr. Ed. Sandreuter, Stamford	5.00
Mrs. Frederick T. Towne, Noroton, Conn.	1.00
F. H. Barnes, M. D., Stamford	10.00
Mr. Walter E. Houghton, Stamford	5.00
Dr. Robert T. Morris, New York City	5.00
Mr. William J. Johnston, New York City	10.00
Mr. Joseph M. Philbrick, Sound Beach	5.00
Miss Gabrielle Amuat, New York City	1.00
Dr. George F. Kunz, New York City	5.00
Mrs. Fitch A. Hoyt, Stamford	5.00
Judge Charles D. Lockwood, Stamford	5.00
Dr. George B. Palmer, New York City	5.00
Hart Chapter, Stamford	5.00
Mrs. Benjamin F. Palmer, Sound Beach	10.00
Miss Rhoda Cornish, Sound Beach, in memory of her father, Lieutenant George H. Cornish, 1886-1918	5.00
Mr. Frank J. Myers, Ventnor, N. J.	8.00
	$155.00
Previously acknowledged	2,351.17
Total	$2,506.17
Total Expenditures Little Japan	3,604.85
Needed in Further Contributions	$1,098.68

Miscellaneous Contributions.

Mrs. Frederick C. Bursch, Riverside, Conn.: Hornet nest.

Mr. and Mrs. Edward Eyre Hunt, Riverside, Conn.: Monkey slug caterpillar (*Phobetron pithecium*).

Mrs. Charles H. Knapp, Sound Beach: Double daisy.

Mr. L. A. Hailand, Mamaroneck, N. Y.: Walking stick insect (*Diapheromera femorata*).

Reverend Lewis W. Barney, Ph. D., Sound Beach: Mouse nest with young mice.

Thomas A. Edison, Inc., Orange, N. J.: Diamond Disc Phonograph records.

Mr. Frederick Hayes, Sound Beach: Part of deer antler.

Young Folks' Impressions of Nature.

Some of the most astonishing things that we have ever discovered in the study of nature are the curious impressions that many persons and especially the young folks sometimes receive when their attention is called to observations of natural objects. Some day some one may try to explain psychologically why the moment one attempts to observe nature the world will at times seem to be unreal. Recently a party was being shown through ArcAdiA. One of the little girls viewed the heavily laden grapevines on our arbors and on the garden fence and seriously and earnestly inquired if the grapes were real. A bunch was handed to her and she was told to test them. Even after that we are inclined to think that she regarded grapes in a nature study place as something out of the ordinary kind of grapes.

A church organization from Stamford to the number of more than thirty recently spent the evening in Little Japan, bringing a picnic lunch with them. They had a really social time. When the party first arrived a small boy was observed to be unusually impatient. He kept asking father and mother, "When are we going? When are we going to go?" The guide in charge of the party inquired of the boy, "What do you mean by 'going to go'? Going where? You are here now." "Yes," he replied, "but when are we going to see the bugs?"

Do not laugh at him on account of his curious youthful notion for we had a more marvelous experience with two prominent, efficient business men of Riverside. After they had completed a tour of the premises they gazed at each other and both laughed heartily. Upon inquiry as to the cause of such hilarity one of them explained that without giving the matter much thought he had supposed our longest office building to have an interior construction of a main aisle with large bins on both sides filled with bushels and bushels of various kinds of bugs after the style of a granary where oats, buckwheat and corn might be assigned to different bins. Upon further inquiry we found he had a mental picture of big scoop shovels and huge baskets! Here is material for study more interesting than the study of nature!!

Sound Beach Seedless Grapes.

Mr. Edward A. Finch of Sound Beach recently left at ArcAdiA specimens of seedless grapes which he supposes to be a cross between the Delaware and the Catawba. These grapes were referred to an expert, Mr. U. P. Hedrick, Horticulturist of the New York Agricultural Experiment Station, Geneva, New York, and he replies:

"I suppose that we have record of some half dozen such seedless grapes all of which have originated under cultivation, probably as hybrids. No one of the seedless grapes that we have yet seen has any commercial value and certainly this has none. I am hoping that sometime some one will bring us in a seedless native grape. As you probably know, several such seedless Viniferas grow in European vineyards."

"Regarded as a Wonderful Achievement."

Edward F. Bigelow, editor of The Guide to Nature, expresses the opinion that teachers and parents spend too much time in developing girls, and give too little encouragement to girls to develop themselves. A girl is diffident and self-conscious, he says, because she has been repressed and allowed too little outward expression. He has little faith in various new-fangled pedagogical inventions and contrivances, but contends that the girl should be left free to "find herself"—probably meaning that the various regulations governing her life and habits tend to cloud the real self, and to squelch her natural feelings. Dr. Bigelow says the girl should express herself through nature, and he is going to explain his ideas in lectures to teachers and parents. He has experienced a change of viewpoint as regards girls, as the result of being a teacher, a parent, a grandparent, a biologist, a naturalist, and an instructor in girls' schools. He is bold enough to say that he thoroughly understands girls, which the ordinary person would regard as a wonderful achievement, especially for a man.—The Stamford Advocate.

When a man has the record of having been brought up with four sisters, of having brought up three daughters and two granddaughters, of having taught girls for ten years in public schools, and for twenty years in private schools, of having been an employer of girls for twenty-five years, and naturalist guide in camps for girls in many states, and is now guide in charge of nature study of the 125,000 Camp Fire Girls of America; he has a right to feel that his impressions of girls may qualify him as a "guide" to the nature of girls.

Edward F. Bigelow, A. M., Ph. D., of ArcAdiA, Sound Beach editor of "The Guide to Nature" and curator of our own Bruce Museum, is celebrating his sixtieth year by offering a new lecture for adults, with the title "Girls." It is well adapted to Women's Clubs, Teachers' and Parents' Associations, Teachers' Institutes and churches.—"The Greenwich Press."

Early Morn.

(Summer)

Each lowly weed was a crystal clear,
The grasses spears of light,
And every flower wore a diadem
Of the sparkling dew of night.

(Autumn)

'Twas worth the early rising
To see the frosted fields;
Which shone in the morning sunlight
Like burnished silver shields.

—Emma Peirce.

Apple Tart.

Lady (to apple vendor)—Two of the apples you sold me yesterday were rotten. I was going to take them along to show you, but I forgot—

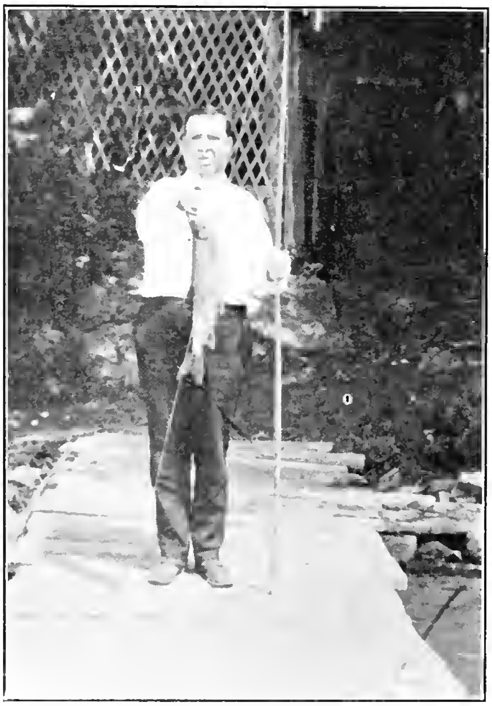
Apple Vendor (politely)—Doesn't matter, ma'am; your word is as good as the apples.—Kansas City (Mo.) Times.

A Wonderful Trout and a Truthful Fisherman.

Here is the best fish story we have heard in a long, long time. It is all the more interesting because it refers not only to a wonderful trout but is a true story.

Fishermen in and about Stamford have known for a long time that the genial printer of our magazine, Mr. R. H. Cunningham, has not only built up a big printing business but that when he takes a vacation he catches unusually large trout, as shown in the accompanying illustration.

With his family he was spending a vacation in the wilds of Canada. One afternoon he started out as usual with a slender fishing rod and a dainty line, little dreaming what a monster trout, some four feet (more or less!) in length, he would bring home. It seems incredible that one lone printer could ever have landed that whale of a trout and on his return could elicit such astonishing applause from the members of his family. But it is easy to get trout and to have fun with one's family if one knows how to perform such feats.



OUR PRINTER AND HIS GIGANTIC TROUT.

It appears that like the hero of a fairy story our printer wandered away and away and away, but he was not lost, because he could not be when one place is as good as another. But suddenly it occurred to him that a sense of newness was borne in upon him, and that he had never before seen those places and things. But who cares? A beautiful lake spread its broad waters in his presence, and he prepared to land the record fish.

He did it. Probably not for many ages has such a trout been brought out of those waters. It was so big that he called a native Indian to help him for he had wandered into the Indian Reserve and Big Chief Mightygetto happened along at the opportune time. Big Chief, as the name implies, can get as mighty a fish as was ever caught, and he knows how to sell it when he gets a good customer. It so happened that our printer had not only plenty of bait with him but a few dollars. He applied the dollars to landing out of the bag the huge trout that Mightygetto exploited with no little pride and longing for a good price.

Until they read this article in THE GUIDE TO NATURE members of his family and other admiring friends have not known how our printer landed that gigantic trout. He did it—he could not tell a lie—with the present little purchasing power of the dollars of America, but things are different up in Canada when it comes to matters of trout and Mightygetto, Big Chief Indian.

With hoops of steel doth Nature hold
Her lovers leal and true;
But to the most of those who pass,
The ties are cobwebs in the grass,—
Her followers are too few.
—Emma Peirce.

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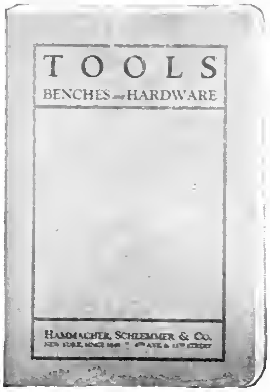

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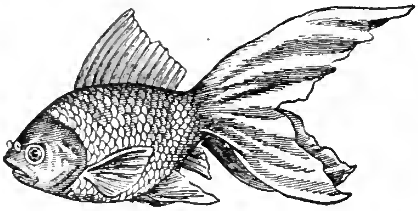

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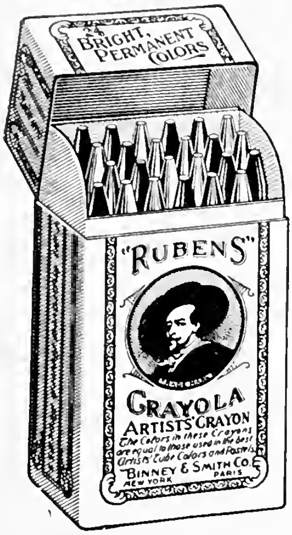
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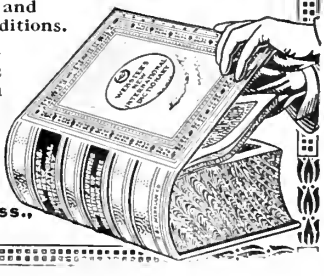

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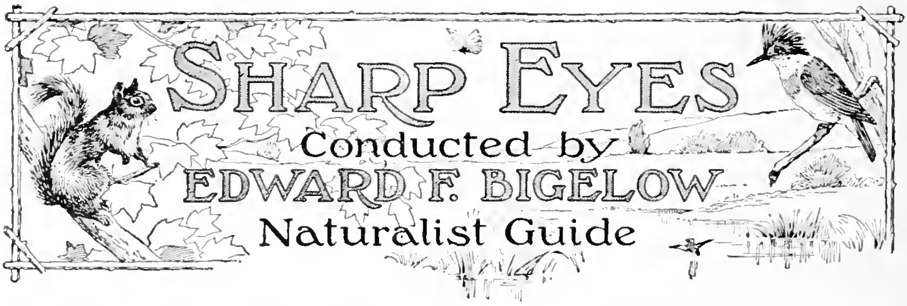

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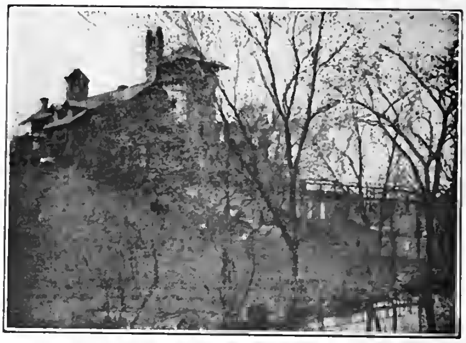

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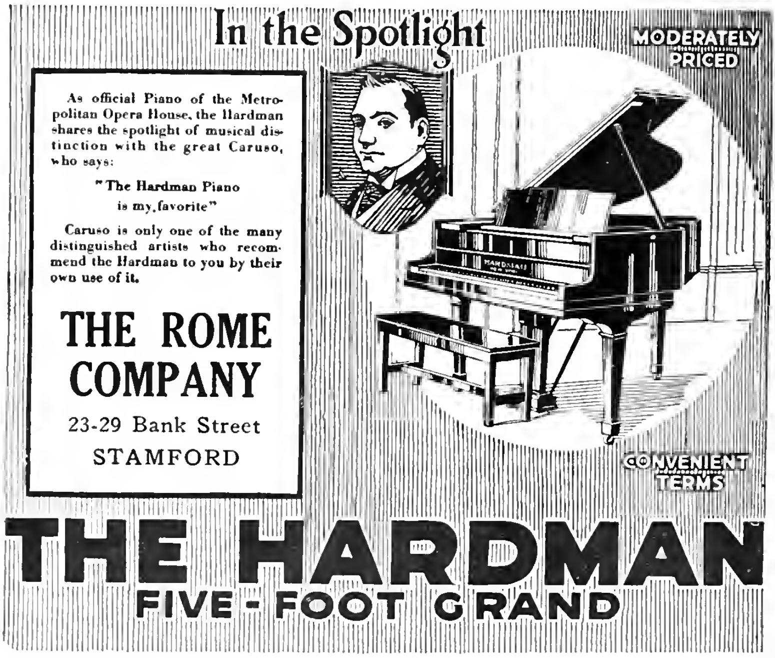

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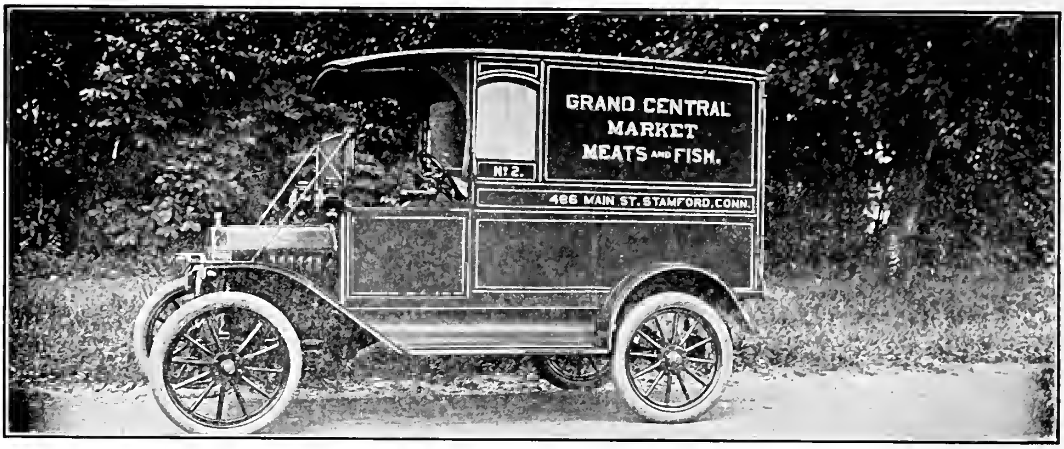

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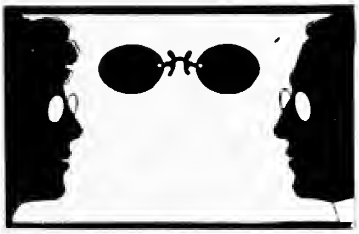

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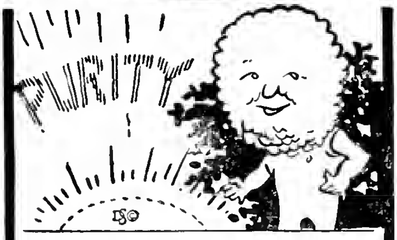

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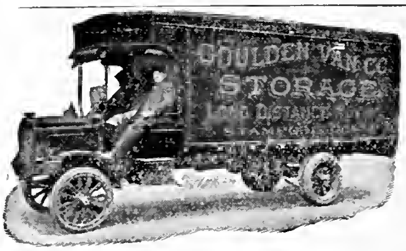

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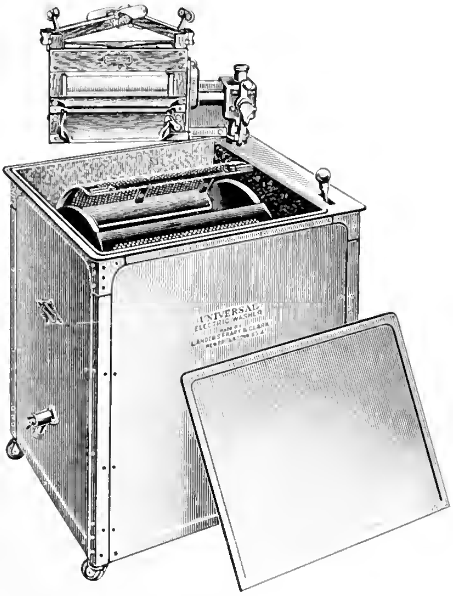

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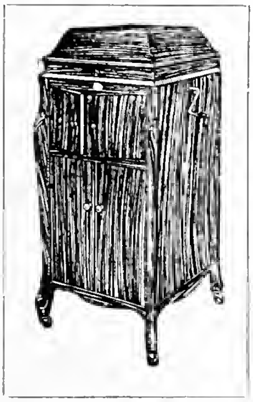

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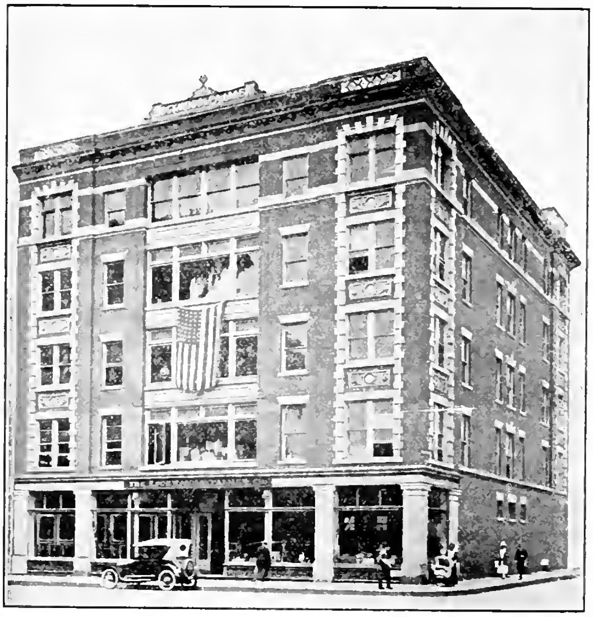

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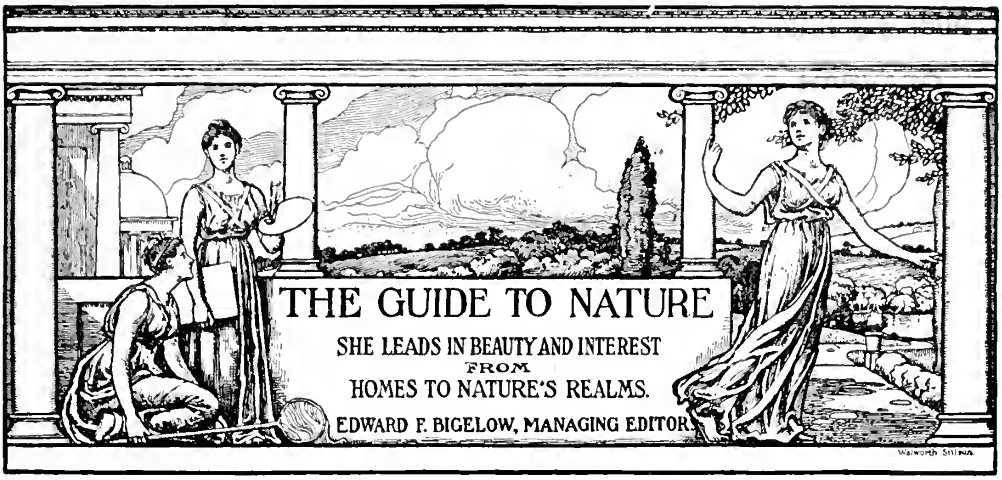
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FROM
HOMES TO NATURE'S REALMS.
EDWARD F. BIGELOW, MANAGING EDITOR
Walworth Stilson

Published monthly by The Agassiz Association, ArcAdiA: Sound Beach, Connecticut.
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Business Man's Nature Resources in Garden and Yard.

By Edward F. Bigelow, ArcAdiA: Sound Beach, Connecticut.

"I do not need to go away on a vacation because I find plenty to entertain me in my garden and yard," remarked Mr. F. L. Lamson, Treasurer of the Norwalk Tire & Rubber Company, Norwalk, Connecticut. That remark at once interested me and classified Mr. Lamson with us of The Agassiz Association in finding really "foreign lands" right at home. His statement is in harmony with the slogan of the naturalist, "It is a wise naturalist that knows his own parish."

Year after year Mr. Lamson has been trying to get acquainted with nature as she manifests herself in his garden and yard, and he finds therein a never ending source of inspiration and entertainment. One thing leads to another because nature is always fleeting onward, beckoning to us to follow in her footsteps. We are interested in Mr. Lamson's experiments not only because he has achieved some remarkable results with potatoes and peaches but because he finds joy therein. Aye, there is the point. The professional horticulturist or agriculturist may well copy his example in efficiency of production, but even more may our naturalists and outdoor lovers copy his example and find nature interests close to the heart of a city and amid the activities of a hustling, energetic, successful business. We are grateful to Mr. Lamson for pausing to write a letter not only giving our readers something of the spirit of what he has done in garden and yard but making suggestions to inspire others not merely to do just the things he has done but to take up original research along parallel lines. Every man needs an avocation and we believe that Mr. Lamson has taken an ideal kind, one that develops both mental and physical activities and keeps him immersed in the joy of living. That such is the situation is readily recognizable, for he is mentally alert, physically strong and efficient and brimful of cordiality. It was a joy to meet him and be permitted to take the accompanying photographs.

* * * * *

South Norwalk, Conn.

To the Editor:

Complying with your request, I am setting forth below a brief account of

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MR. LAMSON POINTS WITH JUSTIFIABLE PRIDE TO THE POTATO PRODUCT.

my experience this summer in the pruning of potato vines, on the theory that it was improbable that I could get both an enormous growth of vines and at the same time a satisfactory growth of tubers.

As a matter of fact, I was more interested in the experiment than in the potatoes, for while I have a large garden, it is an amusement park to me and not a commercial undertaking. I try every year various experiments with the things growing in my garden and yard. It has seemed to me that there must be in the program of nature a true proportion between root and vine and fruit; and it has been on this theory that I have conducted several experiments. It was on this theory that I was tempted to use my hedge pruning shears on my potato vines.

To get a true proportion the questions of food, water and temperature must all be considered; and while the Good Master causes the rain to fall on the just and the unjust alike, I find no record where He proposes to distribute that rain to meet the requirements of the maximum growth of vegetation. A little study of the rainfall of any section of this country is proof of this statement. The rainfall, for instance, in the locality of Rochester, New York, during the year 1908, was four inches for the one hundred growing days beginning May 1, and in the year 1904 the rainfall there for the same period was eighteen and a fraction inches. The rainfall in this section of the country this year, while I have not the figures, was certainly abnormally high, and beyond the requirements for maximum growth of vegetation.

Therefore, to offset this, I conceived the idea of keeping my potato vines or tops down to what I considered normal; where they were about three feet high I pruned to about eighteen inches, keeping two rows in my garden about that height until the potatoes matured; and at harvest time I was gratified to find that the rate of production on the two pruned rows was more than double that of the rows that were not pruned, and the potatoes much larger and more uniform. Since all other conditions were equal, I can draw no other conclusion than that the pruning was directly responsible for the increased yield.

I assume that the same result might have been accomplished had I been able by underground drainage to have taken away the surplus moisture, which would have prevented the tops from growing out of proportion to the root and fruit.

You further asked me to make some statement with reference to the peach trees which you saw on my lot. Those trees were three years old last spring. From a Georgia Belle tree I gathered this year approximately five bushels of peaches; the photograph which you took will show the size of these fruits by comparison with photographs of Mr. Cunningham and myself as measuring sticks.

To get good peaches one must be as interested in the individual tree as a good raiser of horses must be in each of his animals. Peach trees require much attention and study, beginning with the selection and planting of the shrub. Before planting the tree which you photographed, I made an excavation about six feet in diameter and three feet in depth, with the subsoil beneath loosened. The excavation was then filled with layers, in the order named, of topsoil, humus, topsoil, well rotted manure, more topsoil and an application of commercial fertilizer. Above this the shrub was set in the center of a final layer of normal topsoil. Each year the closest attention has been given to keeping the roots free from grubs, and the top and branches from pests, by spraying. The shape of the tree for the first crop was that of a vase, and this year I am growing in the center of the tree new wood;

YOU MUST HAVE A PERSONAL INTEREST IN THE PEACH TREE.

THE BACK YARD VIEW OF THE HOME.

when I trim next spring the old wood will come off, leaving a new tree from the inside; and I propose that this shape of tree will furnish peaches continuously for the next ten years if I am on the job to give it the care that it should have. I fertilize every year with well rotted manure, and keep the soil to the outer limits of the roots carefully worked.

I think that I have set forth in this letter all that you asked. The real idea of the whole thing is that for actual recreation for the man whose work is inside there is nothing that I know of comparable to the pleasure of getting acquainted—even becoming familiar—with the things that may be grown on a fair sized garden or lot.

I might add that I do much of my gardening in the winter time, when, from the blueprints of my yard and lot and the histories of previous years, the ground is laid out and plans made for the coming season.

F. L. LAMSON.

Supposing you take a finger print of your thumb, in the conventional manner of the police records. Then burn your thumb sufficiently to destroy the skin. Do you know that after the new skin has formed the finger print of your recovered thumb will be precisely the same as the first one? Yes, absolutely the same, even down to the last line and irregularity. I tried it to make sure. Here is a mystery which has remained unanswered until now. —Thomas A. Edison in Scientific American.

Flying Squirrels.

BY DR. J. B. PARDOE, BOUND BROOK, N. J.

Flying squirrels make interesting pets. I knew of a nest in the crotch of an old pear tree which in decaying had formed a natural cavity in which the mother squirrel had begun housekeeping. I often visited the nest, admiring the young squirrels with their soft, silky fur, and the mother with her big, innocent eyes. As I reached up to the nest, the mother squirrel would leave the nest cavity and run up the tree a short way, then turn and look down at me as if to say, "You wouldn't hurt my babies, would you?"

One day upon my approach to the nest I discovered a fiendish yellow cat reaching into the nest with her sharp claw and hauling out a baby squirrel. This she took in her mouth and disappeared under the barn like a yellow streak. Returning to the tree, I found only one squirrel left. I took it to the house to raise by hand if possible. Success attended my efforts.

Many interesting traits were displayed by Nip. I called him Nip because he had a habit of giving me a nip or bite when I teased him. He was on hand for meals, jumping from the table with a nut or cracker to my shoulder and eating there, but if disturbed he jumped to the chair back and sometimes to the buffet and finally to the top of a picture on the wall.

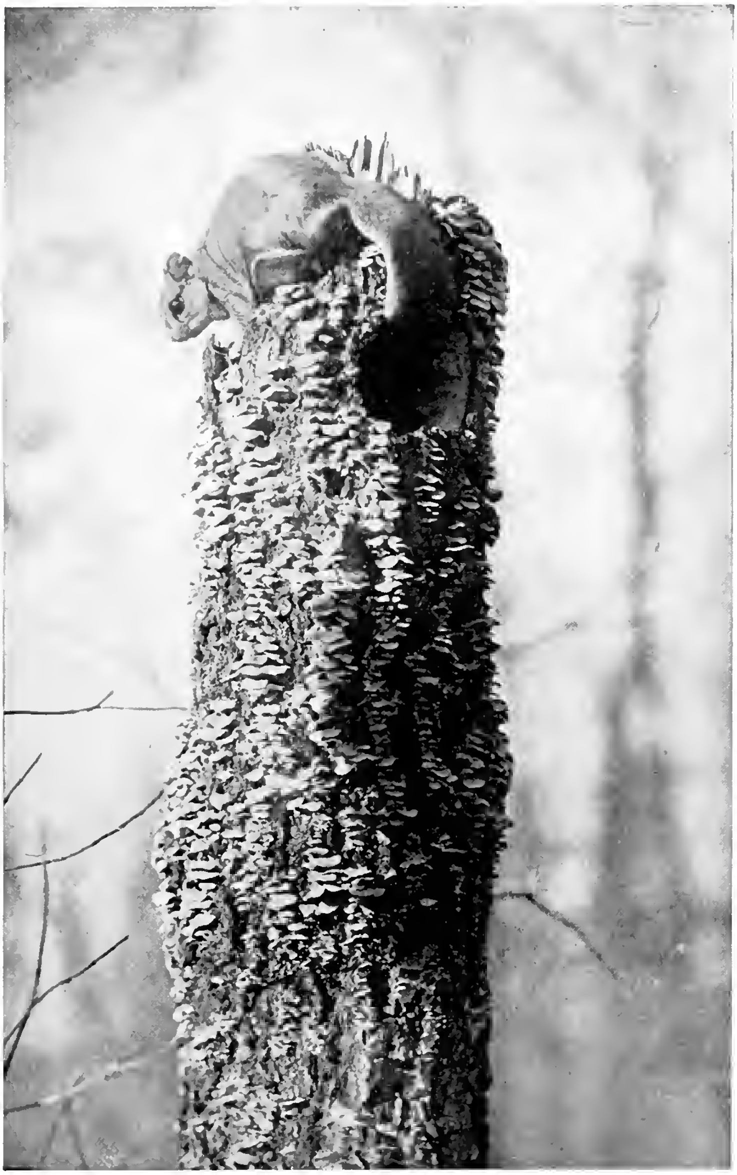
Sleeping in bed, preferably at the foot, was one of the traits developed by most of my pets. A dog, a cat, a crow and an owl were some of them, and Nip was no exception, always entering the bed from the headboard, then going down under the covers a short space at a time, taking his place as near my feet as possible. If disturbed, he would chatter, scolding softly at first, then louder. If annoyed to any great extent he took little bites at my toes. If kicked or pushed out of the bottom of the bed, quick as a flash he ran under the bed and entered by the headboard again, never trying to get into bed at the foot.

Being very tame and gentle, he liked to lie curled up in my hand and be petted. One morning I found Nip drowned in a large water pitcher into which he had fallen.

Some time later, when I was taking my usual walk in the woods, I came upon a squirrel nest in a stump. I immediately set my camera in position and focussed on the hole in the top of the stump. When all was ready I carefully approached the stump and with a stick began to knock on it gently. Hearing something inside, I stepped back just in time to see a flying squirrel come from the hole and hesitate as it went over the top. My shutter being set on bulb, I gave one second exposure, this time being enough to fully expose the plate, as the accompanying photograph shows. A snapshot at that hour and lighting would have proved to be greatly underexposed. It was seven o'clock in the morning and very cloudy.

While I stepped to the camera to replace the slide, the squirrel leaped to another tree, ran to a higher branch, then jumped in the air, spreading its wings, as it were, by stretching the loose skin between the front and hind legs. It literally sailed down the mountainside, landing at the base of a tree trunk at the bottom of the hill.

Putting my hand in the hole to find the nest, I felt something soft. I withdrew my hand and brought forth a baby squirrel. It was very small and sleepy. There were four other babies in the nest. I left them to be photographed later when they were older and better subjects photographically, but that day never came. Going back a few days later to see how the baby squirrels were getting along, I found no squirrels, and not even the stump was left but the whole thing was broken off and demolished, the work of thoughtless boys, I presume.



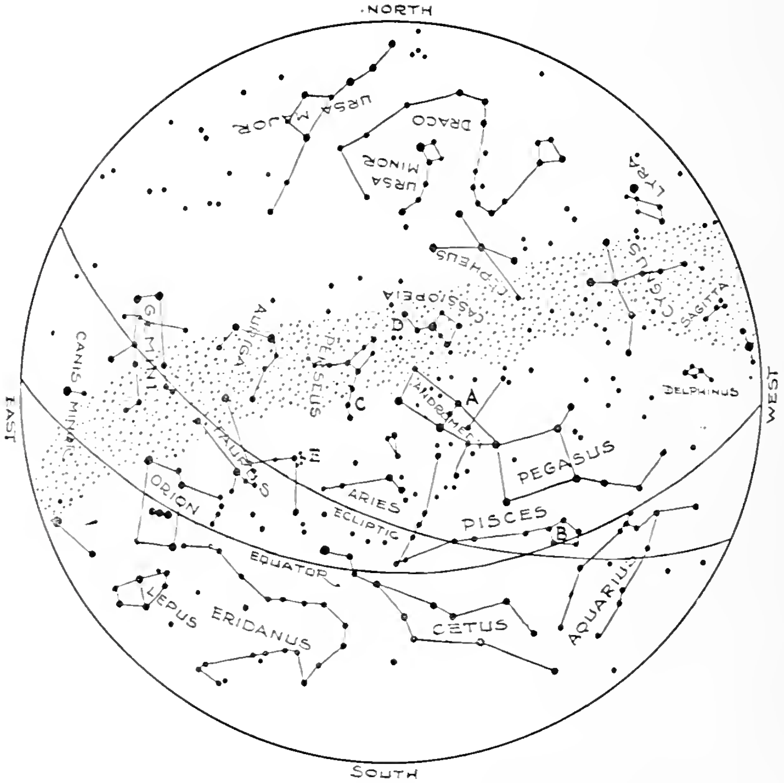
THE FLYING SQUIRREL.
Cut by courtesy of "Photo-Era," Boston.

TO KNOW THE STARRY HEAVENS

The Heavens in December.

By Professor Samuel G. Barton of the University of Pennsylvania.

THE approach of the brilliant summer star, Vega, to the northwestern horizon indicates the arrival of winter. This is confirmed by the appearance on our map for the first time of Sirius and Procyon in the southeast and east. Taurus, containing the Pleaides, better known than the constellation itself, is well up in the eastern sky, leading the array of brilliant winter constellations. The northeast is barren. The nebula in Andromeda, which is the only nebula which can be seen with the naked eye, is located at A, Figure 1. With the naked eye it is not a brilliant object, but it can be seen readily enough with a black sky. Opera glasses show it very easily. Its appearance is that of a hazy star without a sharp boundary. It has frequently been mistaken for a comet. Just under the great square in Pegasus, at B, may be seen the "circlet" in Pisces, a series of rather faint stars arranged somewhere nearly in the form of a circle. The stars in Perseus may be


NORTH
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DRACO
URSA MINOR
LYRA
CYGNUS
SAGITTA
CEPHEUS
CASSIOPEIA
DELPHINUS
WEST
GEMINI
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EAST
AURIGA
PERSEUS
D
C
A
ANDROMEDA
TAURUS
E
ORION
ARIES
ECLIPTIC
PEGASUS
PISCES
B
EQUATOR
LEPUS
ERIDANUS
CETUS
AQUARIUS
SOUTH

Figure 1. The Constellations at 9 P. M., December 1. (If facing south, hold the map upright. If facing east, ho'd East below. If facing west, hold West below. If facing north, hold the map inverted.)

considered as forming an imperfect letter A (see Figure 1). The eastern side of the A is the so-called segment of Perseus. Just above the top of the A, at D, lies the double cluster in Perseus, distinctly visible to the naked eye and a splendid object in small telescopes.

* * * * *

The Planets in December.

Venus alone of the brighter planets is visible in the early evening. This planet may be seen in the southwest in the early evening. It is not within the limits of our map until the end of the month. It is then just on the edge. The map is for nine o'clock, whereas it becomes dark much earlier, so that Venus may be seen earlier in the evening. It is so bright that it may be seen in very strong twilight very soon after sunset and before the stars come into view. Uranus is in Aquarius, but is not visible to the naked eye. Jupiter and Saturn are not far apart in Leo and may be seen late at night. Neptune is not visible to the naked eye. The other planets are too near the sun to be seen. On December 9 Jupiter is at quadrature—that is, the line from the earth to Jupiter is perpendicular to the line from the earth to the sun. On this day the fourth satellite of Jupiter makes a transit over the face of Jupiter. The satellite also casts its shadow on Jupiter. The shadow crosses the planet first. In this case the shadow completes its transit 7 hours and 32 minutes before the satellite begins its transit. Since this is the outermost of the four brighter satellites and the event occurs almost exactly at quadrature, this interval is about the longest possible for one of Jupiter's satellites.

* * * * *

The Earth at Perihelion.

The earth was at perihelion—that is, at the point of its orbit closest to the sun—on January 3. It will be at perihelion again just when the whistles are blowing to herald the New Year in Eastern Standard time. It occurs earlier by the Central and Mountain Times. Thus this year there are two times when the earth is at perihelion, which is unusual. Next year the earth will not pass perihelion at all by the times used in this country.

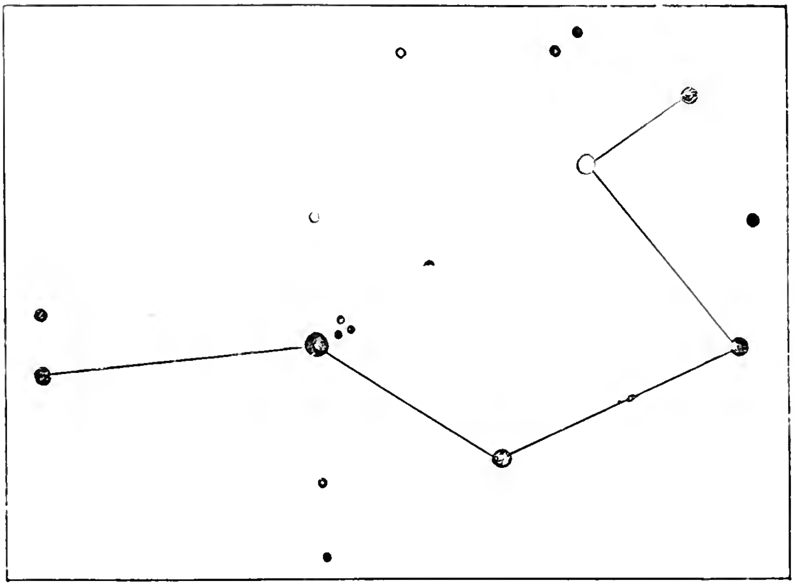


Figure 2. Map of the Pleiades.

* * * * *

The Pleiades.

The Pleiades are better known than any other group of stars in the sky unless it be those of the Big Dipper. They do not form a constellation, but are only a part of the constellation Taurus. They are located at E, Figure 1. As they are a compact group not well represented on the small scale of Figure 1, a larger scale map is found in Figure 2. To the naked eye only the six stars joined by the lines are easily seen. None of these stars would receive any attention if it were separated from the others. But as a group they at once attract the attention. In ancient literature the group was always regarded as consisting of seven stars. What has happened to the seventh star, if one ever appeared, is uncertain. Fourteen stars have been seen with the naked eye by at least three persons under very favorable conditions. Eleven were charted by a student of Kepler. This was before the days of telescopes, so that there is no doubt that he saw them. A few of the other stars are shown on Figure 2. The star most easily seen after the six is the one to the right of those joined with the lines. Its name is Calaeno. Those joined by the lines are named from left to right Atlas, Alcyone, Merope, Electra, Maia and Taygeta. A two-inch telescope shows seventy-five stars in the group. The whole region is filled with stars just a little too faint to see with the naked eye. On a photograph covering three square degrees about the Pleiades and showing stars down to the sixteenth magnitude 2,326 stars were counted.

The group is sometimes called the Little Dipper, as the stars are arranged in that form. Ursa Minor, however, is better known as the Little Dipper. The Pleiades are often called the Seven Sisters. In Europe they are known as the Hen and Chickens.

Southeast of the Pleiades near the bright star Aldebaran in Taurus is another group of faint stars usually associated with the Pleiades. They are called the Hyades. This group has been found to be a globular cluster of stars about one hundred and thirty light years away. The stars all give out more light than the sun, some as much as a hundred times as much. They move together through space.

* * * * *

Algol.

At C, Figure 1, in the constellation Perseus is the best known variable star, Beta Persei or Algol. It is usually of 2.3 magnitude, but regularly, at intervals of two days and twenty-one hours, its brightness decreases. In four and a half hours its brightness decreases to 3.5 magnitude. It remains at this magnitude for twenty minutes and then increases in brightness to 2.3 magnitude again in three and a half hours. The star will be at its minimum brightness at the following times in the early evening in December: December 6, 11:30 P. M.; December 9, 8:15; December 12, 5:05; December 29, 10:00. It is best to locate the star and compare its brightness with that of the surrounding stars some evening before that of the minimum brightness.

The variations of the star must have been known for a long time, for the name Algol, applied to it by the Arabs, means "demon star." As early as 1783 it was suggested that the variations were caused by some dark body revolving about the one we see and thus cutting off a part of its light, when the other body passed between us and the star. The very accurate measures of brightness now possible show that there is also a very small decrease in brightness half way between the principal minima. By noting the changes in the star's brightness with the time we can, after a mathematical discussion of the problem, learn not only that an eclipse causes the variation but the relative dimensions of the two bodies, the distance between them, the relative brightness, the position of the orbit, and we can set an upper limit to the densities of the stars. This shows that the dark body is somewhat larger than the bright one and only a twentieth as bright.

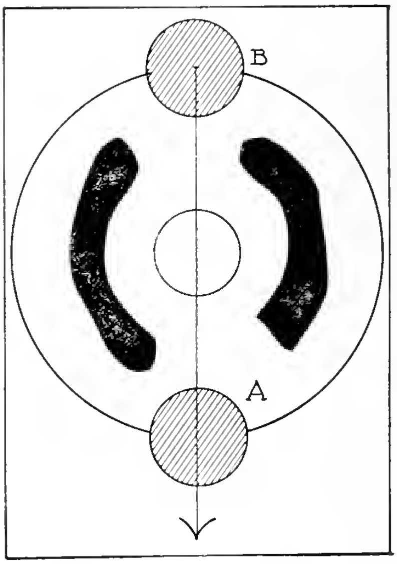


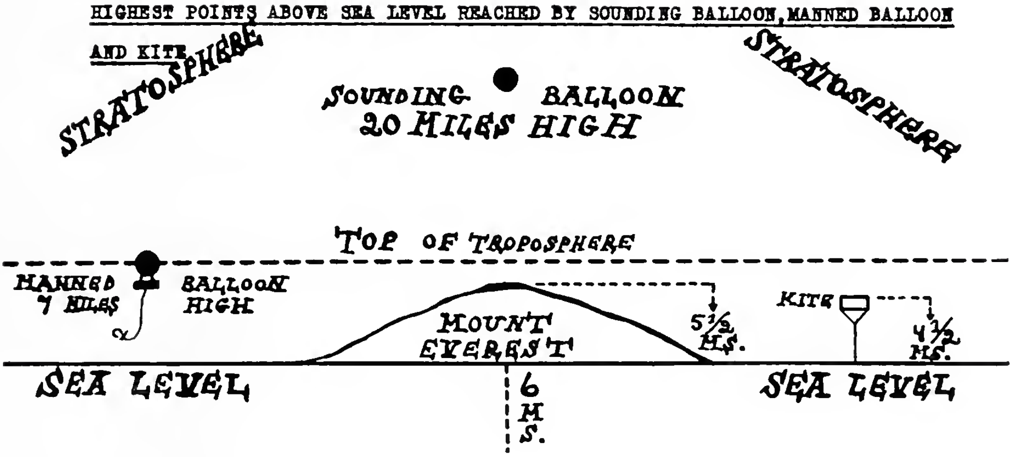
Figure 3. The system of Algol.

In Figure 3 we have a diagram of the system. It shows the dark body moving about the bright one. The earth lies in the direction of the arrow. We would receive the full light from both bodies except when the dark body lies in front or back of the bright one. When the dark one is in front, as at A, we have a partial eclipse which causes the big decrease in brightness. When the dark body is behind, a part of its light is cut off, but the loss of light is slight. The eclipse is not total as the dark body does not come exactly between the bright star and the earth. We are thus able to tell much about a body which we have never seen. Both bodies have very slight density compared with that of the sun.

High Points Above Our Earth's Surface.

BY CHARLES NEVERS HOLMES, NEWTON, MASS.

We all know that we are surrounded by an atmosphere and that this atmosphere extends upwards for many miles. Some of us know that it has been estimated that, were all this atmosphere equally dense, it would not extend more than five miles above our earth's surface, not quite as high as Mount Everest, the highest mountain on our globe. But our atmosphere becomes rarer and rarer as we ascend, the density of air being at an altitude of 3 6/10 miles one-half that which it is at sea level. The question is, how high above the terrestrial surface does our atmosphere extend?


HIGHEST POINTS ABOVE SEA LEVEL REACHED BY SOUNDING BALLOON, MANNED BALLOON AND KITE
STRATOSPHERE
SOUNDING BALLOON 20 MILES HIGH
STRATOSPHERE
TOP OF TROPOSPHERE
MANNED BALLOON 7 MILES HIGH
MOUNT EVEREST
5½ MS.
KITE
4½ MS.
SEA LEVEL
6 M S.
SEA LEVEL

The answer is, at least three hundred miles, and these three hundred miles are divided into several strata. The stratum closest to the terrestrial surface, which surrounds us, is called the "Troposphere," seven miles in height, and above the "Troposphere," there follow respectively the "Stratosphere" (about forty miles high), the "Hydrogen-sphere" (about eighty miles high), and, finally, the so-called "Geocoronium-sphere" (which extends from the "Hydrogen-sphere" to the top of the atmosphere). With the "Hydrogen" and the "Geocoronium" spheres we are not concerned, since the "high points" in this short article lie wholly within the "Tropo" or the "Strato" sphere. The top of the "Stratosphere" is about forty-seven miles above sea level, and clouds and storms are found forty miles below, in the "Troposphere." As is very evident, the "Troposphere" is the home sphere of the human race.

Most of us live near the bottom of this "Troposphere," and even the lofty summit of mighty Mount Everest does not reach as high as the top of the "Troposphere." However, it is believed that a balloon or balloons, containing human beings, have ascended as high as the bottom of the "Stratosphere" and, it may be, one of these balloons has even invaded the "Stratosphere." It is certain that "sounding balloons," that is, not containing human beings, have penetrated this "Stratosphere" for quite a distance, one of these "unmanned" balloons attaining a height of about twenty miles. It will be exceedingly interesting to watch future experiments with sky projectiles or "rockets." Such sky projectiles will be propelled by an initial explosion, and their initial velocity will then be increased or sustained by a succession of explosions from the projectiles themselves. Although these powerful sky-rockets may not reach our moon, at their first trial, they may ascend much higher than the "sounding balloons," and perhaps some of them may penetrate as high as the "Hydrogen-sphere." Some idea of the difficulty in escaping from our earth's surface is given us when we are told that a sky projectile must have an initial velocity of about seven miles per second to enable it to leave our world never to return.

The Turtle Again Came Home.

On page 22 of THE GUIDE TO NATURE for July, 1920, we published a remarkable story of a turtle. Our readers will recall that to save his tomatoes Mr. Rittenhouse four times carried the turtle varying distances from his home and left it there only to have it eventually return. Distance and time seem to be no obstacle to this persistent turtle, for one home-coming was after an absence of four years and the journey of five miles included crossing a river.

This year on August 20 the turtle again appeared among the tomatoes, just two years and seventeen days after it had been left six miles or more away in most promising quarters. The turtle is readily identified by marks cut into the bottom shell, and this year has the added markings of the initials D. A. D. Mr. Rittenhouse is desirous of hearing from the owner of these initials. There is not much change in the size of the turtle, the greatest increase having been made in the four years' absence.

We quite agree with the editor of the local paper of Milford, New Jersey, when he states as follows:

"Mr. Rittenhouse has not decided what to do with him this time, but we for one think Mr. Turtle is deserving of considerable consideration, judging from his past record. We would feel inclined to grow him a patch of tomatoes every year and let him have his own good time with them."

EDITORIAL.

The General Versus the Specific.

Can anything be more foolish than the attempt to make a general rule to cover special cases or to cure a particular ill by sweeping general acts of devastation? A house may be freed from bedbugs by burning it down. That is a simple matter, but looking only at the bedbug side of things, what a foolish thing to do.

I once knew a boarding school for girls that was accustomed for more than a decade to occasionally invite boys' schools and other young men to an evening social time, but one evening came that little specific. One fellow with a bottle of beer in his pocket invited one of his lady dancers from the school hall out to the veranda and there shared with her the bottle of beer. Bottles of beer at a boarding school are not just the thing, but note the remedy. Forthwith the edict was proclaimed, "No more boys at dances or social times at this school," and for nearly ten years that rule prevailed. In the name of good pedagogy, good common sense and humanity, could anything have been sillier? Little faults or big faults should not result in too sweeping generalities. The little part should not control the whole. A fraternal and kindly spirit leads in most cases to overlook little shortcomings. We are glad it is so. If it were not so this would be a difficult world to live in.

Several years ago in our old ArcAdiA we thought it would be well to add two collie dogs to our list of pets. From our point of view our beloved pets could do no harm but we overlooked or rather tolerated their perpetual barking. When dogs are confined even to a house yard an unnatural canine nervous strain is the result that soon becomes an annoyance to the neighbors. Nobody objected verbally, nobody said that all dogs in Sound Beach should be killed, but somehow we instinctively felt that we were demanding more than we should of our neighbors and it was rather more than should be demanded of those dogs to expect them to be calm and serene when they were restricted to the yard. So we transferred the dogs to a place up in the country where they would have more room in which to run and the neighbors and ourselves lived happily ever after.

That experience has given us a warm spot in our hearts for neighbors who persist in keeping perpetual barking-machines. We know how it was ourselves and perhaps it will dawn on others as it did on us that barking dogs are an infernal nuisance, especially in the central part of a town.

We have had similar experience with cats and have wished at times when we were especially exasperated that there was not a cat in Sound Beach. In that extreme generality we are sure there are many specific instances of birds in ArcAdiA that must have thought, if they thought at all, in perfect agreement with us. But the cat nuisance is best solved by specific application. Get a harmless trap and put the cat underground after it has been disposed of by chloroform. It is astonishing how the general nuisance of cats, especially in bird nesting time, could be greatly lessened by the application of the specific slogan, "A cat a day will keep other cats away," or at any rate lower the onrushing, devastating tide of cats.

The silliest thing of which we have heard about smashing generalities due to specific cases occurred in the city of Rochester. An alderman was stung by a honeybee and immediately introduced a resolution that no one should be permitted to keep bees within the city limits. Isn't that the limit of a smashing generality due to a specific case? Suppose, for example, he were able to get such a fool ordinance passed, look at all the injury to fruits and flowers that must be fertilized by bees. Look at all the loss of eliminating a food product. It is claimed that in one city alone there has been produced a hundred thousand pounds of honey. What would that alderman do with the wild bees, yellow jackets, hornets, mosquitoes and horseflies? It is evident that in the city of Rochester there is a great source of nectar, otherwise the professional and amateur beekeepers could never obtain so much honey. Does any one suppose that the wild bees and bees escaping from neighboring apiaries will let all that go to waste? No, sir, no number of ordinances will keep the bees out of that city. As well might one attempt to wring out the ocean with a mop. The bees would occupy Rochester even if they had to do it in the tree tops, as they have done here in ArcAdiA. All summer there has been a prosperous swarm making comb honey and apparently living happily on a limb in a totally inaccessible top of an oak tree. Honeybees could not be kept out of Rochester. The stings of insects as well as other kinds of annoyances to which humanity is subject cannot be eliminated by legal enactment.

The fact is that every human being must put up with a good many nuisances that would be perfectly legitimate if they could be confined within the limits belonging to other human beings along other lines. If you get stung by a bee, tame or wild, laugh at it and go on with your work. If you are kept awake at night by barking dogs, or if run over by an automobile, think that honeybees and dogs and automobiles have settled down in this world to stay awhile and so have the peculiarities and differences of opinion of other people.

Cheer up; this is a pretty good sort of a world and the other fellow is always right from his own point of view. Try to get into that spirit as much as possible.

The ancient mystery of the firefly's light seems at last to have been solved by a physiologist at Princeton. The chemistry of the process is difficult enough. In effect, the luminous substance burns in oxygen like any fuel, only instead of forming carbon dioxide and water, as other luminants do, the products of the combustion are of such a nature that when allowed to stand away from air, they change back into the original substance, and are ready to be burned again. The experimenter obtained the "light without heat" in a test tube, which glowed when shaken.

The common ostrich has only two toes, but certain individuals, it appears, are tending to lose one of these. Possibly, in time, if the mutation continues, there will arise a one-toed form, analogous to the present day one-toed horses, whose ancestors had as many toes as the ancestors of the ostrich.

THE AGASSIZ ASSOCIATION

Established 1875 Incorporated, Massachusetts, 1892 Incorporated, Connecticut, 1910

COMMODORE ELIAS CORNELIUS BENEDICT

BORN SOMERS, N. Y., JAN. 24, 1834.

DIED GREENWICH, CONN., NOV. 23, 1920.

THE "FOREMOST CITIZEN" OF GREENWICH, "THE GRAND OLD MAN OF THE SEA," BANKER AND PHILANTHROPIST, GOOD MEMBER OF THE AGASSIZ ASSOCIATION, BELOVED BY EVERY ONE WHO KNEW HIM.

Commodore E. C. Benedict.

The great problem has been solved; the last entry has been made in the log book of life's sailings. The last entry has been made in the ledger; the account has been balanced. The last cheery word has been spoken; the last kindness has been conferred on friend and neighbor—Commodore E. C. Benedict's life's work has been completed.

Fondly was he called "The Grand Old Man of the Sea," Greenwich's leading citizen and philanthropist. It would be difficult to find another rich man with less envy than Commodore Benedict possessed, or a prominent citizen whose advice and counsel were more highly appreciated; a more loving member of any family, or a more sincere, zealous and kindly hearted man. Every one loved him and every one was glad that he had much of this world's goods to make him happy, much to use for the good of his friends. He was lovable not only for what he did but for a charming and endearing personality. Wherever he went he radiated love and good will.

We have from time to time published so many articles and illustrations in connection with his interest in nature that it is not necessary for us to call attention to that quality in his character. He is well-known to our readers as a sincere lover of the outdoor world, especially of the ocean and the stars, and it gratifies us to remember that he was a good friend of The Agassiz Association.

It is impossible in mere words to do justice to the life of such a man. We can only join with his friends in a loving tribute to him and in heartfelt cordial sympathy with the members of his family. Locally he will always be remembered, not only for his magnificent gift of the Greenwich Hospital but for his hundreds of minor philanthropies.

To the writer he was always fond of dwelling upon the philosophies of life and constantly reiterating that no matter how much fame, education or wealth one may have, life must in the main be lived alone. What really counts is not in external things but in what is in one's heart. Then his conversation would dwell largely upon his magnificent yacht and the grand old ocean. He loved not merely the big and expensive things, but, as we have told in our illus-

COMMODORE E. C. BENEDICT.

The last of life's many voyages is made alone—all alone, into the beautiful, mystic Unknown.

trated monograph of him, he delighted to spend hours in a rowboat on his little lake. We believe he would approve our selection, as a final tribute to his memory, of the greatly admired photograph that shows him in his boat rowing onward, onward, alone and approaching in faith and confidence the shore of the great unknown.

His love at all seasons of the year for this little lake and the surrounding woods has many a time impressed the editor of this magazine with his true affection for nature's simple things. When he was well in the eighties, after walking in the woods and along the lake, in the middle of winter, with some six or eight inches of snow on the ground, he returned to his house arm and arm with the editor of this magazine, and pausing just as his home came in sight from the beautiful, tree bordered driveway, he said: "Bigelow, do you see all of that house?" I said: "I see all that is visible through the trees." "Yes, but you cannot see what is visible to me: a vision of the past winter, when I had that long sickness and everybody said I was not going to live. The angel of death hovered over that house, entered my bedroom, shook his head sadly and went away remarking, 'Too green yet.'"

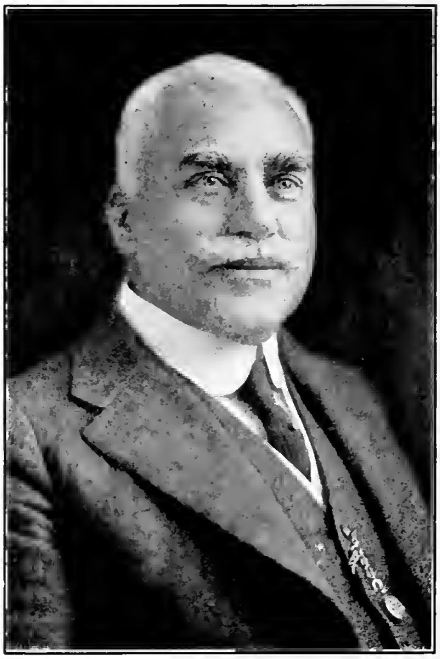
In another manner he was fond of dwelling upon the many years through which he had been spared. "You know all predictions sometimes fail. A year or two ago, some twenty or more of my friends expressed sympathy because they expected I was going to die. Since then nearly all of those have died and I am still living and (with a hearty laugh) quite a good deal alive"

Only a few weeks ago the editor took a company of six young women to spend a little time at his home. As we were leaving, he walked down the driveway and said: "Don't forget that I always regard young people as the best crown of my gray hairs." He always was fond of the company of young folks, especially of girls and young women. He had in his disposition an element of gentleness, lovableness and beauty of thought that was always peculiarly attractive to girls and young women. They never failed to appreciate him as a friend, kindly counselor and pleasing entertainer.

Commodore E. C. Benedict will continue to live in the hearts of his friends, and in the grand hospital that he established in Greenwich. That institution was emblematic of his life, a desire to do good to others, to help others even at the sacrifice of himself. He believed in moderate living, right thinking and in keeping a genial heart, and the great and genial heart of Mother Nature, that loses nothing, will kindly care for him and continue that fullness somewhere, somehow, as he would wish it to be.

Mr. Avery, Member of The Agassiz Association.

The death of Samuel P. Avery of Hartford, Connecticut, was briefly noted in our November number, information not having been received until just as we went to press with that number. Since then, through the kindness of "The Bulletin of the Brooklyn Institute of Arts and Sciences," we have been favored with a cut of this philanthropist.



SAMUEL P. AVERY.

Mr. Avery was primarily interested in art, perhaps almost equally so in education, but not quite so much so in the direct work of The Agassiz Association. It is evident that his membership with us and his frequent liberal contributions were the outcome of his general interest in people and a kindly regard for any educational or uplift organization. Mr. Avery's father was a collector of art treasures and his son worthily carried on that good work.

"He collected art treasures for men of wealth, bringing to this country rare examples of the Barbizon school, as well as of more recent French art. The father, like the son, made a fine art of his profession, and cared always for intrinsic quality in the work as well as for the fame of the artist, encouraging those among his own countrymen who were worthy of recognition.

"The gallery of Mr. Avery, which was on Fifth Avenue, near Thirty-fourth Street, was a center of interest for art collectors and for lovers of art. The owner's personality was a factor in the attraction, for the younger Avery—again like the father—was a man of lovable traits. His wide experience and his eclectic tastes caused him to be consulted widely, and his sympathetic, buoyant outlook, which a lifelong physical disability never clouded, made of him an engaging and stimulating personality."

Personal acquaintance with Mr. Avery revealed a man of fine temperament, kind heart and gracious manner. He loved beauty and tried to make that as beneficial to human beings as possible, and this was true whether he found it in art, in nature or in character. He always tried to develop the best of this world, and to be as useful as possible to everybody.

We sincerely mourn the loss of this great and good man. He was broad-minded and generally charitable to everybody. His good example should be given as wide publicity as possible. Such men always make zealous efforts to leave the world better than they found it.

Strawberries and Raspberries in November.

A few members of the Alumnae of Camp Mystic held a reunion at ArcAdiA on Saturday, November 13. The girls were treated to strawberries and raspberries which they assisted in picking in the garden. It must be admitted there was not a great supply but enough for each girl to have a taste.

The Everbearing strawberries are surely wonderful. A few years ago a lady in the western part of Pennsylvania wrote an article on Everbearing strawberries for The Guide to Nature and for illustration supplied profuse bunches from those she picked in the last part of November, stating that to pick them she took her broom and swept from the strawberry bed several inches of snow.

When the ArcAdiA plants were purchased some three years ago, Mr. A. T. Cooke, of Hyde Park, New York, stated that while picking strawberries in the garden he looked down into the valley and saw the boys and girls skating. His statement has been verified practically by this November experience. The strawberries were in good fruit with some yet to ripen and plenty of blossoms on the plants when boys and girls were coming down to the garden to inquire if the ice in the recent cold snap was thick enough for skating. It really was not thick enough in most places to hold up the young folks, but in an aquarium that by oversight had been left filled with water near the strawberry bed the ice was so thick that Dr. Bigelow's granddaughter did actually stand on it while the other girls picked strawberries.

The Wonderful Bloom of the Witch-hazel.

ArcAdiA has always made a specialty of witch-hazel not only because of the intrinsic interest of the shrub but as a matter of sentiment on the part of Dr. Bigelow, around whose boyhood home in Colchester, Connecticut, there grew great quantities of that strange and beautiful bloom. Just at present the witch-hazel is in marvelously good condition, perhaps better than it has been for five or six years past with the exception of one autumn some two or three years ago when many people called at ArcAdiA to see the wonderful sight. This year the bloom is equally attractive and visitors to see it are very cordially welcome.

Ellsmere Land, which lies northwest of Baffin Bay, in north latitude between seventy-five and eighty, has one hundred and fifteen species of flowering plants.

THE OUTDOOR WORLD

KINEOWATHA CAMP FOR GIRLS

July and August — Wilton, Maine.

Enrollment and Personal Care and Instruction by the Editor of this Magazine—known in Camp as "Daddy Bigelow."

A Very High Grade Camp in Picturesque, Healthful Location with an Efficient, Happy Management.

For particulars address:

EDWARD F. BIGELOW, ArcAdiA: Sound Beach, Conn.

Mrs. H. Durant Cheever, 150 West Fifty-ninth Street, New York City.

Immediately upon Zora's return from Kineowatha we went to the Adirondacks for some time and I did not have the opportunity to tell you how pleased we were with the reports of her summer in camp. I feel this is an ideal camp and one which sets a very fine standard for others to follow. The discipline and high moral tone of the camp were so beneficial to Zora. I was so pleased with Miss Bass, Miss Bentley, Miss Conant and Mrs. Harris. They are such fine types of womanhood and I felt it a privilege to have Zora under their guidance. To you, of course, we owe the opportunity of knowing of the camp, and in letting Zora go we did so because of our confidence in you. It has been quite splendid to see the great affection these children bestowed upon "Daddy" Bigelow and it must warm your heart greatly to have such affection from so many little girls. We hope to have Zora go next summer if there is a place.

CAMPERS WHO WENT WITH "DADDY BIGELOW" IN 1920.

LOTS OF FUN IN THE MEADOW BROOK.

Mrs. William Mitchell, Richmond Terrace, Irvington-on-Hudson, N. Y.

Most decidedly I wish to add my voice to the chorus of enthusiastic advocates of Camp Kineowatha, and your individual care of my daughter Margaret. I am delighted with her physical improvement, but particularly pleased with her increased interest in sports in general, and in the added confidence and mental poise which she has gained. I am enclosing her application blank for next summer, and she is all but counting the hours until it is time to go back.

Columbia Trust Company, 358 Fifth Avenue, New York City. .J. Sperry Kane, Vice-President.

I wish to express in writing what I said to you verbally about my daughter, Mary, upon her return from her first summer at Camp Kineowatha, Maine.

It appears from my observations that aside from the splendid time which Mary seems to have had, the discipline, training, and pleasant surroundings and associations have been very beneficial to her in many ways. I am especially well pleased that I sent her to Camp Kineowatha which, as you know, was mainly due to your strong recommendation.

Permit me to thank you personally for the efficient and careful manner in which you arranged each small detail for her departure to Camp, and her return from it with your special party. This relieved me of anxiety and worry as to the safety of her journey.

With kind personal regards.

Mrs. E. Hayes, 582 Fifth Avenue, New York City.

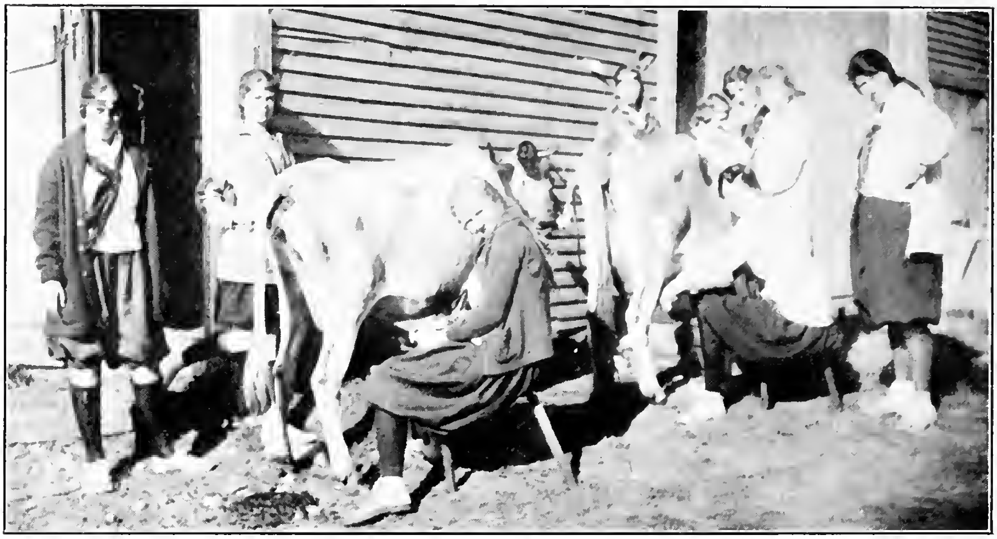
I am very much pleased with the treatment and care given to Jeannette while in your hands at the Kineowatha Camp during the past summer and feel that the benefits she derived from same will be lasting and have, I believe, made an indelible impression on her. I will be very happy to answer any questions that may be asked of me in connection with your work and methods.

Thank you for your many kindnesses in the care of Jeanette during the past summer.

Mrs. John Colby, Stanstead, Province of Quebec, Canada.

I have been promising myself for some time the pleasure of writing to express my thanks and appreciation of what you did for my little daughter at Camp Kineowatha last summer.

I had heard so much about you beforehand—that you possessed a gift with children second only to Lewis Carroll; that you bewitched the littlest campers out of their first homesick-



THE WAY TO BE SURE OF HAVING FRESH MILK!
A Farm Life Lesson by Daddy Bigelow.

ness and fascinated big and little girls alike with your Nature talks and interesting woodland expeditions—so much in fact that it would have been difficult indeed not to have been disappointed when actually seeing you, having expected so much.

To say that my anticipations were more than realized is paying you a high compliment. But I could see that you were a very distinctive part of the camp life. I saw also why you were called "Daddy Bigelow." Never was a *bona fide* daddy more besieged with affection than you seemed to be, and wherever you moved you were surrounded with girls, while a tactful word here or suggestion there helped to make the camp machinery run smoothly.

I am sure that Harriet will remember the astronomy she learned from you in such an interesting way that she probably did not realize that she was learning anything.

Dr. Colby and I will be pleased to enroll her with you for next summer.

Mrs. Edward K. Cone, Colonia, New Jersey.

I wish to tell you how very grateful Mr. Cone and I both are to you for having included Margaret among your "daughters" and taken such good care of her. Kineowatha is all I had hoped for and much more. I fell in love with it and everybody there and my only regret is that I cannot be a camper myself.

Mrs. Charles W. Colby, Hotel La Salle, New York City.

Regarding your care of my daughter in camp:

To my question, "What did Dr. Bigelow do for you at camp?" my daughter answered, "He saw that we were happy." That tribute to your kind care is better than anything I can say.

Camp Kineowatha was most satisfactory in its results and I thank you cordially for bringing it to my notice.

Mr. William D. Andrews, Quintard Avenue, Sound Beach, Connecticut.

I should like to express to you my most sincere thanks for the care and attention you showed Susan and Polly on their journey to Camp Kineowatha this summer, whilst they were there, and on their return journey. Both of the girls had a wonderful time and have many times told us that you were most largely responsible for this happy state of affairs, and Mrs. Andrews and I are deeply indebted to you.

The H. C. L. continues to soar. A manufacturing chemist has just warned his customers, through the pages of "Science," that he may have to raise the price of Orthocarboxybenzeneazodimethylaniline. Really, something ought to be done!

A High Grade Camp for Boys.

Camp Kineo for boys, at Harrison, Maine, is under the same general director, Mr. Irving G. McColl, as Camp Kineowatha for girls at Wilton, Maine, which our readers know from repeated publications in this magazine meets with the highest approval of the editor of this magazine. Mr. McColl has all the necessary qualifications for an ideal camp director. He has good business management, thorough system, cordial personality and a real liking for boys and girls. Add to good management the ideal, picturesque location on the very best of Maine lakes and there is a combination producing everything that can be desired in the way of camping. Mr. McColl's genial personality at once inspires the good will of parents and tells them that he is just the fellow to properly manage a high grade camp. He loves the work and he knows how to do it and has the ability to pick and to secure good assistants in every line. In the Kineo Camp for boys in Harrison, Maine, he has been peculiarly successful in securing the services of noted specialists, mature, experienced councilors. From personal conversation with his camp men the editor of this magazine surmises that he is paying much higher salaries than those of any other boys' camp and probably higher than even high grade camps for girls. It takes a skilled man to look after boys and inspire them along right lines. Every detail of health, cleanliness and safety is carefully guarded. Then too the campers are very carefully selected and eighty per cent of them are rated as above the normal for their ages. Kineo has thorough equipment for caring for health with a large and completely appointed infirmary with resident nurse and doctor and complete medical dispensary.

The development of the boys' interests and hobbies includes special courses in electricity, mechanics, motor boats, automobiles, manual training as well as nature study. The editor of this magazine knows from personal experience in a visit of several days at the camp that the food is the very best and the quantity abundant. Our readers will recall that last year we published a most astonishing list of the amount of food used by these hearty youngsters in the two months. It really is astonishing how much food is used by boys in good, healthful activity when that food is served in a palatable and attractive manner.

The editor of this magazine gives unlimited approval as the highest possible development of a boys' camp. It is for boys from the very best families whose parents have the ability and willingness to pay a reasonable price for the highest grade service.

For further particulars address Edward F. Bigelow, ArcAdiA: Sound Beach, Connecticut.

What is an Anty-mire?

I recall hearing in my earliest boyhood old-time persons sing "Old Grimes" to the tune of "Auld Lang Syne," and my grandfather said that when he was a boy he had often heard it sung. This song evidently dates back to the time of the earliest settlers of New England. It would be interesting to know its full history. But from the natural history point of view one wonders about the origin of the curious animal, Anty-mire, that Old Grimes's little dog ran up a tree, per the following stanza:

"Old Grimes he had a little dog,
  His tail as red as fire;
He chased around an old black stump
  And treed an Anty-mire."

Was this Anty-mire real or mythical, and if mythical what was the origin of the name?

Recently, in discussing the matter with a friend who is a naturalist, it was jocosely suggested that probably the animal was a hybrid between a Gollywampus and a Hoolawa. Perhaps the origin of the name was equally humorous and perhaps there may have been a real natural history basis. Come, you antiquarians, and let us know what an Anty-mire is?

Ever try a microscopic aquarium? It takes only a tumbler or a small jar and a hand lens, the mud out of a ditch, and the water above it. Barring an occasional snail or the like, there will be few creatures larger than a pinhead, either animals or plants. But the variety is sometimes astonishing, and the changes most interesting from day to day.

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EASY LESSONS IN EINSTEIN. A Discussion of the More Intelligible Features of the Theory of Relativity. By Edwin E. Slosson, M. S., Ph. D. New York City: Harcourt, Brace and Howe.

I like Einstein because he has done a tremendous lot of good in making people everywhere think deeply on great subjects. I like also Slosson, who has written this book, and if any comparison were to be made I would say I like Slosson better than Einstein because this old world seems to the reviewer to be not only in need of new revelations of science but much more of men like Edwin E. Slosson, who can put these new achievements into clear, simple, easily comprehended language. Einstein and Slosson. Let us conjure with these names. They are as honey to the mouth. They balance well. They represent two great ideals: the first, science, the other, humanity. Even if not agreeing with him one is endeared to Einstein for his bravery in daring to think new thoughts, to get out of the beaten tracks, to take a step ahead on what has already been achieved. One really wants to embrace Slosson because of his greater bravery as a thoroughly learned scholar who dares to write simply, in terms readily understood by anybody, on the greatest scientific topic that the mind of man can conceive. Here are some of his expressions:

"Astronomers, indeed, say that we are moving at tremendous speed toward Canis Major, in other words, that the world is going to the dogs."

. . . . .

"This naturally leads us to suspect that gravitation is nothing but a geometrical relationship, that it is somehow a peculiarity of space itself. If so, our demand of the physicist that he show us gravitation,—drag out this mysterious force from its hiding-place and let us see it—is altogether irrational. It is like a blind man hunting in a dark cellar at midnight for a black cat that isn't there."

The world needs Einstein and Slosson. The world needs the technical laboratories and the work of The Agassiz Association to make that knowledge generally available.

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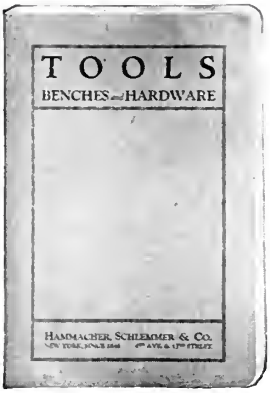
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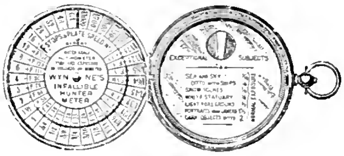
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Anita—"Yes, it is, because my father said so, and my father is a professor at the university."

Nelly—"I don't care if he is. My father is an editor, and he knows more about lying than your father."—Blighty.

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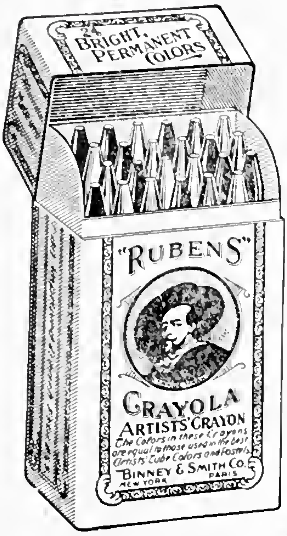
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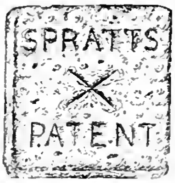

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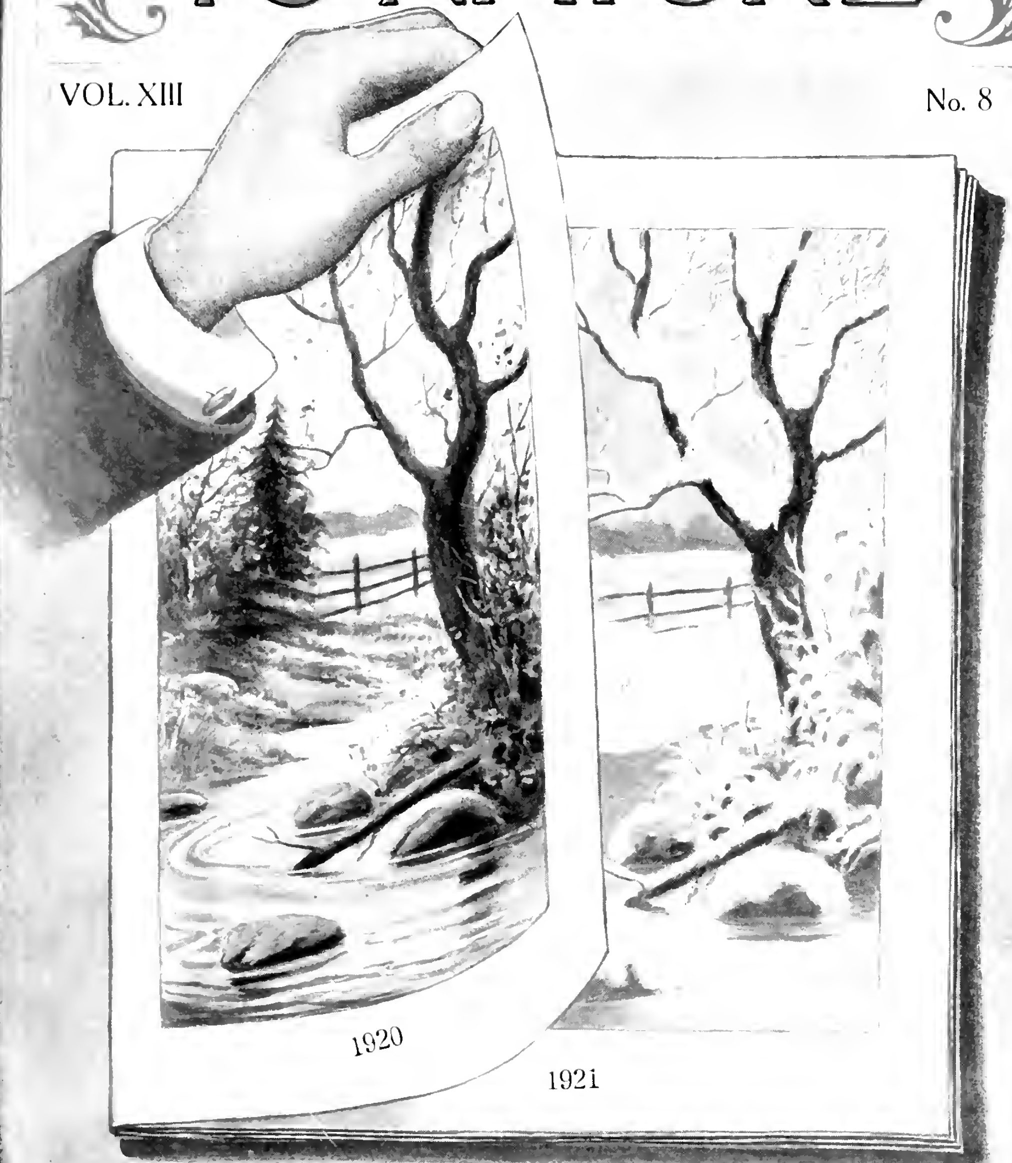

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Frederick was sitting on the curb, crying, when Billy came along and asked him what was the matter.

"Oh, I feel so bad 'cause Major's dead—my nice old collie!" sobbed Frederick.

"Shucks!" said Billy. "My grandmother's been dead a week and you don't catch me crying."

Frederick gave his eyes and nose a swipe with his hand and, looking up at Billy, sobbed despairingly:

"Yes, but you didn't raise your grandmother from a pup."—Harper's Magazine.

Joke on Long-Haired Man.

A long-haired man met a little boy, who asked him the time.

"Ten minutes to 9," said the man.

"Well," replied the boy, "at 9 o'clock get your hair cut," and he took to his heels and ran, the aggrieved one after him.

Turning a corner the man ran into a policeman, nearly knocking him over.

"What's up?" asked the policeman. The man, very much out of breath, said:

"You see that young urchin running along there? He asked me the time. I told him, 'Ten minutes to nine,' and he said, 'At 9 o'clock get your hair cut!' "

"Well," said the policeman, glancing at his watch, "what are you running for? You've got eight minutes yet."—New York Globe.

"Fishing" on the Right Side!

A fisherman sat in the shadow of a stone wall on the bank of a creek, patiently waiting for a fish to take the bait. Just above a sign on the wall which read "Insane Asylum" sat another man just as patiently watching him. Finally he asked:

"Caught anything?"

"No."

"Had any bites?"

"No."

"How long you been fishing?"

"Three or four hours."

"Come over on this side."—Everybody's Magazine.

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A policeman walking along the side of the canal saw a youngster crying. "What's the matter?" he queried.

The youngster pointed to a hat which was bobbing up and down in the middle of the canal.

"My brother——" he sobbed.

In a flash the courageous policeman plunged into the water. He came up, but with the hat only.

"Can't find him," he gasped. "Where was he standing when he fell in?"

"He didn't fall in," the boy blurted out, "he is over there. I was going to tell you he threw my hat into the water, but you wouldn't let me finish."—N. Y. Globe.

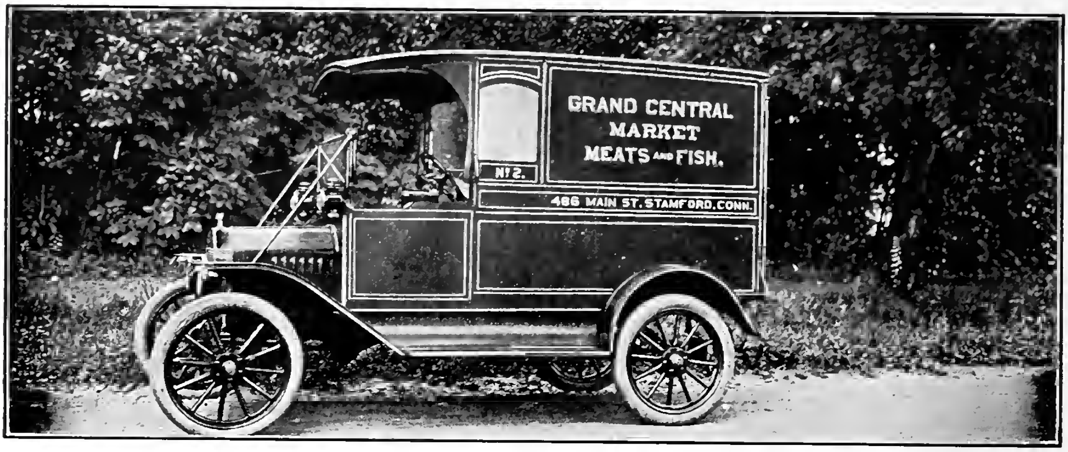
Poison Not Produced by Chemists.

Tommy (To Aviator)—"What is the most deadly poison known?"

Aviator—"Aviation poison."

Tommy—"How much does it take to kill a person?"

Aviator—"One drop!"—Science and Invention.



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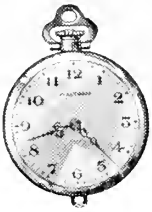

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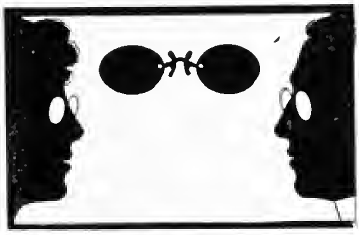

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Mr. B. L. Quackenbush, Darien, Conn.: Potato balls.

Mrs. Peter Bain, East Orange, N. J.: Piece of elephant's hide; fragments of meteoric stone found in England; meteoric stone picked up at Hastings, England; fossilized teeth found in dredgings from the bed of the River Plate, South America.

Mrs. Jane Ireland, East Orange, N. J.: Book bound in olivewood and containing pressed flowers of the Holy Land, mounted by the monks of a monastery in Jerusalem.

Mrs. Newton, Sound Beach: Dragon fly, arrowheads and minerals.

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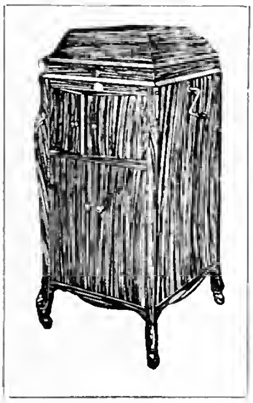

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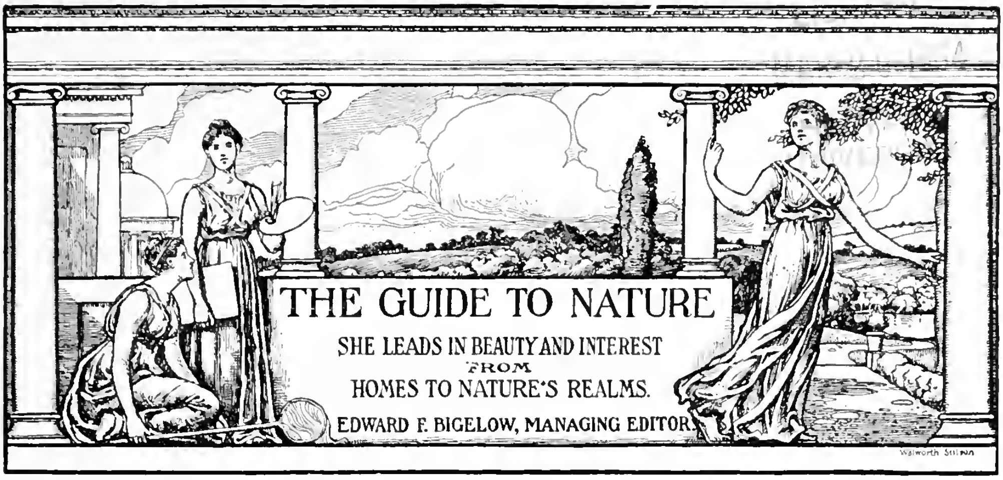
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Revelations in Hairs
By Clement B. Davis

REVELATIONS IN HAIRS.

By Clement B. Davis, Bartlesville, Oklahoma.

SHOULD one institute a beauty quest, probably the last place to look would be the pile of dead and withered leaves raked up from the "back yard" ready for burning.

The harvest here, though, is rich in many ways, but especially so in the variety of form and surprising beauty of the hairs which are to be found more or less on nearly all leaves. For him holding complacently to the popular belief that hairs are merely hollow tubes this old pile of leaves holds, indeed, a revelation.

On Fra Lippo Lippi's suggestion that "We love first, when we see them

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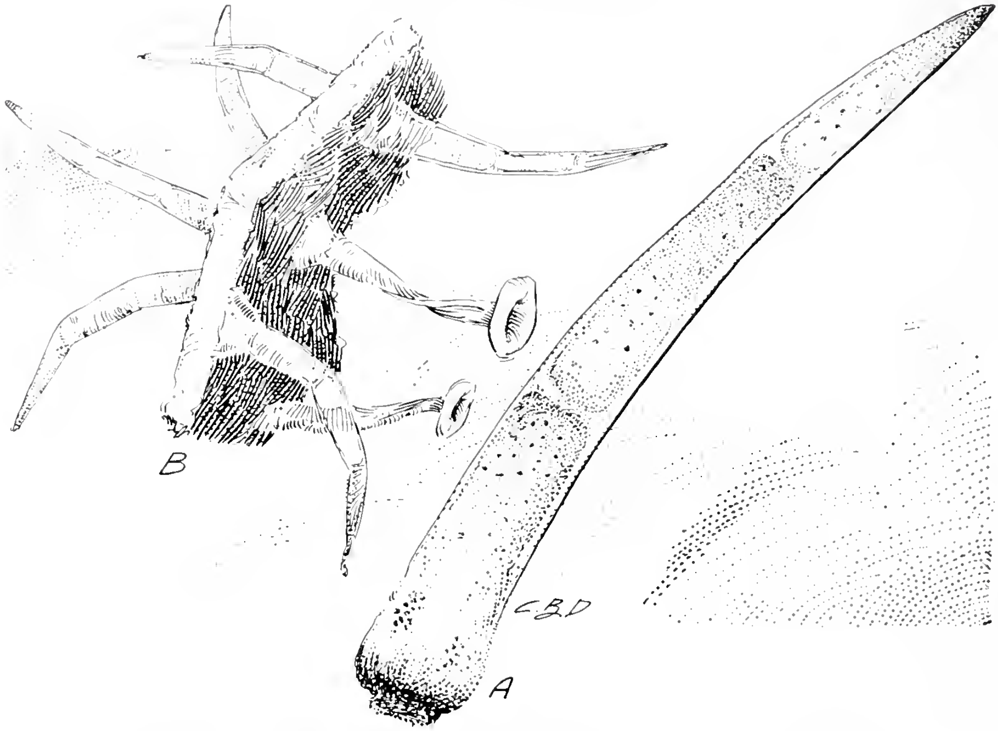


FIG. 1—GENERAL FORM AND VARIABLE TYPE HAIRS ON LEAF OF COMMON HOUSE GERANIUM.
The flared tip form is found but seldom.

painted, things we have passed perhaps a hundred times, nor cared to see," I have "painted" a few of the hairs from a haphazard collection of dead leaves in order to direct your attention to common things we "nor cared to see." A handful of old leaves holds open-mouthed wonder for the uninitiated and hours of delight for the microscopist.

For the most part, the hairs on plants are clearly crystalline, glasslike forms, though some hold delicate hues of color, especially during the transition stage while drying.

In structure, the commonest form will be type agreeing most nearly with popular belief—merely a slender, conical filament as seen in the specimen (Figure 1 A) from our African immigrant, the common "geranium" (*Pelargonium*) of our window garden.

Don't pass them hastily merely because at first glance they may seem of the "common type" for, if you do, you will miss much. Even this form has many variations from the short, stubby form (Figure 2) of many cells through many variations to, perhaps the other limit in the single-celled, extremely tenuous form of the cotton fibre. In the immature state it is a slender tube about a fifteen-hundredth of an inch in diameter and three or four inches long. In the dried state it flattens and crinkles into the familiar typical form shown in our picture (Figure 7). Common cotton wrapping cord yields good specimens. No doubt you will find a small snarl of this among the old leaves.

While most of the hairs on the geranium leaf are like the large, separate specimen, an occasional mimetic form will be found like the ones seen in the smaller forms in the same picture. (Figure 1B.)

Hardly any neglected back yard that has been permitted to "grow wild" but will contain its specimen of that most plebeian of weeds with the pretentious appellation of *Ambrosia*—food for the gods—but more profanely dubbed "ragweed." "It must be food for the gods," says our beloved Burroughs, "for nothing else will eat it except, perhaps a goat." However, its dirty, unkempt leaves with their gritty, glassy-like crunch between the fingers at once suggest "something different" and its hairs live up to the expectation. These are mostly short, stubby, stiff, brittle, contorted forms but are liberally interspersed with a longer and slender type regular constricted into globules like tiny beads strung on a wire and angularly bent once or twice in its length (Figure 2).

The adjoining kitchen garden is another source of supply and this bit of withered turnip leaf holds several surprises even for him to whom these beauties are no secret. In his superior knowledge that the *Cruciferae* or crossworts offer the greatest variety of branched hairs he goes confidently prospecting with his mind's eye on the *qui vive* for some form with prongs or branches, and is first astonished, and somewhat disappointed, at finding not a branched hair at all but a collection of single, conical shafts slightly constricted near their bases and rising from a series of rounded ridges as seen in Figure 3. A closer inspection holds another oddity in that this plant has decreed that its hairs shall themselves be Esaus and in turn be hairy.

First astonished at the straight, unbranched form, he is next "surprised at his own astonishment," as it were. Not a branched hair? Why, it's a solid mass of branches. Each little hair along its length is one of its branches, and not having room for the number at its base, it has strung them out in apparently a series of whorls in imitation of the common "horsetail" of our marshes.

Not content with this, our turnip holds still another "trick up its sleeve" for, not to be outdone by the pampered geranium, it also flares the tip of an occasional hair into a tiny elfin morning-glory.

The contribution from the common button chrysanthemum will be a type wholly different and known among the botanists as a peltate hair. The name is derived from a Greek word *Pelte*, meaning shield or, perhaps better, from the Latin word *peltata*, meaning armed with a shield.

At first glance, both leaf and stem appear merely "woolly," but by scraping the surface of a leaf—one of the smaller ones near the tip of the stem is best—these scrapings are found to be no longer "just hairs" but contain some surprisingly curious forms.

We first see a number of tiny, double-pointed Zulu shields of most tenuous, crinkled crystalline membrane as shown in our picture (Figure 4). A curious feature of these little shields is that each contains, at its center, a small, brownish spot. This is a queer

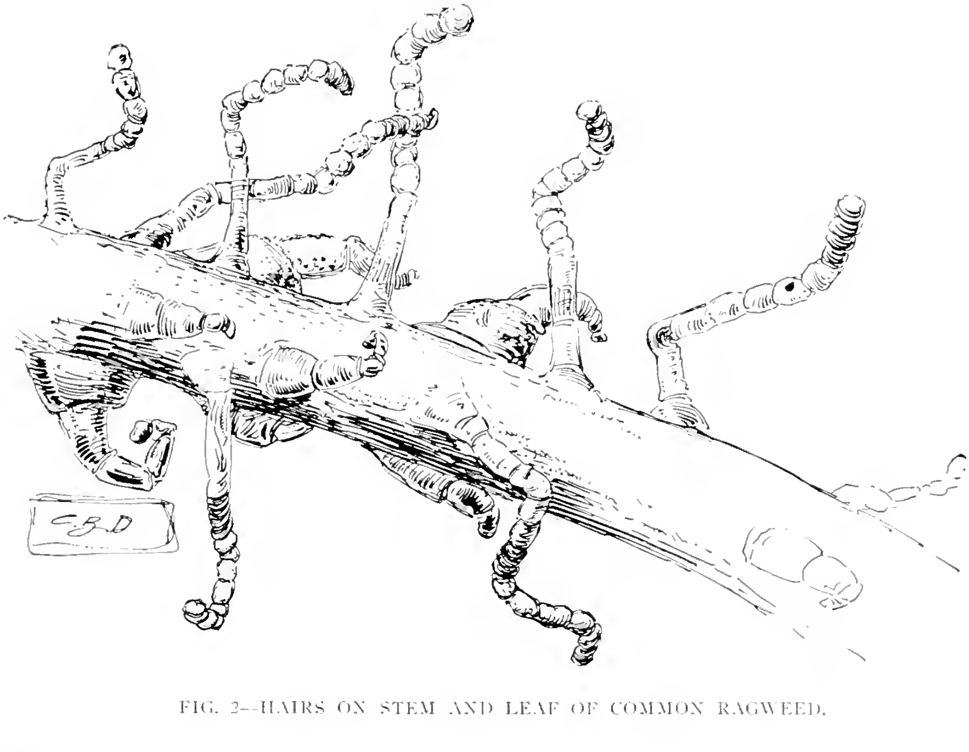


FIG. 2—HAIRS ON STEM AND LEAF OF COMMON RAGWEED.

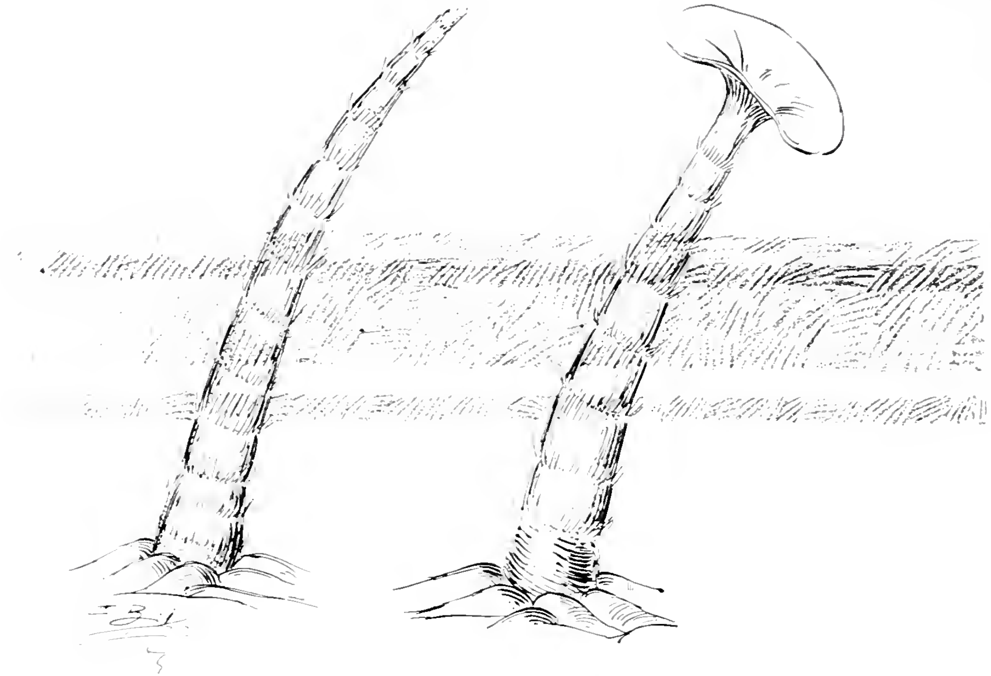


FIG. 3—HAIRS FROM COMMON TURNIP LEAF.
Ordinary type to left. Occasional variable type to right.

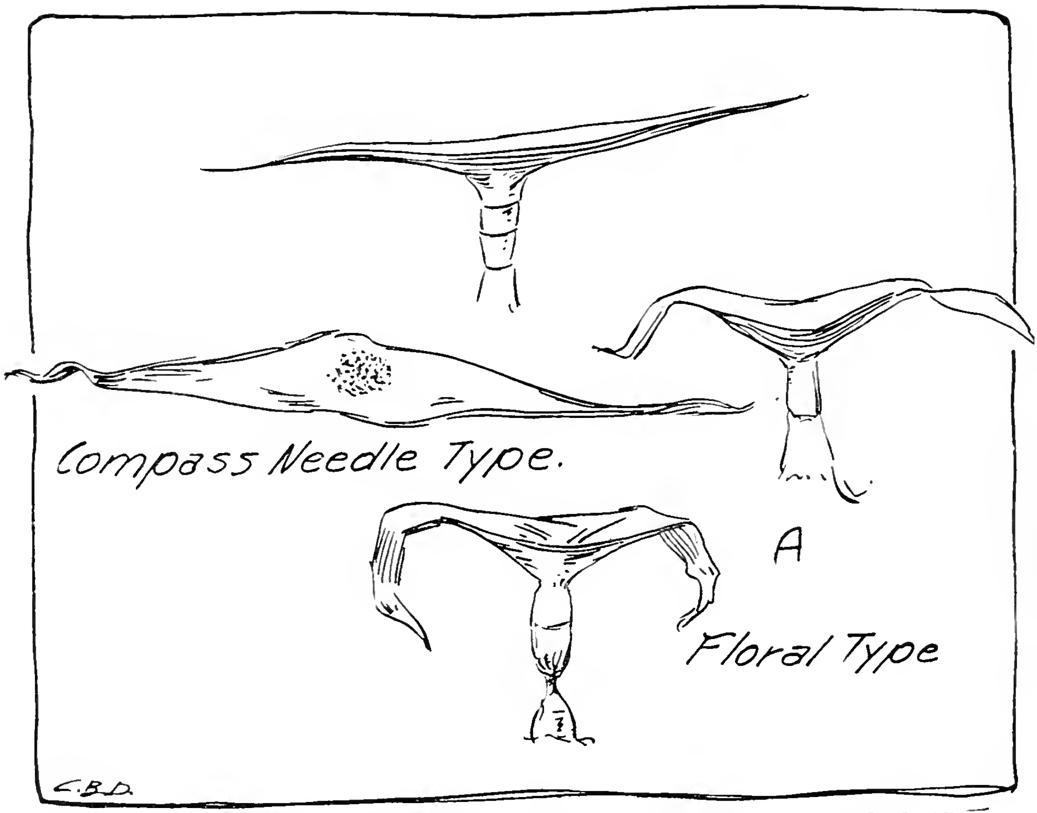

Compass Needle Type.
A
Floral Type
C.B.D.

FIG. 4—COMPASS NEEDLE AND FLORAL TYPES OF HAIRS ON CHRYSANTHEMUM LEAF.

state of things and it is not until a form is found lying on its side that the secret is let out. It is now seen that this spot is the juncture of the expanded part of the hair with short stems which hold the pointed shields above the surface of the leaf like tiny compass needles poised on the tips of their pins.

Strikingly different in form from the hairs of the turnip leaf as these hairs may seem at first glance, may not these peltate hairs be but the ultimate development of the flared tip found as a variation from the normal? An occasional form of chrysanthemum hair, like Figure 4, suggests a possible intermediate type in the scheme of transition from originally a simple shaft.

So far we have found no really pronged or stellate hair, but this crumpled bit of leaf from the common nightshade leaves nothing to be desired in this direction, as we see in Figure 5. These prongs vary from four, set stiffly at right angles, to six or more in number, springing from the expanded bottom joint of the ever-present vertical prong.

These are typically stellate hairs and of a type so well defined that one naturally expects to find a somewhat similar form on the leaves of its cousin, our commonest garden plant, the tomato, so we are in no way prepared for the armies of short stems topped with four perfectly transparent golden globules closely clustered into a square. Light is refracted by these tiny spheres, each only about 1/750 of an inch in diameter, into glittering, orange-colored specks so brilliant that the effect is like viewing a dazzling light through myriad pin pricks in the leaf (Figure 6).

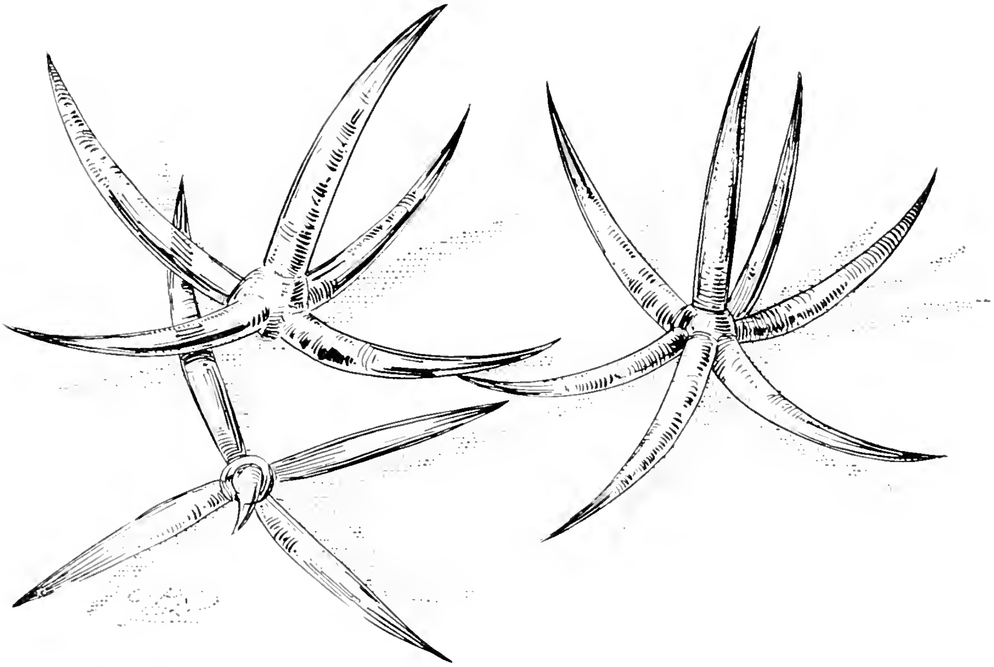


FIG 5—PELTATE HAIRS FROM COMMON NIGHTSHADE (SOLANUM NIGRUM).

Another typically pronged form comes from the tall hollyhock and is seen in Figure 7, but one of the "prongiest" of this type comes from the leaf of the tall mullein, where they are present in such numbers as to give the thick and velvety effect to this leaf which we all know so well but are perhaps not quite so familiar with its possibilities as a valuable adjunct in milady's beauty processes as were some of the coy maidens of days past. It has been whispered that before the days when complexions came in jars and could be scraped off with a putty knife, this velvety leaf served in lieu of the modern rouge pot. A brisk rubbing with a mullein leaf, it has been said, "will cause to appeer ye ruddy glow of

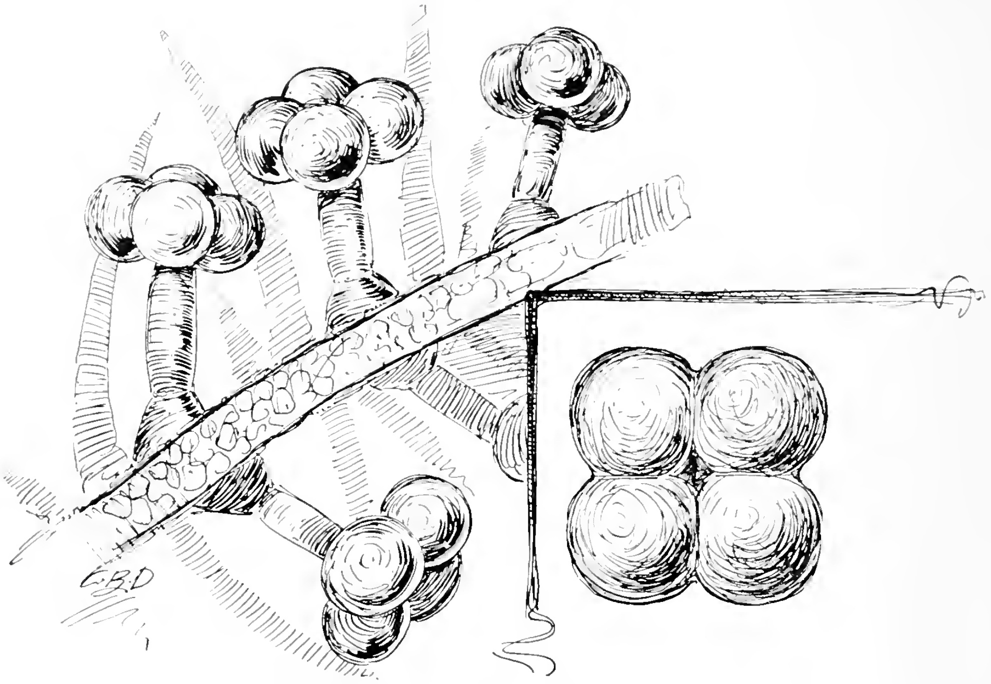


FIG. 6—SECTION THROUGH TOMATO LEAF SHOWING FORMS OF HAIRS.
Insert shows top view of clustered spheres.

colour on ye maiden's cheak the like of which is most beautiful."

This practice had one advantage over the modern method in that the thoughtless swipe of a handkerchief across a trickling face would not produce a complexion of the zebra type, for this one really "came from within" and was guaranteed washable.

A glance at our picture (Figure 7) will readily explain the whole process, for it is easily seen that the face was massaged with a miniature brier patch. This left the delicate skin thickly studded with myriads of tiny prickles. Like any other splinter or brier, each puncture naturally resulted in a point of local irritation with its attendant heightened color. Owing to the minuteness of the pricks and their great number the result was a general glow.

As a "beauty hint" this is given for

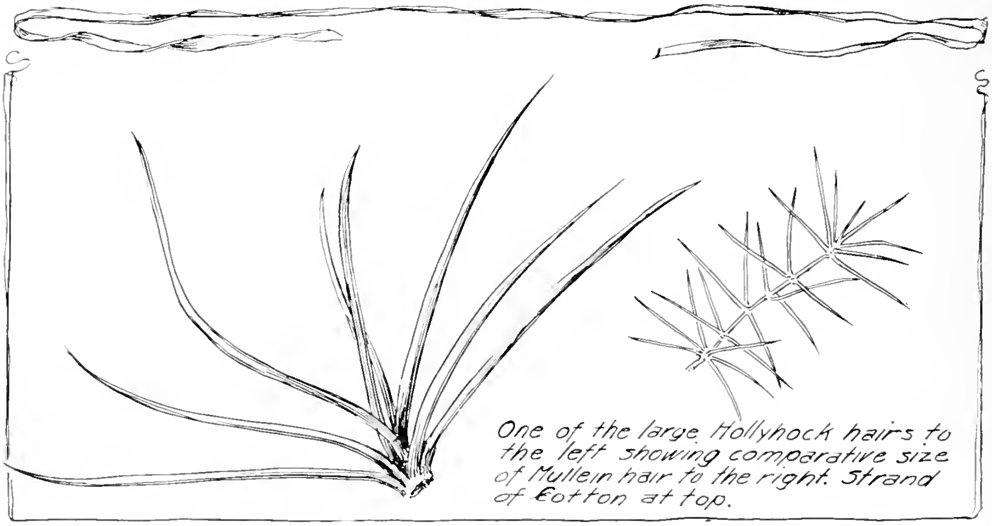

One of the large Hollyhock hairs to the left showing comparative size of Mullein hair to the right. Strand of Cotton at top.

FIG. 7—COTTON FIBRE, HOLLYHOCK AND MULLEIN HAIRS.
Hollyhock hair is about 1,100 inch, tip to tip of prongs.

what it may be worth, but liberally interspersed with bits of interesting fact or amusing fiction so marches this merry procession of surprise and oddity and beauty in limitless array from our pile of dead leaves.

Aside from the leaf hairs there is yet a wholly different series by which the plants disseminate their seed: the insects offer another variety while the higher animals have an array of their own equally curious and perhaps even more complex in structure.

For the present, though, we may do well to confine ourselves to the plant hairs on leaf and stem. In your strolls afield gather your leaves from every source, for no weed is so common but it may hold the gem of your collection, and in those long, wintry evenings while the winds howl and the driving snow fluffs softly against the window panes, with your microscope and your pile of dead leaves, hours of delight will be yours.

In the Grasses and Mosses.

Have you ever paused for a moment to consider how much man loses for want of that microscopic eye upon whose absence complacent little Mr. Pope, after his optimistic fashion, was apparently inclined rather to congratulate his fellow-beings than otherwise? What a wonderful world we should all live in if only we could see it as this little beetle here sees it, half buried as he is in a mighty forest of luxuriant, tall, green moss! Just fancy how grand and straight and majestic those slender sprays must look to him, with their waving, feathery branches spreading on every side, a thousand times more gracefully than the long boughs of the loveliest tropical palm trees on some wild Jamaican hillside. How quaint the tall capsules must appear in his eyes—great yellow seed-vessels nearly as big as himself, with a conical, pink-edged hood, which pops off suddenly with a bang, and showers down monstrous nuts upon his head when he passes beneath. Gaze closely into the moss forest, as it grows here beside this smooth round stone where we are sitting, and imagine you can view it as the beetle views it. Put yourself in his place, and look up at it towering three hundred feet above your head, while you vainly strive to find your way among its matted underbrush and dense labyrinths of close-grown trunks. Then just look at the mighty monsters that people it. The little red spider, magnified to the size of a sheep, must be a gorgeous and strange-looking creature indeed, with his vivid crimson body and his mailed and jointed legs. Yonder neighbor beetle, regarded as an elephant, would seem a terrible wild beast in all seriousness, with his solid coat of bronze-burnished armor, his huge hook-ringed antennae, and his fearful branched horn, ten times more terrible than that of a furious rhinocerous charging madly through the African jungle. Why, if you will only throw yourself honestly into the situation, and realize that awful life-and-death struggle now going on between an ant and a May-fly before our very eyes, you will see that Livingstone, and Serpa Pinto, and Gordon Cumming are simply nowhere beside you; that even Jules Verne's wildest story is comparatively tame and commonplace in the light of that marvelous miniature forest. Such a jumble of puzzle-monkeys, and bamboos, and palms, and banyan trees, and crags, and roots, and rivers, and precipices was never seen; inhabited by such a terrible and beautiful phantasmagoria of dragons, hippogriffs, unicorns, rocs, chimæras, serpents and wyverns as no mediæval fancy ever invented, no Greek mythologist ever dreamt of, and no Arabian story-teller ever fabled. And yet, after all, to our clumsy big eyes, it is but a little patch of familiar English grass and mosses, crawled over by half a dozen sleepy slugs and long-legged spiders, and slimy earthworms.
—Grant Allen, in "Flowers and Their Pedigrees."

Report comes from Texas of a new variety of rat, cinnamon in color, which has apparently originated as a mutant from one of the common forms, at a single somewhat isolated farm. About seven per cent of the rats in these particular buildings are of the new sort.

Sir John Murray undertook his last voyage of exploration when he was over seventy years old.

TO KNOW THE STARRY HEAVENS

The Heavens in January.

By Professor Samuel G. Barton of the University of Pennsylvania.

THE great difference which exists in the brightness of the stars in different parts of the sky is well illustrated in the January sky. In the portion of the sky represented on our map there are twenty-two stars which are brighter than the second magnitude. Suppose we divide the map into two equal parts by drawing a line from north to south. This line is called the meridian. We shall then find that twenty of these bright stars lie in the eastern half and only two, the eighth and sixteenth in order of brightness, lie in the western half. One of these is Deneb in Cygnus and the other is Alpha Persei, which is just west of the dividing line. It is a common notion that the stars are brighter in winter than in summer because of the temperature or atmospheric conditions. This is not the reason. There are actually present stars whose intrinsic brightness is greater than that of the summer sky.

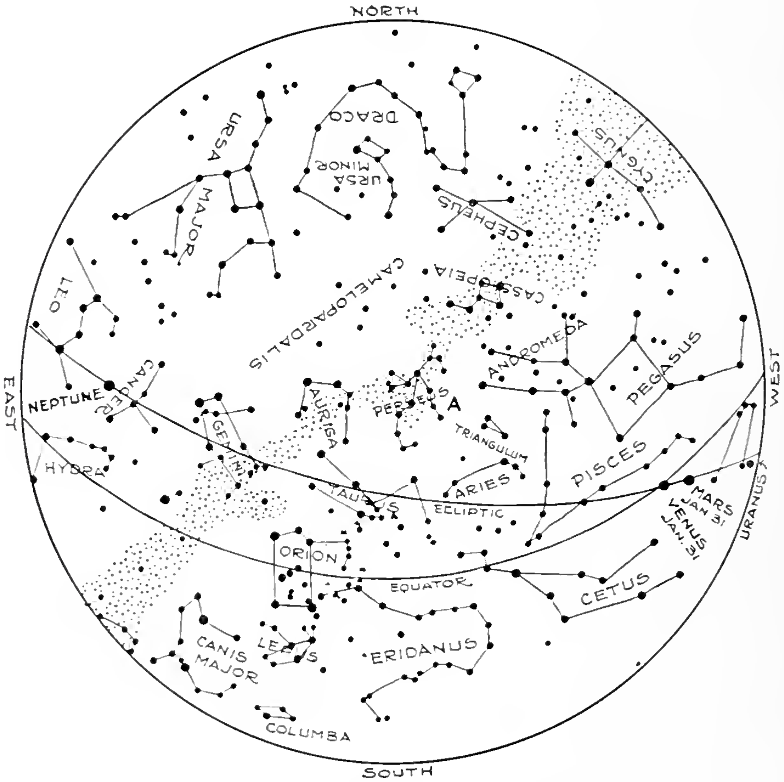

NORTH
DRACO
URSA MINOR
URSA MAJOR
CYGNUS
CEPHEUS
CAMELOPARDALIS
CASSIOPEIA
LEO
ANDROMEDA
PEGASUS
EAST
WEST
NEPTUNE
CANCER
GEMINI
AURIGA
PERSEUS
A
TRIANGULUM
HYDRA
ARIES
PISCES
MARS JAN 31
VENUS JAN 31
URANUS
TAURUS
ECLIPTIC
ORION
EQUATOR
CETUS
CANIS MAJOR
LEPUS
ERIDANUS
COLUMBA
SOUTH

Figure 1. The Constellations at 9 P. M., January 1. (If facing south, hold the map upright. If facing east, hold East below. If facing west, hold West below. If facing north, hold the map inverted.)

The Planets.

None of the brighter planets are in good positions. Venus can be seen low in the west just after sunset. At the first of the month its position is outside the limits of our map. Its position at the end of the month is shown on the map. Jupiter and Saturn lie in Leo just beyond the eastern limit of the map. They rise soon after nine o'clock. Mars passes Uranus January 9. A few hours later on the same day Venus passes Uranus. A few hours later still Venus passes Mars. At this time these three planets will be closely grouped but low in the sky. Mars is now near the Sun. It will be passed by the sun on June 28. It will not be in good position at any time during the year. Jupiter and Saturn will be visible in the early evening from February until August.

In Figure 2 we show the motions of the earth and Venus. Lines are drawn joining the position of the earth on each of the eight dates with the corresponding position of Venus and with the sun. The angle whose vortex is at the earth between the lines joining the earth with the sun and with Venus is called the elongation of Venus. This angle reaches its greatest value on February 9, the angle then being a little under forty-seven degrees. Venus is then at its greatest eastern elongation. After this time the elongation decreases until it becomes zero on April 22, at which time Venus passes from the eastern to the western side of the sun. It changes from an evening to a morning star. Venus is then at inferior conjunction. Venus is then closest to the earth at a distance of about 26,000,000 miles. Venus reaches its greatest western elongation on July 1. It is then visible in the morning before sunrise. The distance of Venus from the earth changes. It is not brightest when closest, for Venus shines only by reflecting the sunlight which falls upon it, and when closest the illuminated side is turned away from the earth. Venus

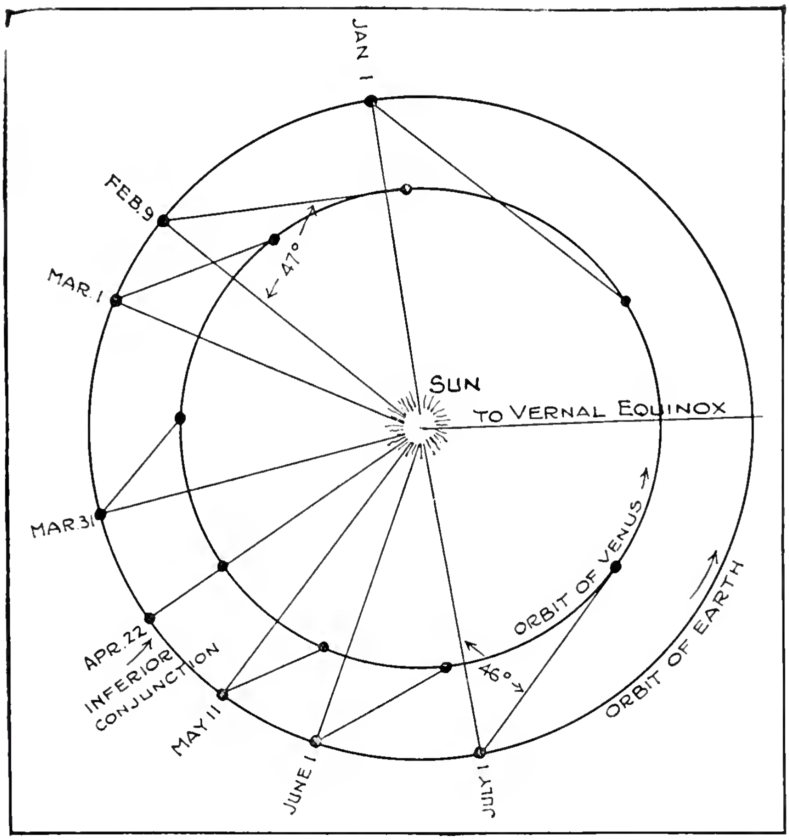


Figure 2. The motions of the earth and Venus in 1921.

is brightest March 17 in the evening and May 28 in the morning.

Since the angle of elongation is increasing it is evident that Venus will be farther east of the sun each night and set later until February 9, and then earlier each evening until it sets with the sun on April 22. Starting with February 9 the line joining the earth with Venus will be seen to be moving farther from a horizontal direction until March 31 and then again more nearly horizontal on April 22. When the line is farther from the horizontal as it is on March 31 the planet is said to be stationary. It then ceases its eastward motion among the stars and begins its westward motion. This is illustrated in Figure 3, in which we draw lines from the earth in the direction and of the length shown in Figure 2 for each position of the earth. On May 11 the westward motion ceases and the eastward motion begins again.

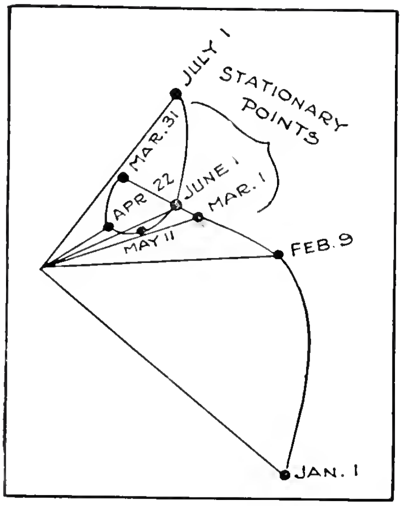


Figure 3. The stationary points in the motion of Venus.

* * * * *

What is a Year?

At the beginning of a new year it may be well to ask what a year is? Nearly if not everyone thinks he knows what a year is, yet their definitions would probably differ widely. There are several kinds of years. We ordinarily think of the year as the interval designated on the calendar as a year—namely, the civil year. Civil years are either common years of 365 days or leap years of 366 days. It begins at midnight of December 31 and ends at midnight of the following December 31. The year did not always begin at this time. Using each fourth year as a leap year, the average length of a year is 365¼ days. This is called the Julian year because it is the year of the Julian calendar. If we use the Gregorian calendar as we do, omitting as leap years the century years which are not evenly divisible by 400, we use a Gregorian year. These years are merely attempts to express years as a given number of days. There is no necessary relation between the length of a year and the length of a day, hence no perfect adjustment can be made. But what is a year? Some one says that it is the time required by the earth to make its revolution around the sun. Observation of the sun's position with respect to the stars shows that the earth is moving around the sun. If we could not see the stars we would not know that the earth moved around the sun. Since we cannot see the stars in the same direction as the sun we must get around this difficulty. It may be, too, that the stars have moved while the earth has made its revolution. When these difficulties are overcome and we find the interval from the time that the sun appears in a fixed direction until it appears in the same direction again, we have determined what is known as a sidereal year.

The most obvious effect of the earth's revolution about the sun is the change of seasons. It is the sun's position with respect to the earth's equator which causes this change. The year of the seasons is the interval from the time that the sun crosses the equator until it crosses again in the same direction. This interval is the tropical year. It is not quite the same as the sidereal year, because the points at which the sun crosses the equator (the equinoxes) change their position. Our calendars try to adjust this tropical year to the day.

How long are these years? Are they uniform? Is one year as defined equal to another? It is not. The years differ from each other in length by either of these definitions. The earth's motion about the sun is so full of irregularities that much computation is required to determine the length of any particular year. Even when the irregularities are omitted the length of the year changes. As an illustration of the length of a tropical year we may state that the sun crossed the equator in 1919, March 2, 4:19 P. M.; in 1920, March 20, 9:59 P. M.; in 1921, March 2, 3:51 A. M. The first interval is 365 days, 5 hours and 40 minutes and the second interval is 365 days, 5 hours and 52 minutes, yet each is a tropical year. The length of the tropical years freed from irregularities is 365.242,198,79 days less .000,000,061,4 days times the number of years which have elapsed since 1900. This formula is only approximate. The length of the year is determined not so much by direct observation as by mathematical discussions based upon observation.

* * * * *

The star Algol at A, Figure 1, is eclipsed January 1, 6:50 P. M.; January 18, 11:40; January 21, 8:30; January 24, 5:20.

New Exhibits at the Bruce Museum.

The Bruce Museum is congratulating itself upon the receipt of a new loan exhibit of colonial antiques which have been gathered by Mr. C. C. Weed of Stamford.

This exhibit, which is now being installed and labeled in the historical room at the museum, is unique in the rarity of its specimens, some of which it would be impossible to obtain at the present day at any price.

Mr. Weed, in his letter delivering the loan to the museum, says, "It is our desire to preserve to posterity the articles used by the early settlers of New England in their hard struggle in building the foundation of that society or civilization which has stood the test of time and is a monument to their fortitude, frugality and interesting diligence." And indeed no more fitting place could be found for the preservation of such priceless relics than the Bruce Museum, which was founded for the very purpose mentioned by Mr. Weed as well as for the preservation and exhibition of the various branches of natural history which make up the rest of the museum.

In this collection is an enormous wooden plow, flanged with hand-wrought shares, which is a very fine specimen. One wonders how any team of even sturdy oxen could pull it. Other articles are such rarities as rawhide sieves, cobbler's bench and tools, eel spears, baskets, etc., in endless variety.

Another new exhibit now in preparation in the historical department is one which will show the entire development of illumination. Starting with the lard lamp used by the early Pennsylvania Dutch and traceable back to Roman days, the exhibit leads one through all the stages of lard lamps, fluid lamps, kerosene lamps, gas burners, mantles, carbon electric bulbs and finally to the modern nitrogen filled mazda of today. In connection with this, lanterns will be shown in their development together with tinder boxes, tallow dips, candle molds and similar objects of interest.

The deposit in automobile cylinders commonly called "carbon" is really sulphur, largely that left over from the refining process.

Daniel Webster in his Bunker Hill Monument Speech of June 17, 1825, stated as follows:

"Our proper business is improvement. Let our age be the age of improvement. In a day of peace let us advance the arts of peace and the works of peace. Let us develop the resources of our land, call forth its powers, BUILD UP ITS INSTITUTIONS, promote all its great interests, and see whether we also, in our day and generation, may not perform something worthy to be remembered. Let us cultivate a true spirit of union and harmony."

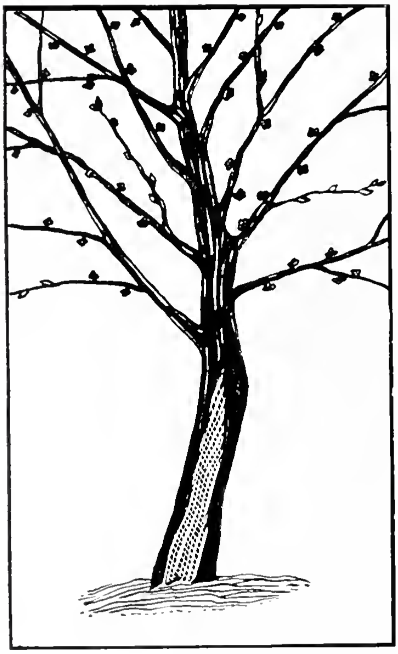
George Washington in his Farewell Address on September 19, 1796, stated as follows:

"Promote, then, as an object of primary importance, institutions for the general diffusion of knowledge."

THE OUTDOOR WORLD

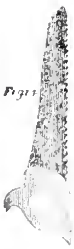
An Advance in Tree Surgery.

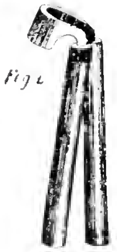
Contrary to general popular opinion, tree surgery is not a modern art but is several centuries old. Dating back to the early histories of mankind probably some effort was made to save decaying trees. One of the most interesting is that of a certain Forsythe, his majesty's gardener at Kensington and Saint James, who wrote in the year 1790 concerning his tools and his methods in tree surgery. Even then, some hundred and thirty years ago, he evidently regarded the subject as an old one, because in the preface to his unique book he says, "To the many publications which have appeared on the management of fruit and forest trees, it may be thought superfluous to add." Forsythe's methods seem to us about as strange as some of the old formulae for medicines that included all sorts of curious concoctions. Can anything seem stranger than his mixture of lime-rubbish, wood ashes, sand and cow manure? He claimed much credit for his "discovery" and surely there is not the slightest danger that modern experimenters will steal any of his ideas.



Two and a half centuries ago tree surgery was being successfully practiced. Above is a reproduction of a cut from an old book by Wm. Forsythe, showing a decaying cavity cleaned out and filled with his newly discovered "composition."

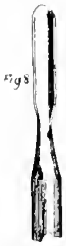
The great step forward was made when concrete began to be used as a filler. It now seems to be the sensible thing with which to fill up a tree, as the dentist uses his concrete to fill a tooth. Things of the present seem logical but soon become quaint and out of place. Think of it a moment. Can there be anything more absurd than to put a stone into a tree? There is a living, growing tree, swaying in the breeze and the storms, filled with a non-elastic stone, that does not bend nor shape itself, nor fit itself in any way to the needs of life. Of course it is not wholly bad. It has many good qualities, but thoughtful tree surgeons have for a long time felt that some-





Four of the many special tools used by Forsythe in his tree surgery work. To use his own descriptions they are:

Fig. 4—"A large double-toothed saw, for cutting off large branches."



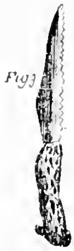


Fig. 2—"A tool for cutting out the dead and decayed parts of hollow trees."

Fig. 8—"A gouge, for general work, and for cutting grooves to carry off water from hollows in trees."

Fig. 9—"A small saw, thin on the back, for cutting off small branches, etc."

Underwood & Underwood

NEW YORK CITY IS USING "FLEXIFILL" IN ITS TREES.

thing must be obtained that is not brittle and will not crack with the swaying of the tree. Even if it is put in in sections there are spaces in which moisture and germs may gain entrance, and expense is involved.

Mr. F. A. Bartlett, President of the Bartlett Tree Expert Company, has solved the problem after several years of experimenting. He has abandoned this long cherished idea that the filling must be some form of concrete, and the curious thing about his invention is that nobody thought of it before. Wood particles and rubberlike asphalt would seem to have been the most logical things to have been considered a long time ago. These ingredients with fibers of asbestos and some other materials have resulted in the compound to which the trade name "Flexifill" has been given. Flexifill seems to contain everything actually needed for the purpose. It is antiseptic and preservative.

A SEVEN-FOOT SPIRAL CAVITY IN AN APPLE TREE PROVES THE VALUES OF "FLEXIFILL."

It fills the cavity completely. It keeps out moisture and air. It preserves the wood on the inside of the cavity and prevents the further decay back of the filling which so often happens behind the concrete fillings.

Every lover of trees will hail with delight Mr. Bartlett's long step forward. His new compound is rapidly making concrete look as much out of date as the mixture of lime-rubbish, wood ashes, sand and cow manure.

We advise our readers to send to The F. A. Bartlett Tree Expert Company, Stamford, Connecticut, for further particulars of this wonderful invention.

Not Using Spectacles With a Microscope.

BY FRANK J. MYERS, VENTOR, NEW JERSEY.

I wear spectacles but do not use them when working with the microscope. I have also a number of friends doing microscopical work but they, as far as I know, never use spectacles while actually looking through a scope. The eye point of the majority of oculars is too close to the eye lens to make it at all convenient and I am a firm believer in having the pupil of the eye as close to the eye point as possible in order to get the best results. Then, by the addition of another lens (which is all spectacles are, after all) the delicate corrections of a good optical combination, especially in the higher powers, is upset. Personally, I never miss spectacles in looking through the microscope, as the necessary adjustments can be made by focusing.

Coal Preserves Ice.

BY C. D. ROMIG, AUDENRIED, PENNSYLVANIA.

A few feet of drifted snow were by a gale covered with about four inches of coal dust, and up to June tenth it was possible to dig snow where the sun was shining unbearably hot for most of the day.

Standing on this spot a few days ago I heard a blast and a piece of coal struck the ground two feet from my heel, the coal having traveled for about five hundred yards. I learned that workmen were blasting ice and snow so that the steam shovel could dig a cut through old rock banks deposited in winters more than twenty years ago.

In this way ice and snow thirty to fifty years old are often dug up. These might keep forever if not disturbed.

The national forests of Alaska, under the methods followed by the Forestry Service, can continue indefinitely to produce a million and a half tons of paper yearly.

EDITORIAL

The Lack of Interest in Girls.

The editorials published in this magazine and the circulars issued by The Agassiz Association in behalf of girls, especially of the members of the Camp Fire Girls, have brought out much correspondence but thus far no cash contributions. Here's a sample quotation from a letter:

"I was interested in reading your circular as to Camp Fire Girls. I am interested in them as we have two high school girls who have belonged in the past, but the groups were broken up because the ladies having them in charge found the time involved was more than they could spare. They also found the expense was quite a good deal. They used to take the girls away for a vacation each summer, and the cost was so much above what the girls paid that they felt they could not stand it. They were with us at our camp for at least two years, using my house and land. Then the only expense was for food and transportation. But that came up to so much that both of these groups have been allowed to die a natural death. It is rather too bad, as they were doing a good work for the girls. That has usually been the way in the end with any of these organizations for young people where the running of them devolves on a few.

"However, I was much interested in reading of your plans for the girls, and I hope you will be sustained by those who can afford to do it so that you can devote your time more or less to it."

We get similar reports from various parts of the country and notwithstanding we have issued several thousand circulars, chiefly to women, the only aid received has come from men. That again drives home the truth that women seem not to be interested in girls, or at least not nearly so much as they and men are interested in boys. In fact few men or women seem to have much regard for the girls. Almost every community agitates itself into frenzied enthusiasm over the dear boys. That is commendable provided it is not altogether one-sided. I do not believe that any community is acting justly when it contributes several thousand dollars for a few boys and only a few dollars for the girls.

We have had an example of this in Sound Beach, in Stamford, in Greenwich and in neighboring places—in fact I think it is the fashion over all the country. In the central part of our town of Greenwich a palatial building has been erected for the boys of the Y. M. C. A. This is a noble monument to the giver but it is a big problem to know how to support it, but undoubtedly it is worth all it costs in construction and maintenance. But the question is, why hasn't somebody thought it equally wise to give an equal amount to the girls? Here in Sound Beach we have a beautiful little building that is used for only about one day a week by the boys. We have often wondered why some arrangement cannot be made to let the organization of girls use the building on some of the other six days. Possibly it is because the dear boys would feel that their noble building had become too sissified if girls were to play their games and hold their social meetings within its walls.

In New York it must be a puzzle to the Boy Scouts headquarters to know how to spend to good advantage the thousands of dollars that keep rolling into the Boy Scout office. We have not yet heard of any trouble in investing the heavy funds that have been given to the Camp Fire Girls. This old world seems to think that the boys need help and that the girls are abundantly able to take care of themselves. That may be a compliment to the girls, but if I were a girl I do not believe that I would view it from that standpoint.

The Boston Society of Natural History reports a larger average number of visitors than at any time during ten years.

A MIOCENE CATASTROPHE.

By David Starr Jordan, Stanford University, California.

Chancellor Emeritus of Leland Stanford Junior University and Trustee of The Agassiz Association.

[Text and cuts reprinted by courtesy of "Natural History," New York City.]

A GREAT many years ago, in round numbers let us say about 2,000,000 B. C., in the age called Miocene, the coast line of California was in a formative stage. Great deposits of sand and clay were being rolled up and folded as mountain chains, and their nascent peaks and ridges formed an archipelago of islands with sheltered bays. Here were developed immense masses of diatoms, microscopic plants, each with a fine shell of silica, most of them having the form of a flat disk, adorned with thimble-like depressions and spinules of complicated sorts. The number of these creatures must be beyond conception for, in the locality mentioned below, they are piled up solidly to the average depth of fourteen hundred feet over a territory two and one half miles long, and more than a mile and a half in breadth.

In this locality the deposits are free from sand, which shows that no fresh water came in; but in other places, over dozens or hundreds of miles, from Kern County to Orange, the diatom masses are interspersed with sand and clay and at times completely buried under them. From above these buried masses exudes the oil called petroleum. It is known that each diatom when alive secretes a minute droplet of this oil. But this is a theory; now to a concrete fact.

In a little bay on the north side of the Sierra Santa Ynez in Santa Barbara County, just above the present town of Lompoc were measureless masses of diatoms, covering the bottom at first to a depth of about 950 feet. For some reason this bay was chosen as the spawning ground for a herring of those days, known now by the name of *Xyne grex*.[1] This fish was much like a modern herring, except that its surface bones were covered with enamel, a ganoid fashion of those Miocene years long since gone out of date, so far as herrings are concerned. This species had, moreover, a row of sharp enameled spines along the edge of its belly. Something like this still persists in many forms of herring—as the menhaden and other so-called "saw-bellies," but these are plain nowadays, the enamel all off.

Into the bay at one time came millions on millions of these herring—all of a size—six to eight inches long, doubtless for spawning purposes. But they covered the whole bottom of the bay—four square miles—and very evenly at that. That is the marvel, and now comes the catastrophe. For none ever got away; they all lay down and died and were promptly buried under the diatoms—350 feet of diatoms at least. But the erosion of the years has cut into these masses in different places, laying bare the strata in which the *Xyne* lie. And whenever one strikes that horizon, there are the fish, all in the same stratum, none below, nor for many feet above. The skeletons are all well preserved, not much crowded, and the organic part of the skeleton is carbonized so that the bones are all dark brown or black.

The accompanying photograph shows a slab of diatom rock, twenty inches by sixteen, with thirteen of these fishes upon it, besides parts of others. This seems to be a fair average for the whole stratum, and indicates that the total number in the bay 1,337,195,600, a mighty school of fish! on the day of the holocaust was about

About six feet above this deposit of *Xyne*, throughout the basin, there lies a thin layer of transparent volcanic glass. Again, long after this was deposited, the whole area was thrown together into low folds. The *Xyne* deposits now stand at an angle of about thirty degrees in the place where this slab was obtained.

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[1] *Fossil Fishes of Southern California.* By David Starr Jordan and James Zaccheus Gilbert, 1919, pp. 25-26.

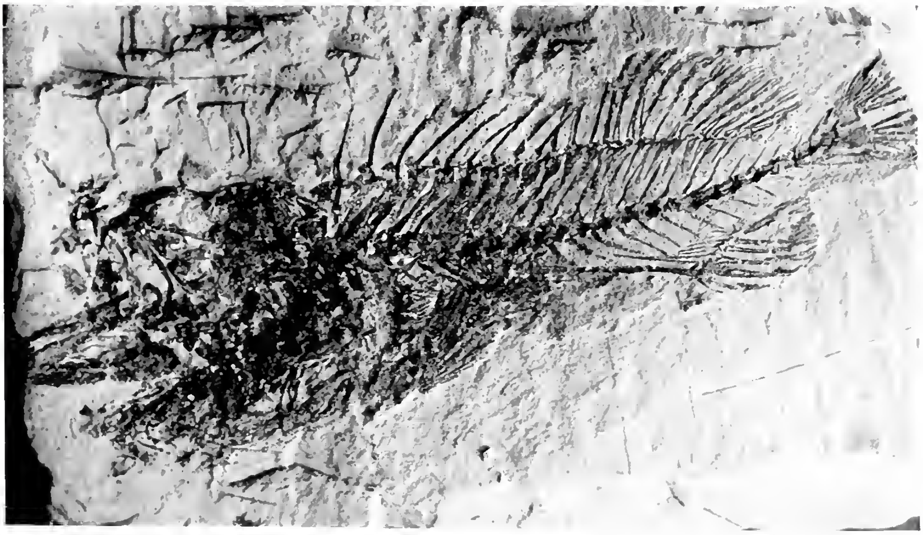
Above the *Xyne* lie further deposits of pure diatoms, to the depth of 350 feet. In the upper stretches are many fossil fishes, of about twenty kinds, so far as observed, largely broken into fragments. Four kinds of Spanish mackerel, two kinds of porgy, a big sea-bass, three species of flounder, two rock-cod, two kinds of croaker, and others are present. Among these are two species of herring, one of them being *Xyne*. This, however, nowhere except in the one great layer, exists in mass or in large numbers. All these fishes of the upper regions are mainly molds, imprints of a fish skeleton, replaced by diatoms. None of the herring skeletons is black or carbonized, like those taken in the great layer below. In the upper strata occur also a species of *Mergus* (fish duck), a heron, a porpoise, and a whale. Above the whole diatom mass lies in places a coarse, angular conglomerate, with many inchoate bones, mostly of whales, teeth of a man-eater shark, and here and there masses of limestone filled with *Pecten* shells and other Miocene mollusks.

These hills are now occupied by quarries, the diatom masses being sold under the patented trade name of "Celite." The material is used as non-conducting packing for hot pipes ("Sil-o-Cel") and for filtering liquids ("Filter-cel"). The siliceous crusts of the diatoms are insoluble in ordinary liquids, and by pouring them into a fluid and then filtering, everything in suspension is caught by the diatoms.

Two problems remain, both probably insoluble. Why was this bay crowded with a billion individuals of *Xyne* to the exclusion of all other fish? Why did they all die instantly, quietly, with no sign of agony, and how were they hermetically sealed before going to pieces in decay?

Heat, poison, gas, earthquake disturbance—you may answer. But no one knows, and anyone's guess is as good as yours or mine.

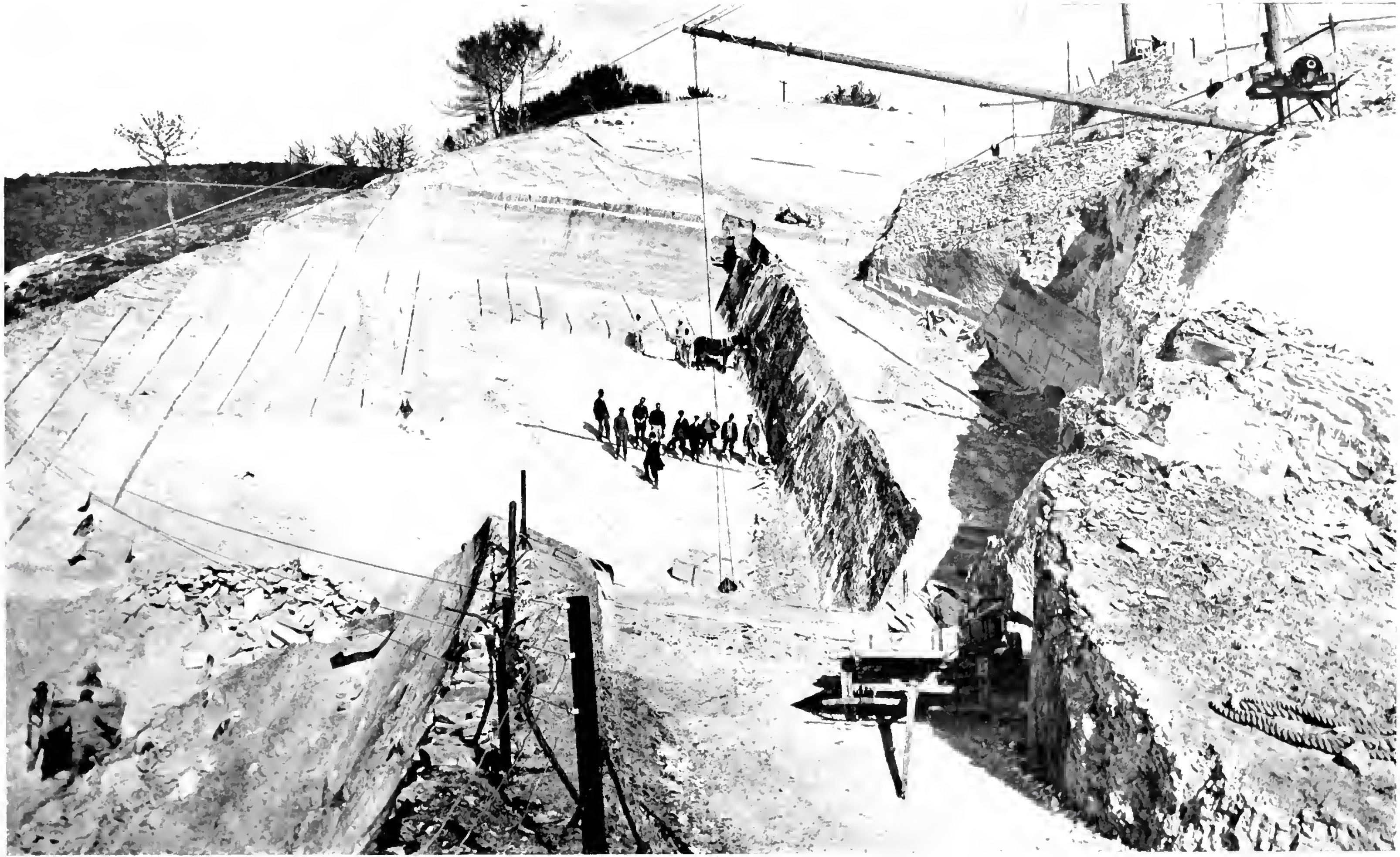
"Mammoth" has meant "huge" only about a hundred years. Mammoth is originally a Russian word derived from "earth" or "ground," since the Russians, finding remains of mammoths in the frozen soil, supposed them to be some sort of burrowing creature like a mole. As late as 1818 an English traveler wrote of the great cave in Kentucky, "They call it Mammoth Cave, but why I do not know, for there are no mammoth bones found there."



This big rock-cod (*Rixator porteousi*, shown less than one-third size) probably perished in the same fashion as the herring but at a later date. Its head is crushed as is the case with fish which die in the sea, for the skeletons of the bodies are picked clean by small organisms, but the brain is left within the skull and causes the bones to decay.

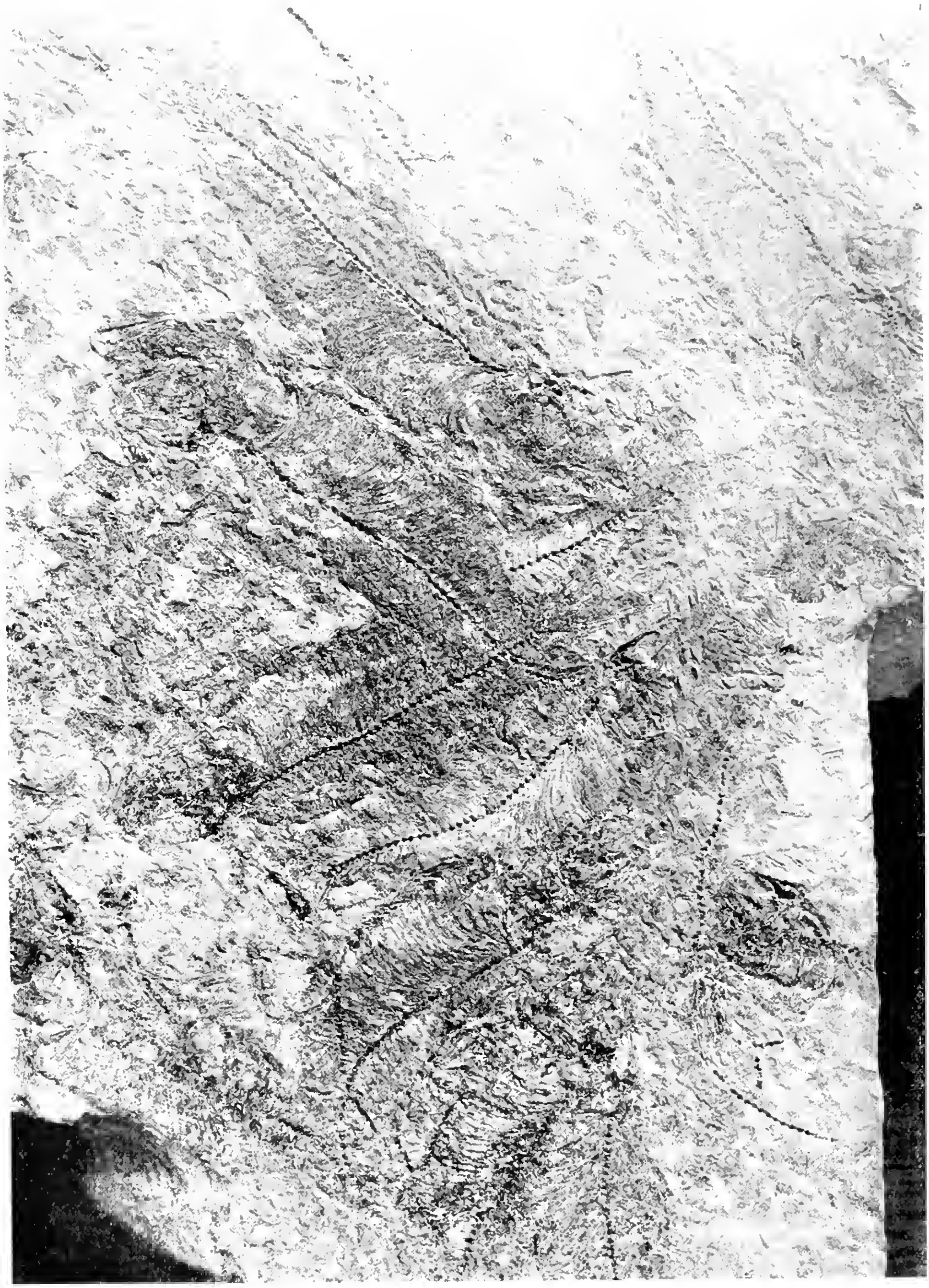
Masses of diatoms have been heaped up in this small pocket of the Sierra Santa Ynez, in some places to an average depth of fourteen hundred feet. Diatoms are microscopic plants, each encased in silica. Countless millions of these microscopically small cases of silica, mixed with clay and sand, are found in deposits in many localities including the greatest depths of the sea and the rocks of high mountain ranges. The California deposits are, perhaps, the most notable in the world in extent and thickness, and above these diatom masses are patches of coarse conglomerate containing many bones of whales and sharks' teeth.

Diatomaceous earth is employed for many purposes, depending somewhat on its texture and the amount of clay and sand intermixed with the siliceous cases. The deposits at Lampoc, California, are quarried for a material used as nonconducting packing for steam pipes and for filtering liquids. It was in a section of this deposit, about 350 feet below the present surface, that the herring shown on the opposite page were entrapped in Miocene times. In the layers above occur numrous fossils, but there are no such masses of them as were accumulated by this single catastrophe



GREAT DEPTHS OF THE DIATOM DEPOSITS AT LOMPOC, CALIFORNIA.

This picture of a quarry among the diatom hills of California indicates to the imagination better than figures the countless myriads of the microscopic plants which were deposited in this place. The number has been calculated as represented by the numeral 1 with thirty ciphers attached. But for all we know, forty ciphers may be be equally correct. These diatoms, chiefly species of the genus *Coscinodiscus*, were developed in the locality where they are now found when this was a sheltered bay among an archipelago of islands, formed by the nascent peaks of the California coast. Among other peculiarities of the deposits is their exudation of petroleum, a phenomenon as yet not wholly explained, although probably connected with the fact that each diatom when alive contains a minute droplet of oil.



A RECORD IN STONE OF AN EXTINCT HERRING.

Earthquake or other catastrophe destroyed more than a billion herring--they themselves wrote the story in stone for future ages to read. In what was once a bay, when the Sierra Santa Ynez, of Santa Barbara County, California, were below sea level, are to be found the remains, representing an extinct species, *Xyne grex*. These myriads of fish had entered the bay and spread over the four square miles of bottom, doubtless for the purpose of spawning, when some catastrophe overtook them and they all, with one accord, lay down and died. Subsequently their remains were buried under masses of diatoms. The organic parts of the skeletons are carbonized so that the bones are black, as is generally the case with animals decomposed under water where more hydrogen and oxygen than carbon are given off with a residue of the last, the final result being the noncrystalline mineral, collophane (carbono-phosphate of lime).

LITERARY.

The Wit of the Wild. By Ernest Ingersoll. New York City: Dodd, Mead & Company.

The title is catchy and the contents are interesting. The book is written along the line of the modern tendency to assign a good deal of, well, shall we call it intelligence, or merely an emphasized instinct, or a desire to see ourselves in the world of nature around us? Mr. Ingersoll, a well-known and skilled naturalist, has provided interesting chapters about strange things that birds and four-footed animals do. We wish that Mr. Ingersoll had written a preface not merely to give acknowledgment to the publications in which the articles first appeared, but to present his own philosophy of the matter. But perhaps after all it is better to state the actual facts, the result of observations, and leave the philosophy to the reader.

Daisy Ashford: Her Book. With a Preface by Irvin S. Cobb. New York City: George H. Doran Company.

Daisy Ashford's youthful production, "The Young Visiters," has appealed to a wide range of interests and brought forth a great amount of unnecessary and yet good advertising discussion as to authorship. Any one who has had extended experience with girls will at once pronounce "The Young Visiters" as a genuine production of the youthful mind with possibly some editorial suggestions or slight changes by an adult, perhaps Barrie or the copy editor of a publishing house. But the reviewer believes that Daisy Ashford is real, and rejoices in that fact, although she may have aroused some skeptics that have helped advertise the joy that she has brought to hundreds of thousands of readers by the literary work she did when she was only seven years old. In this new book she has produced some even more startling revelations of the girl mind and we heartily recommend it to our readers not only as good stories but from the pedagogical point of view as good material for studying the mental machinery and productions of a young girl.

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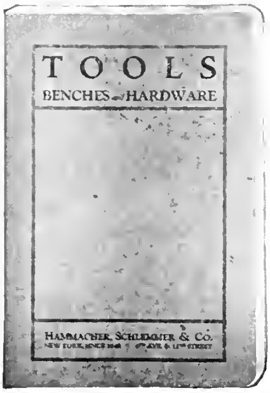
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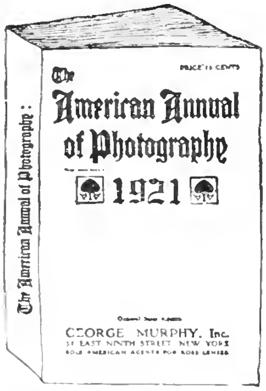
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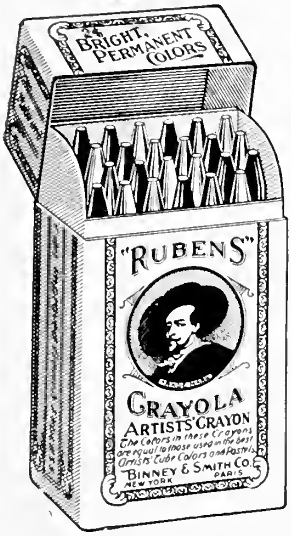
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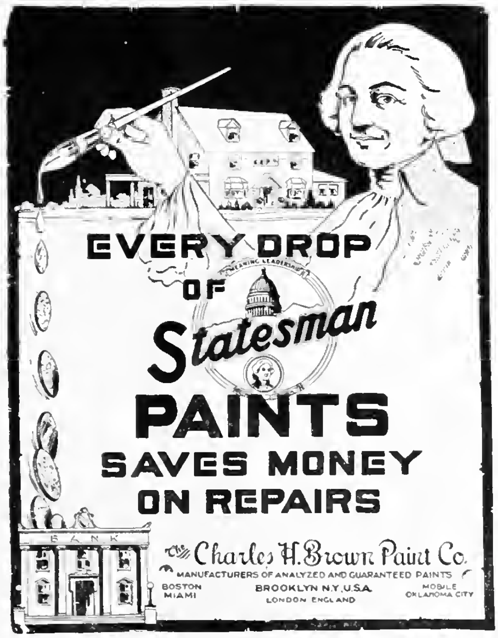
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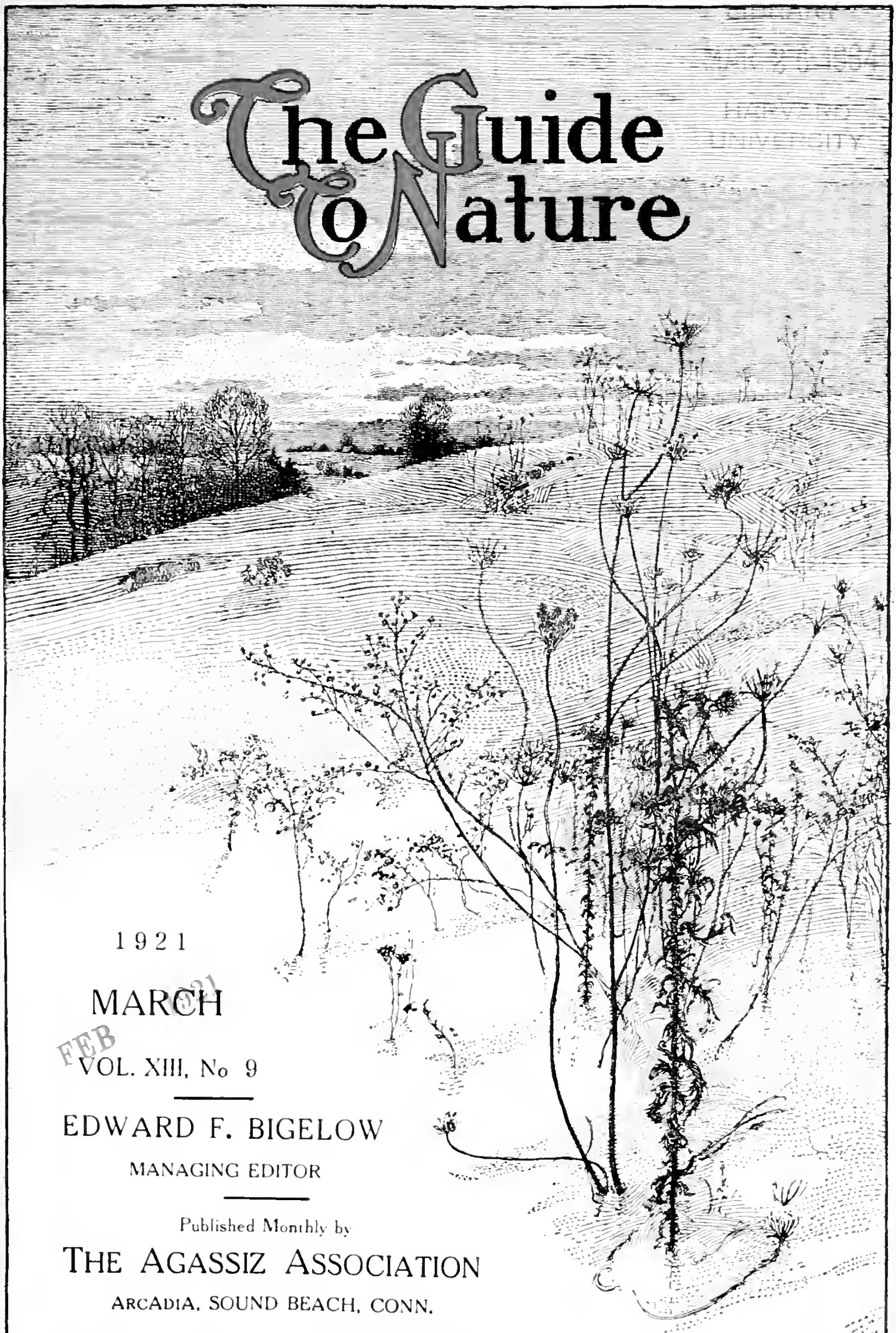

1921

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MANAGING EDITOR

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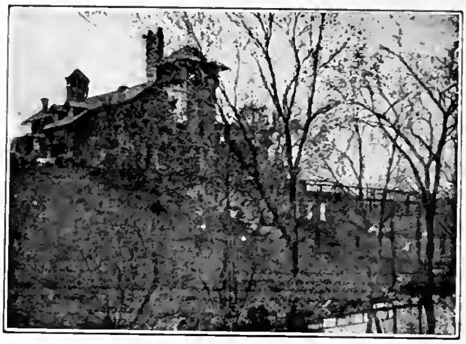

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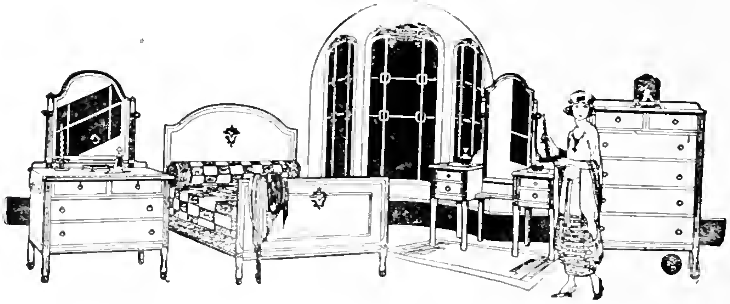

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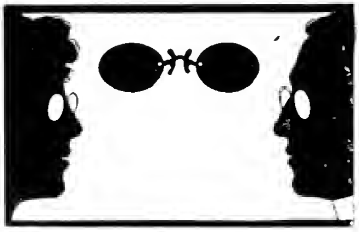

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A Hopeful Business Greeting.

Of the many business announcements that reach this office at holiday time, for beauty we assign first honor to a calendar issued by The Stamford Lumber Company, Stamford, Connecticut. This calendar is peculiarly appropriate to ArcAdiA as it brings an effective reproduction of an original painting by Thomas Moran entitled 'In the Valley of Happy Days." The bit of sentiment especially appreciated is the following:

"We all dream of a happy valley. We all plan to go there some sweet day. It's a valley where peace and plenty abound, where skies are softly bright and pleasant waters flow through shaded banks, where good friends and kindly neighbors dwell."

From a somewhat different aspect but not peculiarly ArcAdiAn, yet with the sweetness of honey, comes this hopeful announcement from the A. I. Root Company, Medina, Ohio:

"It isn't the best of times. You know it and we know it. But—

"Times are going to be better.

"We live under the best flag in all the world, where law and order prevail. There is more than a plenty of food and raiment in this land of ours, thank God.

"So let's wish each other a Merry Christmas and Happy New Year, keep sand in our gizzards, and march into the new year whistling.

"It's going to be a good beekeeper's year."

"Me and the Prince."

The secretary of King George tells an amusing story in a British weekly about one of His Majesty's body servants. The servant was explaining to the secretary an incident that had recently taken place.

"Me and the prince——" he began, when the King's secretary stopped him.

"You should say 'the prince and I,'" he observed.

The man gazed at him for a moment and then replied:

"I beg your pardon, sir, but I did not know you were there at all. However, 'you and me and the prince——'"—The Youth's Companion.

Our Happiest New Year Reminder.

On January first we received a letter from our good friend, Mr. A. T. Cook, of Hyde Park, New York, in which he stated as follows:

"As some appreciation of your work and of your splendid magazine, The Guide to Nature, I am sending you enclosed forty names for a year's subscription, and check for $60.00. I am giving these to my friends and know they will be highly esteemed. I hope many more of your subscribers will do as well."

This is a good example for some of our other friends to follow. It not only directly helps us in our work here at ArcAdiA but opens new channels for its dissemination, and wins not only new friends to The Agassiz Association but the gratitude of many friends of the donor.

An Efficient General Contractor.

It is with much pleasure and with a feeling of gratitude for efficient service that we call the attention of those interested in building, stone work, etc., to our advertiser, A. Louis Spezzano, General Contractor, Post Road, Riverside, Connecticut; telephone Sound Beach 145. Mr. Spezzano conscientiously and efficiently attended to some work that we entrusted to his care. In our appreciation of what he did, we should like to pass on a good word for him to others who may need work of that kind.

A Bird Almanac for 1921.

The Audubon Society of Buffalo, New York, has published a beautiful almanac with illustrations and quotations that will please every bird lover. Any one interested, and most of our readers are interested, should address Mrs. Charles M. Wilson, 503 Lafayette Avenue, Buffalo, New York.

Maybe You Can Tell.

I met a chap I knew on the street the other morning.

"Say," he said, "do you know why a man who has fished all day and caught nothing, is like a doctor who advertises for business?"

I suggested that each was a patient angler. But that did not suit him. Then I ventured an opinion that maybe both were after suckers. But he shook his head and walked sadly away.

I puzzled over the thing all day. I took it to bed with me at night. About 1 a. m. I couldn't stand it any longer. I arose, and called him up. He was evidently awakened with some difficulty, but presently I had him on the phone.

"Now," I said, "please tell me why a man who has fished all day and caught nothing is like a doctor who advertises for business."

"You poor simp," he bellowed. "If I'd known it myself I wouldn't have needed to ask you."

Natural History Photograph.

George Tressel, the San Francisco newsdealer, had himself photographed for the Trade Journal, but didn't like the result. He dashed into the photographer's office with the pictures in his hand.

"I don't like these photos at all," he said, "I look like an ape."

The photographer favored him with a glance of lofty disdain.

"You should have thought of that before you had them taken," was his reply, as he turned back to work.

The Bugamist.

A June bug married an angleworm;
  An accident cut her in two.
They charged the bug with bigamy;
  Now what could the poor thing do?
—Punch Bowl.

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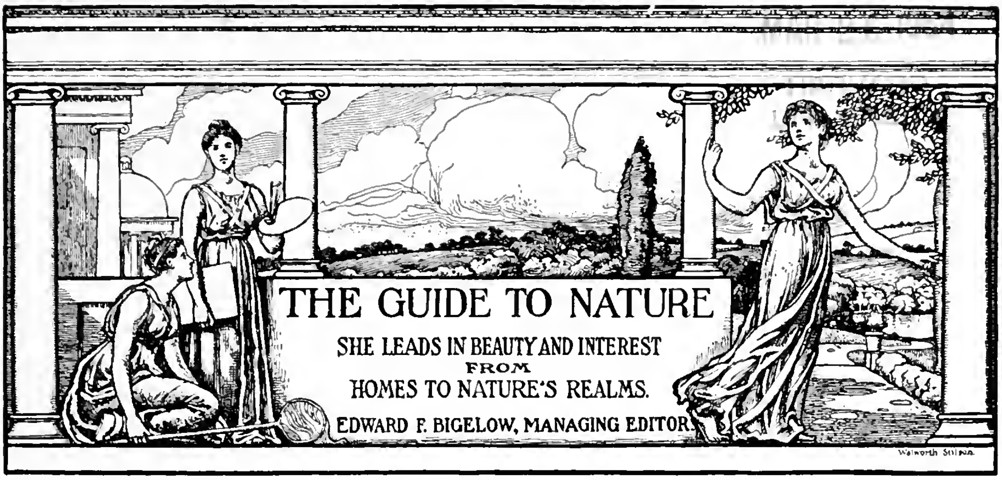

THE GUIDE TO NATURE

SHE LEADS IN BEAUTY AND INTEREST
FROM
HOMES TO NATURE'S REALMS.

EDWARD F. BIGELOW, MANAGING EDITOR

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Volume XIII. FEBRUARY, 1921 Number 9

The Peeping Opossum.

By Dr. J. B. Pardoe, Bound Brook, New Jersey.

When a barefoot boy with cheeks of tan, I lived in the country on a farm surrounded by woods and streams. At the age of ten I had a camera and a Gordon setter. I roamed the woods in search of pictures and natural history specimens in general. One day my dog, Duke, gave me to understand, in his dog language, that something I wanted was in a stone fence. Looking in a hole under the fence I saw the tail of an opossum.

Now the catching of furs was one source of income for me. Money looked big in those days. Opossums brought twelve, fifteen and twenty cents; skunks, fifty and ninety cents; muskrats, eight and twelve cents; minks, a dollar and a half; red fox, two dollars. Opossums were not thought to be of much account. Now they bring many dollars.

Lying down and thrusting my hand and arm in the hole to get Mr. Opossum by the tail, I was surprised to receive a good big bite on my hand. I hastily withdrew it with the opossum holding on to it long enough so I could release him with my other hand at the mouth of the hole. I never caught another opossum in that fashion, and I still have the scar on my hand where that opossum held fast to it.

There was quite a collection of wild animals living in my territory—skunks, raccoons, squirrels, rabbits, opossums, etc. I kept a pair of opossums in the cellar of my home. One night when all was still I was surprised to hear grunts coming from the cellar. I had not known that opossums grunted like pigs. These opossums lived in the cellar nearly all winter. I am sure they scared the rats away, as no more rat signs were noticed. I fed them chicken heads, apples, sweet corn, etc.

An old fiddle-playing darky named Mose, with many dogs, was always glad to get any opossums that I would let him have. One day I said, "Mose, you don't really like to eat 'possums, do you?" " 'Deed I do, Hunter Boy," he said. "Them's mighty sweet. I hang them up and let them freeze. That makes them tender."

The opossum is spoken of as a dull-witted, slow moving creature, but at times it is surprisingly agile and quick. A species of opossums no larger than our chipmunks lives in South America. A specimen reached this country riding in a large bunch of bananas.

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Mr. Thomas Bell, a nature lover and dahlia expert of Morrisville, Pennsylvania, tells many interesting things of some baby opossums which he raised. They were given the run of the house and became very tame. At first the cat and the dog left in disgust, but later the dog and the opossums got along very well together. The 'possums assumed the right to eat from the dog's plate and in the beginning this was resented, but later it was tolerated, although the animals were never chummy. The dog appeared to think himself in every way superior to them. Mr. Bell never succeeded in teaching them any tricks. They apparently had no fear of any animal, probably the result of having been reared in captivity.

They were fed on strictly vegetarian lines. The meat they supplied themselves. Those born in captivity appeared to forget how to play 'possum, but never forgot how to kill snakes, grabbing the snake and biting it nearly in two and eating it with apparent relish. Garter snakes were the only kind killed.

I can say from experience that opossums are superior to cats as rat catchers. They would drive the rats from our buildings. They are much more interesting than cats and remarkably cleanly in their habits.

One peculiar habit is the carrying of their bedding by the very useful, prehensile tail. This member is also used a great deal in clinging to limbs. The kangaroo also carries its bedding with the tail. Corn husks were sometimes put down on the ground to show visitors how the bedding is carried.

THE OPOSSUM AT HOME.
Photograph by Dr. Pardoe. Cut lent by "Photo-Era," Boston.

Two of the full-grown female opossums fought to death, both dying from bites and gashes in the sides.

The opossum shown herewith was easily photographed in its natural habitat. I remember an old chestnut tree of my boyhood days, where I once found an opossum asleep in a natural cavity in a larger lower limb, which could be looked into by standing on a large rock near-by. Going by this 'possum paradise with our cameras one day, I got up on the rock to look and, sure enough, there was Mr. 'Possum. The tripod legs were not quite long enough to bring the camera in a good position to focus on the hole entrance. With my folding saw, which I always carry on a nature tramp, I cut three saplings which I tied to the tripod legs, thereby lengthening them just enough. I stood on the rock and put my long-legged camera in position. Everything being ready, my companion gave a poke with a small switch in an opening in the lower part of the limb. A couple of pokes and the opossum came up and stuck out its head, uttering a growl. They say that he who hesitates is lost. The opossum hesitated and lost its likeness.

The Varied Diet of the Partridge.

BY S. N. F. SANFORD, FALL RIVER, MASS.

Notwithstanding the restrictions placed upon the killing of the ruffed grouse, or partridge, as it is more commonly called, and the efforts of game commissioners to propagate these birds, they appear to be decreasing, at least in some parts of New England.

A few years ago it was not unusual to find a partridge's nest with a dozen or fifteen dirty, yellowish-brown eggs, lying against a stone wall or a stump, and flocks of these birds wheeled their whirring flight from under the feet of the startled naturalist. (Hunters are not supposed to be startled.) Now, the flushing of a single bird, or a pair, is the more common experience.

Much of this decrease is undoubtedly due to the development of farming lands, the cutting of large tracts of timber, and the greater activity of gunners, but the severity of the New England winter as a cause is not so apparent. The partridge is a hardy bird, and in its northern range the winter conditions are often unfavorable, but the very great variety of food upon which it can live—grasshoppers to woody twigs—will long delay extermination by starvation.

This element of safety was emphasized recently when the well-filled stomach of a partridge was brought to the writer for an analysis of the contents. The deeper student of bird life knows how varied is the diet of this species, adapting its taste to the season, but other readers may be interested in the list of articles eaten by this particular bird for its Thanksgiving dinner.

200 berries of the wild lily of the valley (*Maianthemum canadense* Desf.).

270 large seeds of poison ivy (*Rhus Toxicodendron* L.).

15 leaflets, mostly entire, creeping blackberry (*Rubus hispidus* L.).

2 leaflets (pinnae) of Spinulose shield fern (*Aspidium spinulosum* var.).

6 leaves of field sorrel (*Rumex Acetosella* L.). Small leaves.

1 leaf of five-finger, Cinquefoil (*Potentilla canadensis* L.). Small.

2 leaves of early low blueberry (*Vaccinium pennsylvanicum* Lam.), probably.

2 leaves of shinleaf (*Pyrola americana* sweet; formerly *P. rotundifolia*). Small.

7 leaves, 2 large, miscellaneous plants. Two species represented.

50 twigs, with buds, of early low blueberry (*Vaccinium pennsylvanicum* Lam.), one-half inch long.

While it is true that all of the plants named at once identify the bird as a "near-ground feeder," the important deduction and reasonable conclusion is that if the partridge is capable of getting nourishment from so many things, starvation, even during a severe winter, will not be an important factor in its decrease. Recent reports indicate that wherever 1919 was a closed season partridges have again become more numerous.

Winter Canaries.

BY C. D. ROMIG, AUDENRIED, PENNSYLVANIA.

Several times this winter I have seen a flock of small birds resembling in flight and tone our canaries. The first week in January the flock was enormous, consisting of at least several hundred birds. When they alighted on the trees near me they seemed to be gray in color, yet of this I am not absolutely sure.

I was greatly impressed by the sweet call of the leader. It was exactly like the voice of the canary in the warm season. This is the first winter in which I have seen these birds and as it is about as cold here as in New York state, and nearly two thousand feet above sea level, I have wondered what it means.

Some Good in All Nature.

When the famous old man Epictetus
Was bled near to death by mosquitos
'Twas his custom to say—
"'Tis the Lord's blessed way,
More patience, more patience to teach us."
—S. N. F. Sanford, Fall River, Mass.

An Attempt to Interest the Government in Nature Study in the Public Schools.

BY DR. R. W. SHUFELDT, WASHINGTON, D. C.

A few months ago I took occasion to invite the attention of Dr. Philander P. Claxton, United States Commissioner of Education, to the advantages to be gained by a more thorough study of nature by the pupils of the various grades in the public schools of the country. My suggestions along such lines were taken into consideration by the Honorable Commissioner, and later I was allowed to submit my views to him in person on this question. At the time I availed myself of this, the matter was gone over with some little care and thoroughness, and there seemed to be every reason to hope that something would be accomplished in the premises. Another interview with the Commissioner followed within a few days, upon which occasion I was requested to submit a letter on the subject—a matter punctually attended to in that the encouragement initially extended might not fail of its purpose through procrastination.

In compliance with his request, the following letter was submitted to the Honorable Commissioner on the fourth of September, 1920; but up to the present time (October 4, 1920) no action upon it has been taken. This by no means implies, however, that the intention is to ignore the communication, as I have every reason to believe that the United States Bureau of Education is in full sympathy with such a movement as is touched upon in the letter.

From such study as I have given the public schools and what I have learned from the teachers in them, I am satisfied that both the latter and the pupils are strongly in favor of far more attention being paid to a course in elementary biology and nature study than there is at the present time. For many years I have been strongly impressed with what Mr. Huxley set forth on this subject, and over thirty years ago I publicly expressed myself as being one of his advocates in such premises. For the present, however, I shall be content to feel the pulse of parents and teachers of today through noting such effects as my letter to the Honorable Commissioner may have, and then decide upon such additional measures as may be needed later on. My letter ran as follows:

Washington, D. C.

Dr. Philander P. Claxton, Hon. United States Commissioner of Education, Bureau of Education, Pension Building, Washington, D. C.

Dear Doctor Claxton: Since the interview you were so good as to grant me at the Bureau on Thursday last, I have, as you requested me to do, given the matter we had under consideration some little thought and study. The suggestions you made at the time with reference to preparing a series of nature pamphlets for the use of teachers in our rural schools especially appealed to me, and I shall welcome the more definite fixing of a date to call upon you some evening at your home, as you proposed, in that the matter may be discussed in detail.

As the subject presents itself to me, it would seem more practical to prepare these lessons for the use of teachers, rather than to bring them out in this form to be placed in the hands of the school children themselves. This plan would greatly reduce the expense of publication and distribution, and place the desired information and methods of instruction in the hands of those where its influence and use would be the more promptly and effectively operative. In time, the older and more receptive children in these rural schools will come to care to possess copies of these pamphlets themselves, and a plan to supply this demand could easily be arranged as the teachers' application and approvals for the prints came to hand at the Bureau.

A very large number of our rural schools, not to mention those existing in towns and cities, are so situated that the biological material to be used in a system of nature teaching, as applied to the development of the observational powers in children, is close at hand and readily obtainable.

As you are aware, Doctor, to a far greater extent than I am, a very large proportion of our teachers in rural schools are themselves but indifferently informed as to the best methods of employing biological material to such ends as will advance the observational powers of children; as to how to bring them in touch with elementary facts leading to a fuller comprehension of the nature of life processes they see but dimly on every hand every day of their lives. Finally, through a comprehension of man's real place in nature, they come to command a particular kind of information that will enable them to see and seize upon, later in life, those lines of endeavor that lead to personal success, and a training that leads to a better and wider development of good citizenship, using the latter term in its broadest sense.

As to the biological material to which I refer, it may, in no end of cases, be obtained within a few hundred feet or less from the very door of the class of schoolhouse I have in mind—and of such schoolhouses there are doubtless many thousands in this country.

Any of the common plants will answer the purpose of the right sort of teacher to demonstrate to a class of children the main facts and principles of descriptive botany; while, from the lowest form of pond life to a field mouse, the material is easily collected for a classroom demonstration, in the matters of observation and its value; the gross structure of various animals and their physiology; how animal forms are classified: the study of a cell and an egg, of a feather, of a moth and a butterfly, the tadpole stages of frogs and toads, and many other elementary lines which readily suggest themselves to a resourceful teacher of children.

I have read many works on this subject; instructed many children along such lines, and noted the value of such instruction; conversed with many teachers in regard to the subject in its entirety all through life for both sexes, and listened with great interest to not a few lectures on the subject.

This, then, is what I have in mind in outline, Doctor, and to which I have given my attention, as you recently requested me to do. Such a course as I have in mind could all be incorporated in one volume and fully illustrated; but from what I have learned I doubt that the money for such a venture is at hand at this time, not to mention other expenses in connection with such an output and its making.

The same course could be exploited through the issuance, from the Bureau of Education, pamphlets on each subject, no single pamphlet to exceed ten pages print (8vo), nor to carry more than five electrotype illustrations.

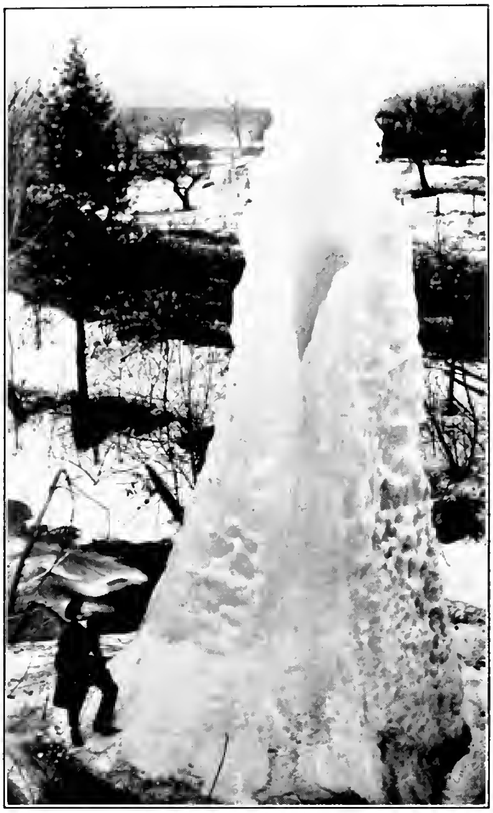
Such pamphlets I can readily prepare and illustrate, and I should be glad to discuss with you, as you have already invited me to do, at any time that may meet your convenience.

I am, sir, yours very sincerely,
(Signed) R. W. SHUFELDT.

I should value an expression of opinion from some of our teachers in the public schools on this question.

A Remarkable Ice Formation.

Mr. Edmund L. Smith, of West Fort Lee, New Jersey, kindly sends us the accompanying illustration, which he describes as an interesting example of a natural formation of ice and says that it strikingly illustrates the extreme cold weather experienced in upper New York State last winter. Water from a pressure pipe protruding above the ground gradually froze, forming a natural cone of ice thirty-odd feet in height.



"NATURAL CONE OF ICE."

Material from old sawdust piles, moistened and incubated, is reported to yield great numbers of Protozoa and other minute animals of many different sorts. Sawdust from southern pine is especially recommended.

THE OUTDOOR WORLD

A High Grade, Near-by, Seashore Camp for Girls.

Camp Mystic, Mystic, Connecticut.

Enrollment and Personal Care by the Editor of this Magazine, who will be in the camp the greater part of AUGUST, 1921. His camp nickname, "Daddy Bigelow," expresses his relation to the girls in their many educational and recreational nature interests.

For particulars address:
EDWARD F. BIGELOW,
ArcAdiA:
Sound Beach,
Connecticut.

THE EDITOR OF THIS MAGAZINE ON A FISHING TRIP ON LONG ISLAND SOUND WITH CAMPERS FROM CAMP MYSTIC.

Camp Mystic, on the salt water, in the extreme southeastern part of Connecticut, offers girls good facilities for camping in a forest surrounded by wild territory but in convenient proximity to the Sound with its boating, swimming and fishing. The location at the apex of a moderately high hill that is really a forest plateau has the advantages of isolation from residences, trolley cars and railroads, yet with the advantages of reasonable nearness to the charmingly quaint old Colonial village of Mystic, where the New York, New Haven and Hartford Railroad station for New York and Boston express trains is located.

Mystic today is not only an important art center but has all the charm of a quaint old-fashioned seashore town, as it has always been prominent in the ship building, fishing and lobstering industries. For the tourist and the camper it has the charm of picturesqueness in its old-time marine surroundings.

Miss Mary L. Jobe, the owner and manager of the camp, is preeminently a woman ideally adapted to the management of a camp. She has worldwide fame as an explorer of the Canadian Rockies. In various parts of British America she has done mountain climbing and exploring of territory never before visited by any other white woman. She has gone into the trackless forest accompanied only by guides and a retinue of pack horses, and has done all sorts of wonderful things which afford no end of fascinating stories illustrated and otherwise for the campers. She possesses the spirit of the camper and knows how to inspire others. She is so permeated with a love of the wild that the girls look upon her as the very personification of the delights of the wilderness, the spirit which leads them to the primitive and the unknown.

In striking contrast with her wilderness experience, however, Miss Jobe is of charming personal appearance, has had extended experience as a teacher and knows the delights and refinements of modern civilization. She loves girls and with them has spent all her pedagogical life. She is thoroughly cultured in matters of history, literature, music and the drama, and along several of these lines she has developed original talent, particularly so in her magazine articles and illustrated lectures, thus making her fame as a literary woman equal to that which she has as an explorer of the wild.

The editor of this magazine has been personally acquainted with Miss Jobe since she was a schoolgirl, and with much pleasure has watched her development and successes both as a student of wild nature and in her scholarly attainments. Upon her invitation last year he spent two weeks at the camp, where he inspected every detail and enjoyed the companionship of the campers in excursions in the wild woods and on Long Island Sound. The accompanying illustration shows him, familiarly known to the campers as Daddy Bigelow, on one of the fishing excursions in the large, commodious, sixty horsepower, seventy-five passenger gasoline launch, the "Northern Light," the property of the camp and under the excellent management of Captain Babcock, who knows Long Island Sound from A to Z and from starfish and sea urchin to mackerel and porpoise.

MISS MARY L. JOBE.
Owner of Camp Mystic.

Arrangements have been made with Miss Jobe by the editor of this magazine to have the nature education and camp recreation utilized along the lines of the girl's self-expression and the grace of naturalness, pedagogical points of view that have been already explained in this magazine.

He will also have personal care of girls who may wish to enter this camp, enrolling them and giving them personal attention during two weeks in August. By appointment he will call upon parents in New York City and vicinity who wish to send their daughters to a near-by seashore camp where they will be at all times quickly and readily accessible by train or automobile as well as by easy and inexpensive conversation by telephone. Correspondence invited. Address: Edward F. Bigelow, ArcAdiA: Sound Beach, Connecticut.

* * * * *

Camp Mystic, Mystic, Connecticut.
New York City.

Dear Daddy Bigelow:

I wish to tell you that the ten days that you spent at Camp Mystic last summer were days of great enjoyment for me and for every one associated with you in the Camp. Your charming manner interested my girls in a thousand out-of-door things, and your own unselfishness and devotion to the welfare of every one in the Camp endeared you to us all.

It was a great delight to me, knowing you as I have since I was a young girl, to have you enter so heartily into my enterprise for the welfare and development of young growing girls. Inasmuch as you are recognized as an expert on the subject of girl psychology, and because of your long association with girls in various schools, I am sure that no one could have rendered greater service to me and to my happy family than you did. Your presentation of the great truths of nature and your eager desire to help make a summer at Camp Mystic an event which my girls will long remember produced such excellent results that I am more than delighted to know that we may look forward to your coming again in the season of 1921.

Faithfully yours,
Mary L. Jobe.

Camping More Than Country Life.

In correspondence and conversation with parents of boys and girls eligible for camp, the editor of this magazine is impressed with the erroneous opinion that camping as exemplified in a modern, well developed camp is nothing more than an amplified country home or an ordinary sojourn at a country hotel. The remark is frequently made in substance somewhat like this, "I plan to take my children for this summer to a home in the country where they can get plenty of outdoor life and can run all they want to run in the great out-of-doors."

Such a remark is about equivalent to saying, "I am going to New York but shall not take my children to a well-equipped hotel where there are good rooms and good beds and good table fare, but I propose to let them run every day through the Washington and the Fulton markets and visit the large manufacturers of furniture and carefully inspect the big factories of the Ostermoor Mattress Company."

A camp, in the highest and best sense, is an institution that puts all the great out-of-doors into assimilatory form, physical, mental, moral, literary and educational. It is almost cruelty to children to take them into this great realm where exist a harvest of good physique, good mentality and good personal development and not put all of that great mass of material into a form that shall be available for the child. The trouble with these wrong opinions has come about through a clinging to the past conditions attendant on camping. There was a time when a family would pack up and go to the seashore for a day or two, live in a tent or an old barn, stuff themselves with sea food and spend about half the time swishing around in the water. Nowadays the food, the swimming and the entire athletic and educational regime of a camp have been worked out in highly artistic manner. It is not even comparable to the man's anticipation of a hunting or a fishing trip, and is far from merely living on a farm. It is more comparable in the educational aspect to a high class boarding school, the one difference being that it accomplishes some necessary things that the boarding school does not accomplish and makes the two months in camp of tremendous importance and value.

TO KNOW THE STARRY HEAVENS

The Heavens in February.

By Professor Samuel G. Barton of the University of Pennsylvania.

It has been known for some time that, by applying interferometer methods with the aid of the great one hundred-inch reflecting telescope recently erected at Mount Wilson, California, Professor Michelson hoped to be able to determine the diameters of stars. This has not been possible before except in a few special cases. The first star for which a result is announced is Alpha Orionis, or Betelgeuse, the star in Orion marked A in Figure 1. It is interesting that a result has been obtained. The result itself is very astonishing. He finds that the diameter is three hundred times that of our sun or, in round figures, 300,000,000 miles. This is more than three times the distance from the earth to the sun. The diameter of the sun is 886,000 miles. The distance of the moon is 238,000 miles. Hence if the earth were at the center of the sun the moon could revolve about it and only be about half way out to the surface of the sun. Similarly if the sun were placed at the

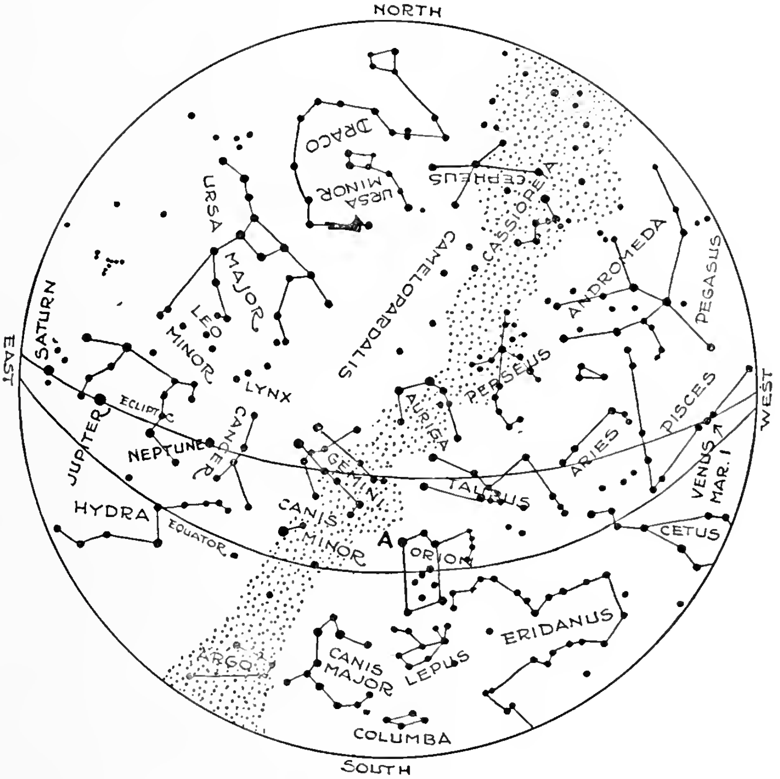

NORTH
DRACO
URSA MINOR
CEPHEUS
URSA MAJOR
CASSIOPEIA
CAMELOPARDALIS
ANDROMEDA
PEGASUS
SATURN
LEO MINOR
EAST
LYNX
PERSEUS
ECLIPTIC
AURIGA
PISCES
WEST
JUPITER
CANCER
NEPTUNE
ARIES
VENUS MAR. I
GEMINI
TAURUS
HYDRA
CANIS MINOR
EQUATOR
A
CETUS
ORION
ERIDANUS
ARGO
CANIS MAJOR
LEPUS
COLUMBA
SOUTH

Figure 1. The Constellations at 9 P. M., February 1. (If facing south, hold the map upright. If facing east, hold East below. If facing west, hold West below. If facing north, hold the map inverted.)

center of Betelgeuse the earth 93,000,000 miles away could revolve about the sun as now and be but two-thirds of the way to the surface. Even the planet Mars could perform its revolutions inside the surface of Betelgeuse. The volume of the sun is 1,300,000 times that of the earth. The volume of Betelgeuse is roughly 27,000,000 times that of the sun, which means that it is a body with a volume 35,000,000,000,000 times that of the earth. The results depend upon the distance of the star, which has not been determined with great accuracy. The result has been obtained by a scientific method by a scientist of the highest standing, and it is thus worthy of great consideration. Astronomers had not previously suspected that any star was so large. Betelgeuse was not suspected of being especially large. More may be said on this subject later.

* * * * *

The Planets.

In addition to the bright stars shown on the map we have the brightest two planets, Venus and Jupiter. Venus is the exceedingly brilliant evening star seen in the west in the early evening. As it sets before nine o'clock its position at the first of the month cannot be shown on Figure 1. By March it has moved so that its position lies within the region of the map. As shown in the January article, this planet is at its greatest eastern elongation on February 10, at which time it is nearly forty-seven degrees from the sun. At this time it may be seen for the longest time after sunset; that is, it sets latest. In the January article we showed the motions of the earth and Venus. In Figure 2 we now show the path of Venus relative to the earth and sun. In some ways this is easier to understand. Although the earth moves, it seems to us as though the earth remained at rest and Venus moves in such a way as to combine the earth's motion with its own. It may be seen from the figure that when Venus is at S, where the line from the earth to Venus is tangent to the orbit of Venus, the angle at the earth between Venus and the sun is greatest, and Venus is then said to be at its greatest eastern elongation. The angle in any case is called the elongation of the planet. Mercury is at its greatest eastern elongation when it is at T. This occurs February 15. It is then only eighteen degrees from the sun. The angle is eighteen degrees. Usually the elongation of Mercury is so small that we cannot see it because of the sun. It is only when near its greatest elongation that it can be seen. The orbit of Mercury, as will be seen, is much flattened, and Mercury is the point of its orbit nearest to the sun also on February 15, so that the greatest elongation has nearly its smallest value. The angle is sometimes as great as twenty-eight degrees. Venus reaches the position U, called inferior conjunction, April 22. Mercury similarly reaches V March 2. After these times they are morning stars. Mercury may be seen for a few nights about February 15. It will be low in the west, between Venus and the western horizon. It will be seen only in the twilight. While not nearly as bright as Venus, it will be easily seen under proper conditions. Mars also lies between Venus and the horizon. It is closer to Venus and not as bright as Mercury.

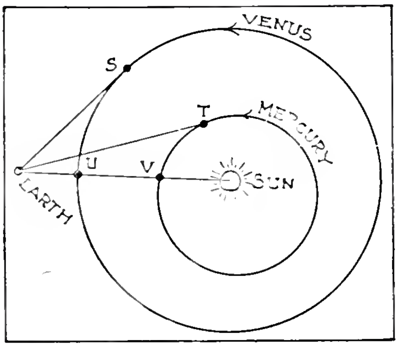


Figure 2.—The greatest elongation of Mercury and Venus.

On the eastern side of our map Jupiter and Saturn have made their entrance into the early evening sky. They will be visible in the early evening now for about six months.

* * * * *

Saturn's Rings.

The appearance of the rings of Saturn at the present time is very interesting. As is well known, Saturn is surrounded by a series of three concentric flat rings lying in the same plane. The rings have an extreme diameter of 173,000 miles, but wide as they are their thickness is probably under fifty miles.

These rings lie in the plane of Saturn's equator. Just as the earth in its motion about the sun keeps its axis always in parallel positions and hence its equator also in parallel positions, so also does Saturn in its motion about the sun keep its equator and the rings always in parallel positions. Just as the earth's equator crosses the sun twice in each revolution (year), March 21 and September 22, so, too, does Saturn's equator, the plane of its rings, cross the sun twice in each of its revolutions. Saturn's revolution requires 29.5 years. The earth, too, must lie in the plane of the rings twice in each of Saturn's revolutions, but since the earth also moves and it is possible for it to be in the plane of the rings whenever they cross the earth's orbit, it is possible for the earth to be in the plane of the rings more than twice. The earth may be in the plane of the rings as many as three times, while the plane is crossing the earth's orbit. The plane of the rings passes through the sun on April 10. Since 1907 the sun has been south of Saturn's equator, as it is now south of our equator. After April 10, 1921, it will be north of Saturn's equator for about fifteen years.

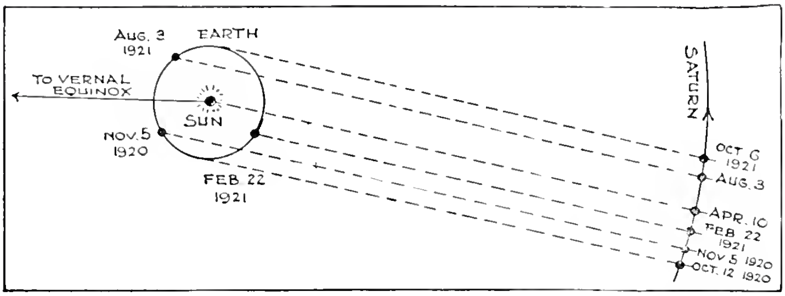


Figure 3.—Showing how the earth crosses the plane of Saturn's ringe.

In Figure 3 we show the motions of the earth and Saturn during this particularly interesting period when the plane of the rings is crossing the earth's orbit. The plane first cut the earth's orbit October 12, 1920. The plane requires 359 days, or almost a year, to cross the orbit. On November 5, 1920, the earth first crossed the plane of the rings, as we pointed out at that time. On February 22 this month it crosses again in the opposite direction, as shown in Figure 3. It crosses again on August 3. At that time, however, Saturn will be rather low in the west when visible. However, the circumstances are very favorable indeed, since Saturn is visible on each of the three occasions, and three is the largest number possible. Moreover, Saturn is almost directly opposite from the sun on April 10, when the plane passes through the sun.

The rings of Saturn can be seen well only with moderately large telescopes. In such an instrument they are probably the most impressive object to be seen. At the present time we are looking at the rings almost edgewise and hence get a poor view in some respects, but most interesting in others. Both Saturn and the rings get their light from the sun. Before November 5 the earth and the sun were on the same side of the ring, hence we could see it. When the earth is in the plane of the ring it often disappears, as it is so thin that it cannot be seen. Between November 5 and February 22 the earth and sun are on opposite sides of the ring, hence the side of the ring turned toward us is not illuminated. Under these circumstances the ball may be seen crossed by a narrow black line which is the shadow of the ring. From February 22 to April 10 the earth and the sun are again on the same side and the ring appears as a needle of light through the planet.

On April 10 the sun shines only on the edge and the ring disappears for a time. From April 10 until August 3 the earth and sun are again on opposite sides of the ring. After August 3 they are again on the same side. After this the rings open, as we say, wider and wider until they are open widest after seven years. These times when we see the rings edgewise are particularly favorable for studying the nature of the rings. The appearance and disappearance of the rings puzzled the astronomers of former times greatly.

This is the time of year to observe the zodiacal light. This phenomenon has been explained several times in these articles. It may be noticed that calendars show but three phases of the moon this month. There is no last quarter.

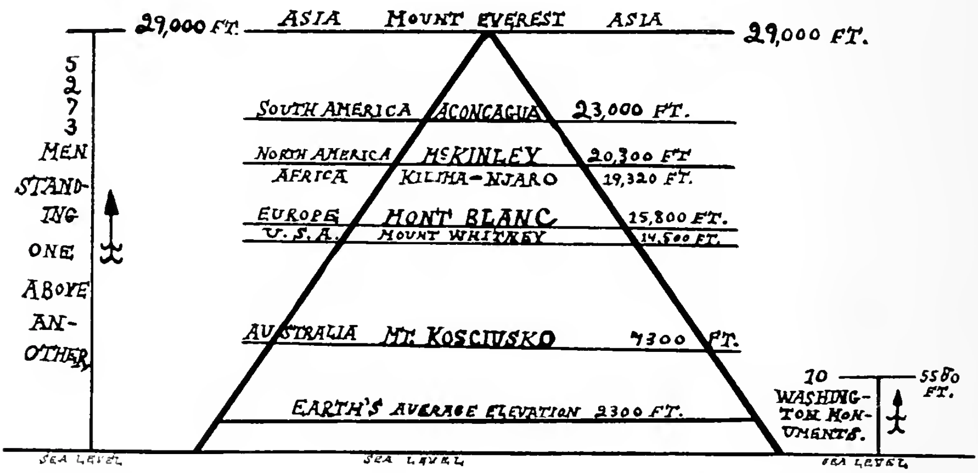
> Note.—A new comet was discovered in Hydra December 13. The comet was only visible in large telescopes at that time and has since been growing fainter as it is receding from the sun.

Terrestrial Altitudes.

BY CHARLES NEVERS HOLMES, NEWTON, MASSACHUSETTS.

It has been estimated that the average elevation of our earth's surface above sea level approximates 2,300 feet. That is a little more than four-tenths of a mile, and we should compare this average elevation of 2,300 feet with the average depth of the oceans, 12,600 feet. Thus, it is evident that the average height above sea level approximates only one-fifth of the average depth below sea level.

MOUNT EVEREST, EARTH'S HIGHEST ELEVATION, COMPARED WITH THE HIGHEST ALTITUDES OF SOUTH AMERICA, NORTH AMERICA, AFRICA, EUROPE, UNITED STATES AND AUSTRALIA,


29,000 FT.
ASIA
MOUNT EVEREST
ASIA
29,000 FT.
5273 MEN STANDING ONE ABOVE ANOTHER
SOUTH AMERICA
ACONCAGUA
23,000 FT.
NORTH AMERICA
MCKINLEY
20,300 FT
AFRICA
KILIMA-NJARO
19,320 FT.
EUROPE
MONT BLANC
15,800 FT.
U.S.A.
MOUNT WHITNEY
14,500 FT.
AUSTRALIA
MT. KOSCIUSKO
7300 FT.
EARTH'S AVERAGE ELEVATION 2300 FT.
10 WASHINGTON MONUMENTS.
5580 FT.
SEA LEVEL
SEA LEVEL
SEA LEVEL

Most of us dwell below a terrestrial altitude of 2,300 feet, although thousands of people live in the city of Quito, in Ecuador, which has an elevation of more than 9,000 feet. Indeed, there are many people who dwell amid altitudes higher than a mile—for example, in Thibet (11,000 feet to 16,000 feet). Of course we all of us know that Mount Everest is the highest elevation upon our earth (29,000 feet) but, besides Mount Everest, there are several hundred peaks in the Himalaya Mountains which are 20,000 feet or over in altitude. This gigantic Himalayan range is in some places 500 miles wide.

There are, however, other high mountains besides those in the Himalayan range. For example, there are Aconcagua in Chili (23,000 feet), McKinley in Alaska (20,000 feet), Kilima-Njaro in Africa (20,000 feet), Mount Blanc in Europe (almost 16,000 feet), and Mount Whitney in California (15,000 feet). In addition to these terrestrial giants, there are the famous Pike's Peak in Colorado (14,000 feet), Mauna Kea in Hawaii (14,000 feet), and the Jungfrau in Switzerland (13,600 feet). From the summit of Mount Everest to the lowest depth below the ocean's surface, there is certainly quite a descent. This descent from the top of the land to the bottom of the sea amounts to more than eleven miles.

The highest point reached by any of our forty-eight states is 14,501 feet, the summit of Mt. Whitney in California. However, the states of Washington and Colorado almost attain that height Mt. Rainier in Washington and Mt. Elbert in Colorado. Other lofty peaks in the United States are Gannett Peak in Wyoming (13,785), Kings Peak in Utah (13,498), East Peak, Nevada (13,-

145), Granite Peak, Montana (12,850) and San Francisco Peak in Arizona (12,611 feet). Compared with these mountains, the lowest point of dry land in the United States is Death Valley, California, which reaches a depth below sea level of 276 feet. Therefore, the state of California possesses both the highest point and the lowest point of dry land in our country. Of the forty-eight states, Louisiana possesses the flatest surface, its highest point being only 180 feet.

The Interest in Astronomy is Increasing.

We hail with delight the announcement by "The Youth's Companion" that beginning with their December number they will have a department on the stars with simple and easy sketches for learning the constellations. It has also been noted with joy by every lover of the starry heavens that "Popular Science Monthly" has for several months had a similar department. We have greatly enjoyed that as well as the one in the "Scientific American."

"The Monthly Evening Sky Map," Leon Barritt, 367 Fulton Street, Brooklyn, New York, seems to be prospering more than ever. In addition to the excellent maps it issues each month a chart showing the positions of Jupiter's satellites. Mr. Barritt publishes by far the best star and planet finder that we know and at the moderate price of four dollars with thirty cents additional for expressage or postage. It is really a joy, in these days of the high and increasing cost of living, to find that the price of the finder has been reduced from the former five dollars.

The standard astronomical magazine of the country is "Popular Astronomy," published at Northfield, Minnesota.

The excellent publications of the Astronomical Society of the Pacific are readily available; address: San Francisco, California. It is also to be noted with pleasure that several of our larger newspapers are devoting considerable attention to astronomy though a few of them seem to be living in the past centuries. They are publishing fool stuff on astrology, and seem to expect their intelligent readers to believe it.

We hope that the pressure of these publications in plain, common sense astronomy will discourage the publication of so much that is rank foolishness. Probably the most pernicious of this kind of literature are the Patent Medicine Almanacs that continue to publish pictures of a nude man with a trapdoor in his abdomen so one may look in and see how the wheels go round. All about this remarkable creature are radiating spokes directing to the signs of the zodiac, but what the signs of the zodiac have to do with his internal arrangements we have never been able to discover, but they probably show the reader that he will "get it in the neck" if he swallows any of that kind of medicine.

It is greatly to be regretted that in the list of these foolish publications, a relic of the myths current in the childhood of the race, should be such a reputable, standard organization as the Armour Company of Chicago. In Armour's Farmer's Almanac is an elaborate drawing of these signs with an even more astonishing weather prediction for each month. In the interests of education and especially of youth, we hope this standard concern will discontinue such a pernicious publication. Probably they are shooting at some of the old-fashioned, superstitious farmers, if any such are left, but none the less the young folks may be misled. Armour's Almanac contains much good advice for the farmer, but it is unfortunate that the book should be vitiated by astrological nonsense and weather predictions a year or more in advance.

Like Trumpet Call.

Like trumpet call to waken,
  Where on balsam bed we lie,
The galaxy of glory
  Across the Southern sky.

Behold there, etched in jewels,
  Orion, before the dawn;
The Pleiades, the Hyades,
  Sirius, Procyon.

As if to "paint the lily,"
  Trails after, the crescent moon:—
But the sun, with its greater splendor,
  Brings daylight all too soon.
—Emma Peirce.

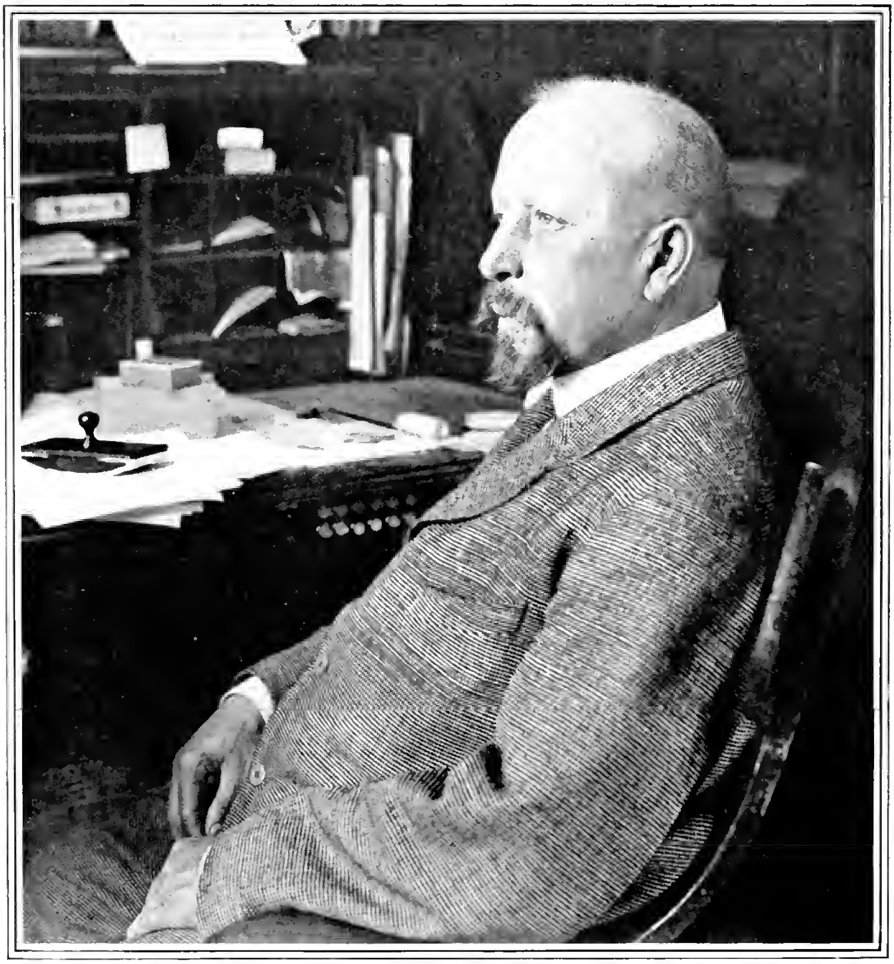
Few persons who have admired the common "rose quartz" realize how very rare is the crystallized form. Only two specimens are known.

EDITORIAL

Promotion for Our Dr. Howard.

We congratulate the American Association for the Advancement of Science on the selection of its new President, our Dr. L. O. Howard, Trustee of The Agassiz Association. The 'Scientific American" in an extended article, with the accompanying portrait which that publication kindly lends us, refers to him as "the brilliant Howard" and cites the fact that able scientists who have for a long time held the position of permanent secretary of that organization, have been promoted by election to the highest place in its gift.

We of The Agassiz Association have always admired and loved our Dr. Howard. He exemplifies the spirit of Louis Agassiz in his sound, technical knowledge accompanied by the spirit of the teacher that has high regard for humanity. He is not a miser with his stores of learning, but gladly gives even to the child. In his position as Chief of the Bureau of Entomology of



DR. LELAND OSSIAN HOWARD, TRUSTEE OF THE AGASSIZ ASSOCIATION, RECENTLY ELECTED PRESIDENT OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

the United States Department of Agriculture, he has had and has exercised to conspicuous advantage wonderful opportunities for helping agriculturists, naturalists, young students and others who are interested in the study of insects and other objects of nature.

His achievements in technical research, in the administrative duties of the office, and in the publication of many books are too extended for us to detail. He has, by patient and unremitting toil, by geniality to his fellow beings, risen to his present position as a scientist and royally good fellow. Thousands admire him for his profound knowledge, and many more love him for his generous regard for humanity. He has the brain and the ability of a great scholar, and the big heart of one who loves not only nature but humanity.

We wrote to him to express our satisfaction at his election to the high office of President of the American Association. From his delightful letter of appreciation we quote the following:

Interesting New Things to See.

Washington, D. C.

To the Editor:

I wish every boy and girl could live, not necessarily in the country, but near the country—near enough to get out into a patch of woods with a little stream running through it. There are so many interesting things to be seen in such places. And there are so many new things—things worth writing up and publishing. In The Agassiz Association is nationalized an idea that came to me more than fifty years ago when I helped to found a boys' natural history society at Ithaca. We had weekly meetings, and studied the birds and the insects and the snails, but we had only one member who liked fossils and none who were interested in plants. We kept it up for several years, and some of us have retained our interest in these things through life.

The old-fashioned natural history has now for the most part disappeared in the colleges and universities, and instead they teach largely of "chromosomes" and "genes" and the beginnings of life. But that same old natural history spirit has been holding on in the boys' and girls' clubs and in The Agassiz Association and in the Wild Flower Preservation Association and in nature-loving hearts like yours, Doctor Bigelow, and finds now an outlet even in the college-warped biologists in the new Ecological Society of America. It seems to me almost as though a natural history boom were coming!

Long life to you!

Sincerely yours,
L. O. Howard.

A Parody of the Ridiculous Unknown.

On page XI of our number for December, 1920, we asked, "What is an Anty-mire?" Any one versed in etymology and entomology understands that "mire" is the old-time name for ant, and that "anty" might be taken as a nickname for the ant. Several correspondents have kindly given information along that line. The Reverend C. B. Bliss of McIndoe Falls, Vermont, writes significantly that while two Boy Scouts were in his office helping to fold his letters he without comment showed them the little poem and one of them said, "It is a little red ant. We have always called them any-mires. (It sounded like annie-mires.)"

But that does not solve the problem. The editor of this magazine, country born and bred, and knowing pretty well the spirit of the New Englanders, does not believe that those old-timers sung about a little dog chasing ants. It is doubtful whether any dog would "tree" an ant; and it is also doubtful if those who originated that old song were sufficiently close observers to notice a dog treeing or barking at an ant! Does not the inquiry as to whether the etymology is real or mythical need a little further consideration? Isn't it perhaps a case of the simple and known used emblematically for the large and unknown? Isn't the suggestion of a "hybrid between a Gollywampus and a Hoolawa" nearer the truth? The sea serpent has not been banished nor have many other animals originated in the childhood of the human race. We believe the humor in the song was really a "juxtaposition of incongruous concepts" in applying a colloquial name to a known object to make the dog seem ridiculous in chasing the big bugaboo of an unknown form of animal. Only a little more than a half century ago in the editor's boyhood the country people referred, half in fancy and half in credulous belief in the unknown, to all sorts of nonexistent animals.

"Old Grimes" was evidently a parody of people who make "much ado about nothing," or who spend their time "chasing rainbows" and non-existent things. Other stanzas more directly convey that impression. The nickname of the ant therefore really meant a big unknown (nature faking, if you please) animal in parallel of the big fool things that human beings do.

Perhaps those old-timers in the earliest days of New England used that term "anty-mire" as generally descriptive or as an imitation of the manner in which old Grimes and all his ilk, together with his little dog, shared in the characteristics of his master and chased bugaboos of their own imagining. They were fond of that kind of amusement as exemplified in the rather rough yet expressive old-time saying, "Great cry and little wool like the devil shaving a hog."

"Just Because I Want to Play."

Mr. Edward Bok, who a few months ago resigned his position as editor of "The Ladies' Home Journal, has a remarkably interesting article in the September number of "The Atlantic Monthly," in which he gives his reasons for leaving business and wanting to play. His manner of writing is partly jocose and partly philosophic. We recommend the article to our readers, and herewith quote for their pleasure a few of Mr. Bok's remarks:

"The American has still to grasp the truth that the great adventure of life is something more than work—and money."

. . . . .

"The real trouble with the American business man is that in many instances he is actually afraid to let go because, out of business, he would not know what to do. For years he has so immersed himself in business, to the exclusion of all other interests, that at fifty or seventy he finds himself a slave to his business, with positively no inner resources. Retirement from the one thing that he does know would naturally leave such a man useless to himself, his family, and his community: worse than useless, as a matter of fact, for he would become a burden to himself and a nuisance to his family. You rarely ever find a European or English business man reaching a mature age devoid of outside interests: he always lets the breezes of other worlds blow over his mentality when he is in affairs, with the result that, when he is ready to retire from business, he has other interests to fall back upon. This is rarely the case with the American business man. It is becoming more frequent that we see American men retiring from business and devoting themselves to other interests, and their number will undoubtedly increase as time goes on and we learn the lessons of life with a richer background. But one cannot help feeling regretful that the number is not growing larger more rapidly."

. . . . .

"The American business man has still to learn: that he is not living a four-squared life if he concentrates every waking thought on his material affairs. He has still to learn that man cannot live by bread alone. The making of money, the accumulation of material power, is not all there is to living. Life is something more than those two things, and the man who misses this truth misses the greatest joy and satisfaction that can come into his life —that is, from service to others.

. . . . .

"I would not for a moment belittle the giving of contributions, but it is a poor nature that can satisfy itself that it is serving humanity by the mere signing of a check. There is no form of service so easy and so cheap as to give a check to an object with the interest stopping there. Real service is where a man gives himself with his check, and that the average business man cannot do if he remains in affairs.

. . . . .

"No man has a right to leave the world as he found it. He must add something to it: either he must make its people better or happier, or he must make the face of the world more beautiful or fairer to look at. And the one really means the other."

LITERARY NOTICES

The Americanization of Edward Bok. The Autobiography of a Dutch Boy Fifty Years After. New York: Charles Scribner's Sons.

Edward Bok has been the Boswell of Edward Bok, the editorial Johnson,. From long association Mr. Bok, the man, has an intimate acquaintance with Mr. Bok, the editor. Mr. Bok, the author of this book, intimately describes Mr. Bok, the former editor of "The Ladies' Home Journal." He says that during his years of directorship of the magazine he had great difficulty in abstaining from breaking through the editor and revealing his real self, and he has had much fun in watching the Edward Bok of this book at work. This thinking of himself as distinct from himself as editor is a commendable arrangement, especially when the editor as an editor has ceased to exist. He speaks thus of the last of the editorial Bok:

"The Edward Bok of whom I have written has passed out of my being as completely as if he had never been there, save for the records and files on my library shelves. It is easy, therefore, for me to write of him as a personality apart: in fact, I could not depict him from any other point of view. To write of him in the first person, as if he were myself, is impossible, for he is not."

The reader will enjoy this biography not only because of the personality there so intimately depicted, but because of Mr. Bok's vivid portrayal of the prominent persons whom that editor met. The entire book is a verbal "moving picture" of a great editor's dealings with famous persons with whose aid he built up a great magazine.

Viewed as a biography it is unquestionably the greatest that has been produced in recent years. It tells plainly that Edward Bok, the editor, accomplished great things and was a skilled and able man, but the telling is done with a lucid frankness that is refreshing, and that in no way detracts from the importance of the man and editor. The book is a record of deeds done and labors accomplished but there is not a sentence in it that makes one feel that Mr. Bok is a conceited man or that he has mentioned a single fact about himself that should not have been said. On the contrary, the effect is a feeling of gratitude to Mr. Bok for so freely and kindly taking the reader into his confidence. He tells the reader what the reader wants to know.

The development of "The Ladies' Home Journal," which the writer of this review has followed carefully, is an astonishing accomplishment of editorial good sense. No one will withhold a full measure of credit to the publisher, Mr. Curtis, and to many of his associates, but the center of the efficiency, the pivot on which it moved, was Mr. Bok. The reviewer has read every number of the magazine and carefully watched the new measures introduced by Mr. Bok in its early days when the magazine was entering upon a new era. There is only one regret, one perhaps in which Mr. Bok shares. He was never able to make successful a nature department nor even an occasional article on the subject, although he faithfully tried. At one time Mr. Bok presented an interesting department by Dr. Samuel Christian Schmucker, one of the most skilful portrayers of nature in this country, but even that department was short lived. An occasional nature article appeared, and sometimes puzzled naturalists even to guess why it was ever accepted.

We cordially commend this autobiography to every class in English literature and to every home in America. There is one place to which we especially commend it, hoping that a chapter will there be read daily and, if necessary, committed to memory. We hope that it will be discussed and rediscussed in that one place where we feel it has become an absolute necessity—and that is the present office of "The Ladies' Home Journal." A big magazine like a big railroad train will move for a long time by its own momentum even after the power has been shut off. Mr. Edward Bok supplied a tremendous momentum to "The Ladies' Home Journal" and he did much good. We are fearful lest in the present demands for fiction that fiction shall become too great a factor in the magazine. It is to be noted that Mr. Bok in his biography lays little if any stress on that factor in the upbuilding of the journal. "The Ladies' Home Journal" has exerted a tremendous power for good, and it may continue to do so if the present editors will daily read at least a chapter of "The Americanization of Edward Bok," and faithfully emulate his example.

Animal Ingenuity of To-day. By C. A. Ealand, M. A. Philadelphia: J. B. Lippincott Company.

Here is another of the many books whose authors are trying to raise a corner of the veil that shrouds the secrets of nature. "Animal Ingenuity," an English work, is along lines similar to those of our own Ingersoll's "The Wit of the Wild," but is more distinctly literary and with less of direct observation. The author has culled from all the standard works but has supplied no great amount of his own studies.

JOHN BURROUGHS, BOY AND MAN. By Clara Barrus, M. D. Garden City, New York: Doubleday, Page & Company.

In this book Dr. Barrus has well portrayed, so far as words can do it, the boyhood of John Burroughs, that part of his life about which all of us most desired to learn. Dr. Barrus had already described Burroughs the adult, and some of his youth in her interesting book, "Our Friend, John Burroughs," but the greater part of his boyhood still remained unrecorded.

The work is well done, but it is greatly to be regretted that the book contains no illustrations of John Burroughs before his hair became gray. The book does not tell us if no photographs of him were taken in those early days. If we could not get one of him in his early boyhood, we should like to see what he looked like when he was, let us say, half as old as he is now.

JOHN BURROUGHS, THE GRAND, BELOVED NATURALIST.
Cut lent by Doubleday, Page & Company.

Through long association with Mr. Burroughs, Dr. Barrus has had excellent opportunity to learn many desirable facts. Summer and winter for many years she has wandered with him over the fields and hills, and through the woods where he roamed as a boy. In those rambles he pointed out the places where the narrated events occurred. He explained in detail the curious ways and means of the long ago, the old times which will never come again.

On account of these old-time reminiscences, aside from the nature study interest, the book is thoroughly enjoyable. Our younger readers will enjoy and we hope profit by this introductory statement from Mr. Burroughs:

"My dear Young Friends:

"The most precious things of life are near at hand, without money and without price. Each of you has the whole wealth of the universe at your very doors. All that I ever had, and still have, may be yours by stretching forth your hand and taking it.

"John Burroughs."

In this connection it is well to read what Dr. Barrus says regarding Mr. Burroughs's essays:

"Do you wonder why you so enjoy reading those essays—even forget that you are reading? It is because he had such a good time writing them. We usually do well what we like to do. When anyone finds something he especially likes to do, and can do just a little better than anyone else, and in a way all his own, it is probably his particular work in the world. It is often nearer than he dreams."

Dr. Barrus has commendably limited her

attention to the John Burroughs who sees things, and has said practically nothing about the John Burroughs who philosophizes about things. What Mr. Burroughs writes as a naturalist is excellent reading for boys and girls, but for them his usefulness ends when he becomes a philosopher. In highest personal appreciation of Mr. Burroughs, after many years' acquaintance with him, the reviewer feels in duty bound to say to younger people that although Mr. Burroughs in the main may be safely followed as an observer of nature, although like all other naturalists he is guilty of some errors of observation, not all of us will agree with all his deductions regarding nature. But he has been so fearless a critic of what he calls "nature fakers" and has even ventured to criticize the classic work of Henry David Thoreau, that naturally he must expect to have his own writings rigidly inspected.

He probably does not expect any more than any other naturalist expects to have everybody agree with him, but when he ventures into theology, when he does not follow his own teaching in his "Accepting the Universe," then he is getting in a region dangerous for him and not agreeable to us. We like to know that he accepts the universe, but we do not like him when he attacks our best and holiest aspirations regarding that universe and its Maker.

One reads in vain Dr. Barrus's book to find where Mr. Burroughs got switched off from his highest and best work into these regions of speculation and philosophical statements which we believe to be erroneous and pernicious. Though we say "reads in vain," yet we are glad that Dr. Barrus did not take up this phase of the subject. It is one over which a majority of his readers would like to draw a curtain.

Let us think of this grand old man as a naturalist to be loved and followed for his kindly regard for everything in God's creation, and his profound respect for the real searcher after Truth. We admire his courage in faithfully following the path as he sees it but regret the misfortune that has led him into a marsh where we must leave him floundering beyond his depth.

Accepting the Universe. By John Burroughs. Boston: Houghton-Mifflin Company.

Whether one agrees with the author's philosophy or not, it is of interest as showing the conclusions as to the conditions of the universe at which this veteran naturalist, now nearly ninety years of age, has arrived.

One who has read his writings in recent years can but note that he has turned more and more from observation to the significance of what he has seen. He is becoming in later years more of a philosopher than a naturalist. His main thesis, on which he seems never tired of dilating, is that God is synonymous with nature and not the producer of nature. Those of us who believe in the motto of The Agassiz Association, "Per Naturam ad Deum," cannot agree with his conclusions nor can we believe that religion is wholly a matter of one's personal crutch as he expresses it, or the adopting of a belief according to one's own idiosyncrasy.

It is beyond the scope of this magazine to enter into religious discussion. It is enough for us to state that Mr. Burroughs asserts that he has found his conclusions personally helpful, but he admits that all the good things that civilization stands for are the outcome of the commonly accepted creeds, and thinks that these creeds may be an ideal and personal inspiration to those who find them helpful. In that situation one wonders if after all Mr. Burroughs's decisions in regard to the universe are not really his personal creed as well as that of a few others that have arrived at similar conclusions. His book comes, to use a title of one of his previous publications, at "The Summit of the Years"; it is interesting only as expressing his personal opinions. Its value is only as great as that of those who disagree with him and have arrived by what he calls "the theological road." The title is good for practically we can do nothing else. This is our universe in which God and nature have placed us.

Aside from the theological discussion Mr. Burroughs takes an optimistic view of this wonderful, beautiful world. While one can but respect the honesty of opinion expressed by this elderly student of nature so far as he expresses his personal opinion, we still think his title, "The Faith of a Naturalist," is too broad if he means all naturalists. Many of us do not accept his conclusions.

The intent of the book may be summed up in the statement that the veteran naturalist decries all creeds and rejects all theological dogmas as suggestive of the childhood of the world, yet he admits that these creeds and doctrines have had their value. He considers Christianity as a mythical and irrational thing, yet he says that for nineteen centuries it has been the salvation of the world. "In fact, it is the bed-rock upon which our civilization is founded. It has saved men in this world by inspiring them with the desire to be worthy of a better and future world." Yet he teaches that the time has now come when mankind should think of all nature as their God.

There was a time when some of us received the impression from Mr. Burroughs's works that he was either denying the existence of God or closely verging upon atheism. Now it appears that his danger is in having too much God or too many gods. He is deifying everything. He says that he does not need the ceremonies and rituals of any church. He regards every day as a sabbath day. All pure water is holy water and this earth is a celestial abode. He asserts that it has not entered into the mind of any man to see and feel the wonders, the mysteries and the heavenly character of this world. He thinks that any one can here find heaven for himself, and that such a heaven is preferable to that of any religion which looks away from earth to some fairer and better abode. That kind of religion will fail with most persons. In spite of the careful observation and thinking by Mr. Burroughs, in spite of his devotion to philosophy, he admits that he himself is entangled in the meshes of too much heaven and belief in too many gods. He concludes his preface with these startling sentences:

"But is not speculation better than indifference? Curiosity about the gods may lead to a better acquaintance with them. I feel that each of these chapters might be called an altar to the Unknown God."

An antidote to the pernicious teaching of this philosophy, and a timely antidote we consider it, is found where one would perhaps least expect to find it, in the annual report of the President of Columbia University, issued at almost the same time as this book was issued. President Butler has not sat alone on a rock or a stump and communed with himself; but he has prepared hundreds of youth to live a life of high ideals and effectiveness. He diagnoses the present world's ills and discontents as lack of the very thing that John Burroughs admits in the past built a sure foundation for our present civilization. The basis of all our troubles is that we have forgotten the past. Each one seems to be seeking a heaven of his own invention and gods to suit himself. President Butler says:

"The time has come once again to repeat and to expound in thunderous tones the noble sermon of St. Paul on Mars Hill, and to declare to these modern idolaters 'Whom, therefore, ye ignorantly worship, Him declare I unto you.' There can be no cure for the world's ills and no abatement of the world's discontents until faith and the rule of everlasting principle are again restored and made supreme in the life of men and nations. These millions of man-made gods, these myriads of personal idols, must be broken up and destroyed, and the heart and mind of man brought back to a comprehension of the real meaning of faith and its place in life.

. . . . .

"Somewhere in the universe there is that in which each individual has firm faith, and on which he places steady reliance. The fool who says in his heart 'There is no God' really means there is no God but himself. His supreme egotism, his colossal vanity, have placed him at the center of the universe which is thereafter to be measured and dealt with in terms of his personal satisfactions.

. . . . .

"Man's attention and interest have been increasingly turned to himself, his immediate surroundings, and his instant occupation. Having come to feel himself quite superior to all that has gone before, and being without faith in anything that lies beyond, he has tended to become an extreme egotist. The natural result has been to measure the universe in terms of himself and his present satisfactions. His own emotions and his own appetites, being present and immediate, take precedence in the shaping of conduct and of policy over any body of principles built up by the experience of others.

. . . . .

"In a world so constituted and so motived, unrest, dissatisfaction and disorder are a necessity. Set free a million or a thousand million wills to work each for the accomplishment of its own immediate and material satisfactions, and nothing but unrest, dissatisfaction and disorder is possible."

SCOUTING FOR GIRLS. Published by The Girl Scouts, Inc., New York City.

What is Scouting for girls, how did it originate, and what is the best manner of carrying on the work and the play? These questions are answered authoritatively in this book, which is the result of collaboration by practical workers in every part of the country. The greater part of the manual is devoted to the general activities of girls—organization, social phases, specific Scout work, with interesting chapters on home duties.

From a naturalist's point of view it is encouraging to note that two chapters are devoted to popular science, one with special reference to nature study in general, the other to horticulture. The material on general nature study supplied mostly by well-informed officials of the American Museum of Natural History is good so far as it goes. One can but wish, however, that there was more of it and that more of the illustrations had been taken from actual activities of Girl Scouts rather than from museum groups. Aside from these nearly all the nature study illustrations are limited to flowers; not one shows the girls in nature study activities. The profuse illustrations supplied by the museum are good in their way, but we hope that future editions will have at least a few to show how girls study the things of nature from nature herself and not from a book or a museum. This suggestion does not mean that any of the present illustrations should be omitted, but that a few more should be used. We also regret that there is no chapter on the starry heavens. We are surprised at that, because of the requirements that are made along that line for Boy Scouts. We also suggest that the term "Woodcraft," which has been exploited so extensively by an organization for boys and girls, largely under the direction of Mr. Ernest Thompson Seton, should give way to some other term. "Woodcraft" when applied to boys or girls connotes an organization rather than actual work in the woods and the other outdoors.

THE BOOK OF NEW YORK. By Robert Shackleton. Philadelphia: The Penn Publishing Company.

This is not a mere guidebook. It is the real story of the great metropolis written in good style and with beautiful illustrations. Even to one already well acquainted with the great city it makes enjoyable reading, as it contains many suggestions both historical and of present sight-seeing interest. The scope of the observations is not limited to New York City but includes interesting excursions even as far north as Tarrytown. The chapters on Greenwich Village, on the Bowery and on some of the superstitions of New York are of especial interest.

BONNIE PRINCE FETLAR. By Marshall Saunders. New York City: George H. Doran Company.

The publishers state that the author is in the million class, that they sold more than a million copies of her first animal story, "Beautiful Joe." This "Bonnie Prince Fetlar," a Shetland pony, like the famous "Black Beauty" and the likewise famous "Beautiful Joe," is a humanized story that will appeal strongly to those who like that kind of thing. There are vivacity and charm, sympathy of understanding animal life, that endear her to animal lovers as well as interest the story reader. The book is specially designed for the work of Humane Societies who, judging from the popularity of that kind of literature, evidently regard it, as many other persons do, as more valuable than definite and unimaginative study of the animal's habits and needs.

TALKS TO WRITERS. By Lafcadio Hearn. Edited by John Erskine, Ph. D., of Columbia University. New York: Dodd, Mead & Company.

We are glad to add this volume to others that we have by Lafcadio Hearn because of our natural interest in Japan stimulated by the ArcAdiA development known as Little Japan. It is an acceptable addition to our library and an aid in our efforts to depict nature with simplicity and clearness. That was also Hearn's mission in his literary lectures. Although these were delivered in a Japanese university there is a charm of simplicity as he talked to those Japanese students that might well be imitated in a nature lesson to children or even to adults. The talks will assist naturalists who wish to put their observations into good literary form. Hearn's ideas were not only those of a literary theorist but of one who could successfully practise the art. He knows his subject and he skillfully and simply delineates it. In other words, he ideally exemplifies our slogan, "See, Think and Tell."

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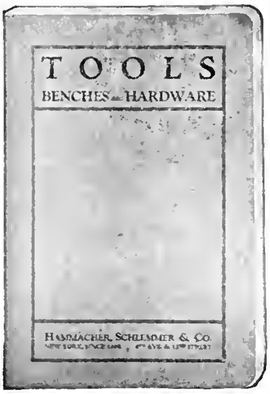
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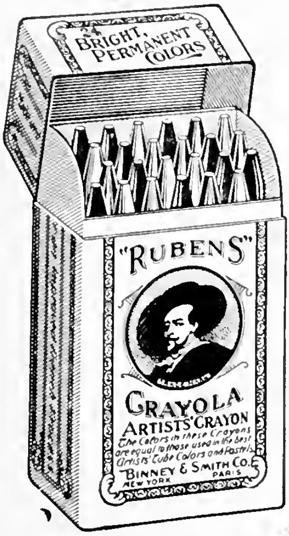

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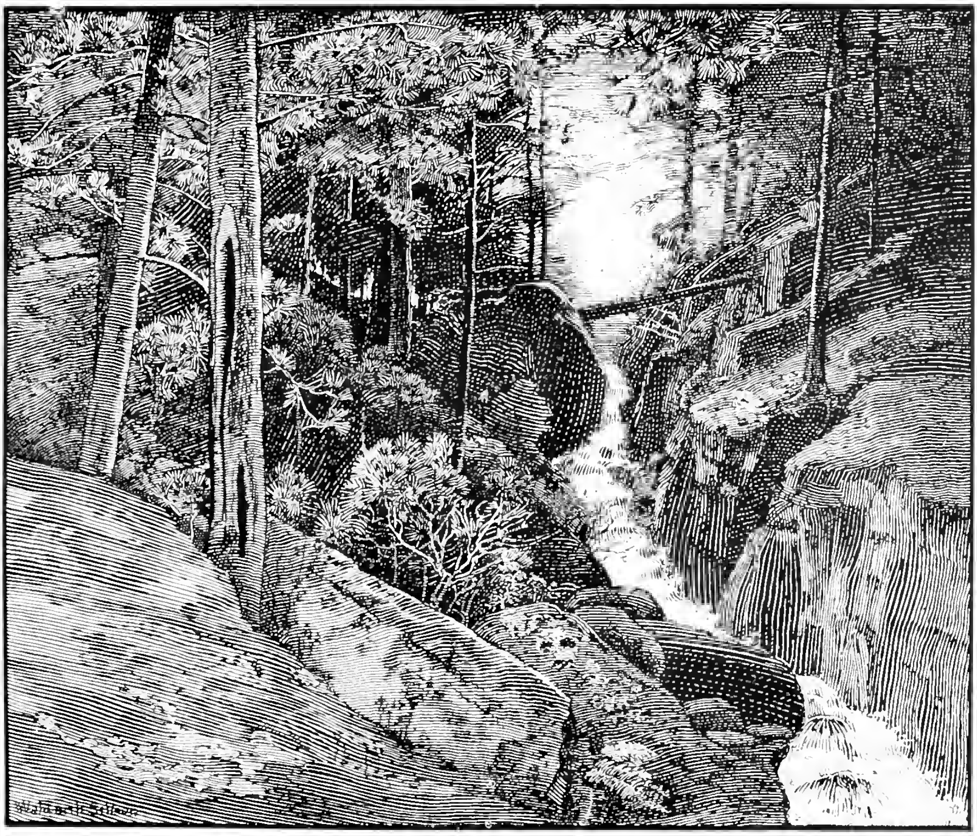

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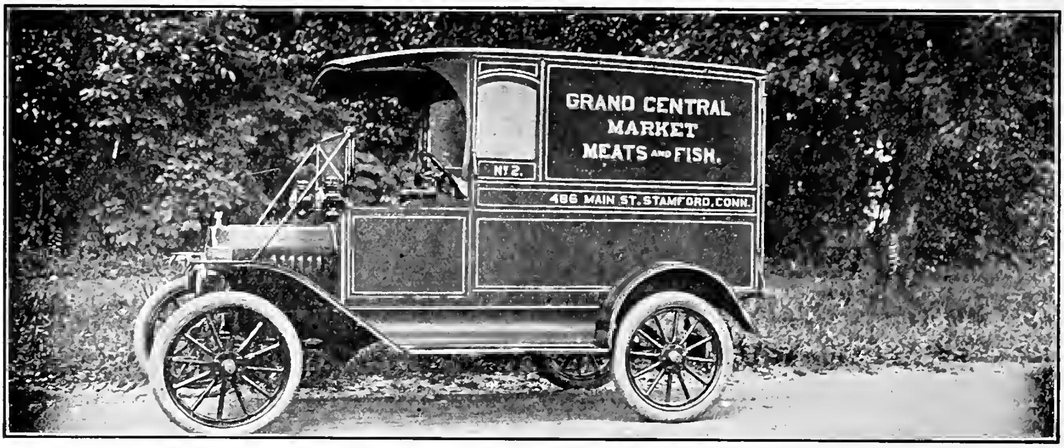
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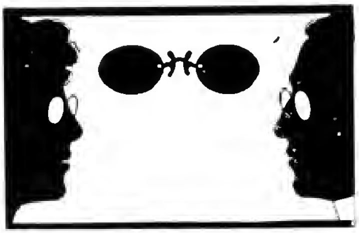

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It is with much pleasure that we call attention to the Box-Barberry, the new dwarf, hardy plant so well adapted to edging and hedge purposes and advertised in this number by The Elm City Nursery Company. Our readers will find that that company is thoroughly trustworthy. Mr. Coe, the president, is known to big estates and to naturalists everywhere as a royal good fellow and notably skilful in the nursery business. He knows what he is talking about. His statements may be implicitly accepted.

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It is with much pleasure that we call attention to the product of the Egypt Laboratory, Stamford, Connecticut, Post Office Box 471, originators and manufacturers of an entirely new line of perfumes under the general title of Egypt. This is indeed a wide departure from anything heretofore existing in the market and is designed for those who want the best and are willing to pay a good price to get it. This is not cheap-John perfumery nor is it put up in anything but the best and most attractive style. It is indeed a product de luxe.

The editor of this magazine is personally acquainted with the management of the Egypt laboratory and is glad to speak a good word for that management and the products. The idea is good and is being well carried out. If any of our readers have at least the curiosity to know of something thoroughly good and new and superiorly fine then send to the address we have already given, not forgetting to mention this magazine.

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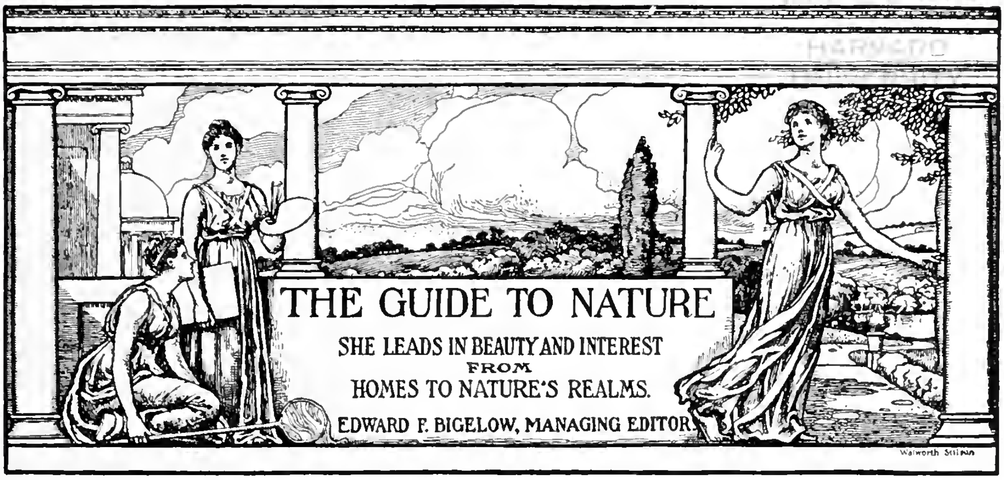
THE GUIDE TO NATURE
SHE LEADS IN BEAUTY AND INTEREST
FROM
HOMES TO NATURE'S REALMS.
EDWARD F. BIGELOW, MANAGING EDITOR
Walworth Stilson

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Volume XIII. MARCH, 1921 Number 10

Astonishing Experiences with a Wild Partridge.

By Clinton G. Abbott in "The Con servationist," Albany, New York.

THERE can be no denying that even to human ears the reverberating rumble of the Bates Steel Mule—as Mr. A. H. Armstrong's farm tractor was technically known—suggested in its rolling beats the magnified drumming of a partridge. To Billy's ears, as he stalked through the covert where for years, perhaps, he had known no partridge rival, the *thump-rup-rup-rup* that came to him from the distance doubtless could mean nothing but the taunting challenge of a giant foe—all the more alluring by reason of his evident size and power.

How otherwise can we explain that when Mr. Armstrong drove his tractor down the woods lane that led to the potato field, all unsuspecting of the presence of a partridge within miles, out ran Billy from the underbrush, crest up and ruffs extended — all bristling for a fight? Nothing else could coax him from his retreats; but when the tractor was running nothing could drive him away! So all Mr. Armstrong had to do, when he wanted to exhibit his extraordinary bird to friends, was to back the tractor from its shed and ride it down the lane. The friends, following in the rear, seldom failed to enjoy the unusual experience of seeing a wild partridge, not only absolutely devoid of fear, but actually permitting itself to be picked up and handled in a manner to which even a domestic fowl would not submit.

Upon two occasions several of us visited the Armstrong "farm," which is what the owner prefers to term the country estate near Schenectady, where he indulges his hobby in the intervals of scientific research for the General Electric Company.

At both visits Billy gave us his full line of tricks. The first time, as we trailed behind the pulsating Steel Mule, it was almost uncanny, when we had arrived in the neighborhood where we were told we might expect the partridge at any moment, to turn and see him hastening after us in the roadway. Then the fun began. Our host, who knew just the best way of handling the bird, descended from the seat of the tractor (though purposely letting the engine continue to run noisily) and, bending down, he talked to Billy, then

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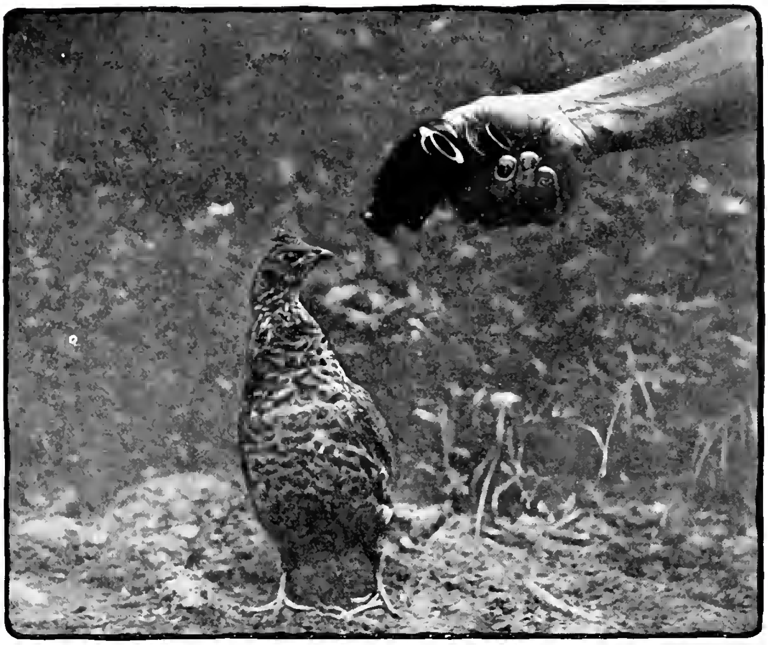
gently raised the bird on his wrist. Returning to the driver's seat he started the machine and for a while drove with the partridge riding with him—standing sometimes upon his shoulder or arm, sometimes upon the steering wheel. Meanwhile Mr. Armstrong kept up a constant talking or whistling to his pet-from-the-wild. Billy answered with a craking sound, similar to that sometimes made by hens, but so low that it could be heard only at close range.

Mr. Armstrong explained to us that

BENDING DOWN HE TALKED TO BILLY.

DROVE OFF WITH THE PARTRIDGE RIDING WITH HIM.



HE GAZED INTO THEM IN TRULY LUDICROUS FASHION.

Billy was always a little nervous at first, and it was well for a familiar person alone to handle him, but that within a few minutes he would be so self-possessed and free from fear that the rest of us could play with him about as we wished. And so it proved. We all picked him up, and stroked him, and looked into the depths of his wild, free eye—for it was surely the eye of a wild, free creature, even though he was momentarily a captive. We all admired with delightful intimacy his glossy black ruff and the rich brown bars upon his plumage; and we took notice especially of his clean, gray feet.

When upon the ground Billy displayed a playful combativeness that kept us in constant laughter. He would pluck at our trousers with his bill, and peck vigorously at any hand that was extended toward him. Into a pair of field glasses that were held before his eyes he gazed in truly ludicrous fashion. As for taking photographs of him, while on the ground, with the Graflex camera, it was well nigh impossible. He wanted to "fight" the lens and, with arched neck, he would closely follow the camera, while the photographer vainly attempted to back away a sufficient distance to get the bird in proper focus.

Our watches, our keys and penknives were all brought into use as playthings, and each provided fun. A farm-hand, returning from the field with his team, was hardly noticed by Billy, who simply stepped to one side to let them pass. But when Mr. Armstrong's airedale terrier came romping down the lane in search of his master, the partridge at last seemed suddenly to awake to his normal instincts and hastily disappeared into the woods. We did not try to call him out again, feeling that he had already been generous enough in the thrills with which he had provided us and deserved a well-earned rest from our further attentions.

Dr. Robert Cushman Murphy, for ten years a member of the staff of The Brooklyn Museum and Curator of the Department of Natural Science since April, 1917, has resigned in order to accept the position of Associate Curator of Ornithology in The American Museum of Natural History. In his new work the greater part of his time will be devoted to a study of marine birds. The work will include both the preparation of reports upon the museum's present collections and the carrying out of extensive field investigations in the South Pacific.

A Mixed Family.

BY MARY D. BARBER IN "OUR DUMB ANIMALS," BOSTON.

The wolf shall dwell with the lamb some day, the Bible tells us, but here is a story of something equally strange that has already happened—a cat nursing baby squirrels—strange, because squirrels, like rats and mice, are the natural prey of cats.

MOTHER CAT WITH SINGLE KITTEN ADOPTS THREE SQUIRRELS.
Illustration and article from "Our Dumb Animals."

This remarkable cat, "Tigress," was a native of San Anselmo, California, where she had lived for ten years as a household pet in a cottage overshadowed by large bay trees in which the gray squirrels built their nests. All these years she had hunted them, but only occasionally had she caught and eaten one, for they are alert, wary creatures, whose prominent, bead-like eyes seem to see in every direction at once.

In May, 1919, Tigress was nursing her spring kitten when three baby squirrels, orphaned by the death of their mother, were saved from starvation by a boy who climbed up to their nest, brought them down and placed them in the bed with cat and kitten. Tigress instantly adopted the little strangers and from that moment caressed and nursed them with the same tender care that she bestowed upon her own kitten. She took especial pride in licking out their long, fluffy tails, probably thinking they were Angora kittens, as she was acquainted with an Angora cat that lived in the neighborhood.

The little squirrels, Tip, Tim and Spunk, enjoyed playing with "Amber" the yellow kitten, but she, being larger and stronger than they, would sometimes knock them down with a stroke of her paw and roll them over on the floor in an amiable tussle. But the squirrels were the more quick and active. When Tigress was standing they liked to play a game, jumping over her back, each following the other in rapid succession, and repeating the act over and over like a kind of hurdle race. The kitten would look on enviously till the performance was ended, waiting for some amusement in which she could join.

Later the foster-children caused poor Tigress much anxiety by their strange actions. The squirrels' nature asserted itself; they left their bed on the floor and climbed up to a high shelf beyond her reach. However, as soon as she came into the room and said, "Mew! mew'" down they came to greet her. She was much grieved and distressed because they took no interest in dainty morsels, such as a young and tender mouse or gopher which she brought for their dinner.

One night when Tigress returned to her family, one of the squirrels was missing. She searched the room in vain and finally went out of the window and disappeared in the darkness. An hour later in she jumped, having found the lost baby, carrying it carefully in her mouth.

After a couple of months this happy

mixed family had to be broken up, and the squirrels were given to kind friends who had known and loved them. Poor Tigress was disconsolate. She refused food, and went about for days looking everywhere for her lost babies. She seemed to have loved the little squirrels more than she had ever loved her own kittens.

Notes from Naturalist Walker.

Chattanooga, Tennessee.

To the Editor:

I had a rather unusual experience last week while walking over the McCallie Avenue viaduct leading into Chattanooga. A few acres of ground beneath were covered with a thin coat of ice. The sun was shining brightly and a beautiful rainbow appeared in the ice, just as large and as distinct as the ones we so often see poised in the midsummer spray. One end was directly beneath our feet and it followed us until we walked beyond the ice. Thus far I have never heard of any one seeing a rainbow in the ice.

Tennessee has now a state flower. At the meeting of the State Horticultural Society in Nashville last week, they adopted the maypop or passion flower (*Passiflora incarnata*). This is one of the beautiful wild flowers and grows throughout the state.

Robert S. Walker.

An Ice Storm.

Last night a forest of twigs
Silhouetted against the sun;
This morn, in the dazzling light,
A chaplet of gems, each one.
—Emma Peirce.

Nature Specimens Wanted.

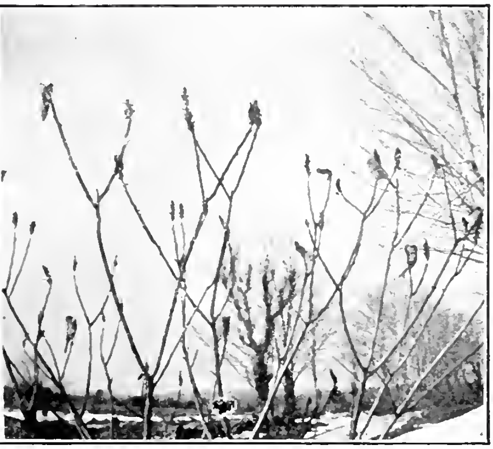
The "New York Nature Chapter," No. 1074 of The Agassiz Association, asks its fellow members, in Chapters or individually, who live in the country, please to contribute to the collection of that Chapter any surplus specimens, either living or dead. Please address specimens to Miss Helen Smith, Curator of Collections, 463 West 144th Street, New York City.

An English naturalist reports the case of a cat to which was given a newborn rat, shortly after all its own kittens except one had been taken away. The cat at once adopted the little rat, "cleaned, fed, fondled, tended it," and treated it exactly like one of its own young. Previous to this experience, the cat had been a noted ratter. Afterwards it hunted rats no more.

Tame Pine Grosbeaks.

Mr. Clifford Cronk, Monterey, Massachusetts, a Member of The Agassiz Association, sends the interesting photograph of a large flock of pine grosbeaks here shown. Although the picture was taken with a small camera, a large number is shown though not very clearly. It will be seen that the trees, shrubbery and the ground are pretty well covered with these beautiful tame birds. Mr. Cronk says that he approached to within six feet of them, and found them busily eating the seeds of the sumac on which they were perching.

REDPOLLS.



PINE GROSBEAKS.

TO KNOW THE STARRY HEAVENS

The Heavens in March.

By Professor Samuel G. Barton of the University of Pennsylvania.

TO northern observers the most widely known constellation is Ursa Major, commonly known in America as the "big dipper." Scarcely less well known is the constellation Orion. The Pleiades are perhaps as well known as either, but this group is not a constellation but only a part of the constellation Taurus. As Ursa Major and Orion are now about equally well located we may profitably make a few comparisons of the constellations. Each constellation contains seven conspicuous stars, in Ursa Major those which form the dipper and in Orion the three in a nearly straight line in the middle of the constellation and the four which make a rectangle about them. See Figure 1. Each constellation contains many other stars. First we may compare the brightness of the stars. Beginning with the end of the handle of the dipper the magnitudes of the seven stars in Ursa Major are 1.9, 2.4, 1.7, 3.4, 2.5, 2.4, 2.0. The magnitude measures the brightness of the star, the small magnitudes representing the brighter stars. In Orion, Betelgeux, the star at

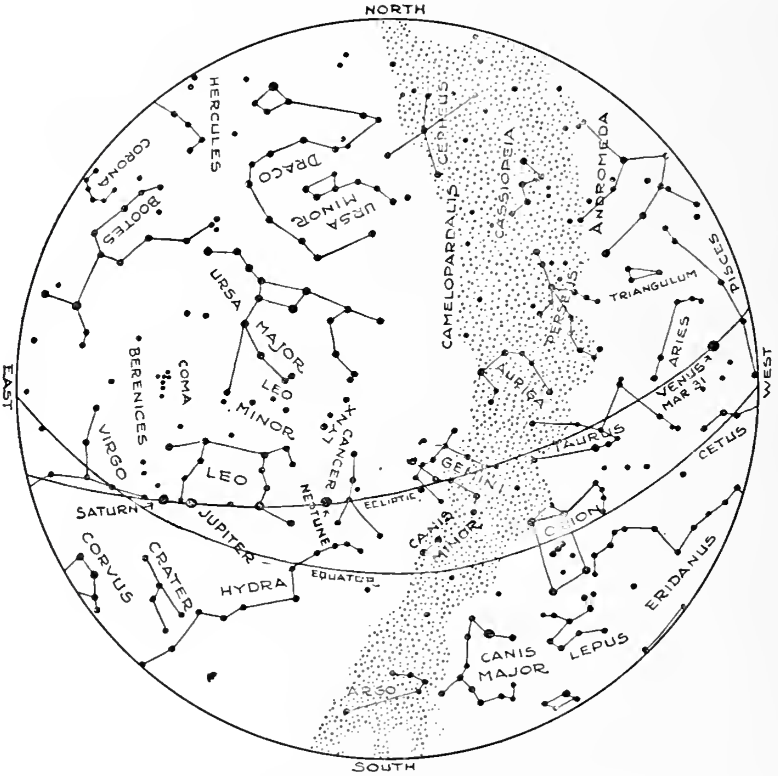

NORTH
SOUTH
EAST
WEST
HERCULES
CORONA
BOOTES
DRACO
URSA MINOR
CEPHEUS
CASSIOPEIA
ANDROMEDA
CAMELOPARDALIS
PERSEUS
TRIANGULUM
PISCES
ARIES
VENUS MAR 31
URSA MAJOR
LEO MINOR
COMA BERENICES
LYNX
AURIGA
TAURUS
CETUS
VIRGO
LEO
CANCER
NEPTUNE
GEMINI
ECLIPTIC
SATURN
JUPITER
CANIS MINOR
ORION
CORVUS
CRATER
HYDRA
EQUATOR
ERIDANUS
LEPUS
CANIS MAJOR
ARGO

Figure 1. The Constellations at 9 P. M., March 1. (If facing south, hold the map upright. If facing east, hold East below. If facing west, hold West below. If facing north, hold the map inverted.)

the northeast corner, is a variable star whose magnitude changes between 1.0 and 1.4. The star at the northwest corner is of 1.7 magnitude. The stars at the southeastern and southwestern corners are respectively of 2.2 and 0.3 magnitudes. The three stars in the middle of the constellation commonly known as the belt of Orion are from east to west of 2.0, 1.8 and 2.5 magnitudes respectively. It may thus be noted that the average magnitude of the seven bright stars in Ursa Major is 2.3, while the average magnitude of the seven in Orion is 1.7. Orion has two stars brighter than any in Ursa Major and a third equal in brightness to the brightest of Ursa Major. It is thus seen that Orion exceeds Ursa Major in brightness as it does all other constellations.

Next we may consider the positions of the constellation. Ursa Major is a North Polar constellation. Two of its stars, "the pointers," are usually used to locate the north star and the pole. As a polar constellation it is above the horizon at all times for most northern observers. For observers north of forty degrees north latitude none of the seven stars ever set. We must go as far south as twenty-eight degrees north latitude before the whole seven will be found to set. This fact that the stars are nearly always visible in our latistudes helps greatly in making the constellation familiar to us. But observers south of twenty-eight degrees south latitude never see some of the stars in the dipper. What is our gain is their loss.

Orion on the other hand is an equatorial constellation. The equator passes through the middle of it. For this reason it can be seen only half of the time at any place on the earth, but there is no place except in the uninhabited regions near the poles where the whole constellation cannot be seen. Orion is at its best at the equator, where it can be seen overhead. Ursa Major is nearly overhead in the latitudes of the United States. It is in this position in the early evening in the warm months of the year. Orion is visible here in the early evenings during the winter months. Ursa Major is easily described by comparison with a dipper. Orion is not easily described, but it is hard to see how one who has once known it can easily forget it. Observers too far south to see the Ursa Major fill its place with a constellation Crux, the southern cross, very familiar to them but not to us, for we never see it.

* * * * *

The Planets.

The position of Venus cannot be shown on Figure 1 for the beginning of the month, but its position at the end of the month is shown. The planet is brightest on March 16. Throughout the month it will be a splendid object in the early evening in the southwestern sky. It is so bright that it may be seen easily, even at high noon, if one knows just where to look. It is hard to locate on the bright background of the sky, but not hard to see when located. Since the planets and their satellites receive the light which they give to us from the sun, they have phases. It is only possible, however, for the planets which are closer to the sun than the earth, Mercury and Venus, and our moon to have the crescent phase. Mercury and Venus have no satellites. Venus is now of a crescent shape like the new moon. Although Venus shows all of the phases like the moon, there are some very great differences, as might be expected, as the motion of Venus is about the sun and that of the moon is about the earth. Some of these differences are these: The brightness of a body depends both upon its distance from the sun and the earth. Neither of these distances change greatly in the case of the

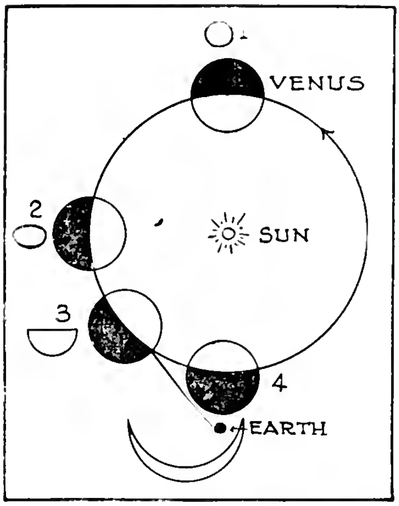


Figure 2. The phases of Venus.

moon. The distance of Venus from the sun does not change greatly, but its greatest distance from the earth is six times its least. For this reason the apparent size is ony a sixth as great. The facts are illustrated in Figure 2.

In Position 1, when Venus is farthest from the earth, the face illuminated by the sun is turned toward the earth and Venus is "full," as shown in the open circle. But being in nearly the same direction as the sun, we cannot see it, and, if we could, it would not be very bright, as it is far from us. At 2, being nearer, it looks larger, but we cannot see the whole disc, as the whole illuminated face is not turned towards the earth. Venus is then gibbouns—that is, more than half of the disc is visible. At 3, at elongation, Venus appears still larger, but only half of the illuminated side can be seen from the earth and Venus looks like the quarter moon. At 4 the illuminated face of Venus is turned away from the earth and Venus is new. Near this position we see a very narrow crescent as shown, but Venus is then very close to us, so that this crescent is part of a very large disc and hence may be brighter than the full circle at 1. It happens that Venus is brightest between Positions 3 and 4, when its shape is that of the moon five days old. The proportion between the size of the crescent and the full circle at 1 as drawn as accurate. When the moon appears in the west, it is a waxing moon, but Venus in the same position is waning as to shape, but not necessarily in brightness. Conversely in the east in the morning.

Mercury may be seen in the east before sunrise the last few days of the month. By passing opposition March 4, Jupiter becomes an evening star, and will soon supplant Venus as the conspicuous evening star. Saturn similarly becomes an evening star March 12. The earth is now on the same side of the rings as the sun, and these may be seen as a narrow needle of light extending outward from the disc.

The sun crosses the equator March 20, 10:51 P. M. This marks the beginning of spring.

It is announced that Slipher, of Lowell Observatory, has found that a spiral nebula in Cetus is moving away from us with the enormous velocity of 1240 miles per second. It has been known for some time that spiral nebula move with great velocities (or else we do), as great as 500 to 700 miles per second. This is the greatest velocity found anywhere. Why these enormous velocities exist in this class of bodies is still unexplained.

* * * * *

Betelgeux.

Last month we mentioned the fact that the diameter of one of the stars, Betelgeux or Alpha Orionis, had been determined. It may be further explained that the diameter of the sun, planet, etc., is determined by measuring the angle which its disc subtends. When this angle can be measured and the distance is known it is easy to calculate the diameter in miles. The stars, however, are so far from us that the discs are too small to measure. When seen through a telescope stars show a spurious disc due to the diffraction of light the size of which decreases with larger telescopes. Unless the real disc was larger than this its size could not be determined by ordinary means. Hence heretofore we have been unable to actually determine the diameter of any star. It has been possible to calculate the diameter in some cases, such as in eclipsing binaries. Recently the diameters of some of the stars have been predicted upon the basis of their spectrum and other characteristics. Both Eddington and Russell predicted the diameter of Betelgeux before the actual measurement with considerable accuracy. Both believed it to be a very large star, and this led to its selection as a trial star. Other stars suggested as large by Russell are Antares, Aldebaran and Arcturus. All are reddish stars. That Betelgeux is large is a confirmation of the theory of evolution of stars, which claims stars are red both near the beginning and end of their existence. For the development of this theory Russell has just been awarded the gold medal of the Royal Astronomical Society. Lack of space prevents a further discussion of this theory now.

A halo of beauty hovers
  Round everything that grows,
But is only fitted to it
  By one who sees and knows.
—Emma Peirce.

A Poetic Soul Breaks Loose.

A contributor on the Pacific Coast, whose interest was aroused by the recent reproduction in our columns of the Albuquerque reporter's noble efforts to tell his readers what the speaker had said about the make-up of the universe, sends us a gem of slightly different sort. This, so far as we can judge from the clipping, is a voluntary contribution by one of the subscribers of some very small-town weekly. He is so proud of his literary ability that he signs his name. If his excursion among the wonders of the world had operated to still his pen as well as his tongue, the world would indeed have been the poorer. We reproduce his effusion faithfully:

"It is said the astronomer Homer sang and worshiped these same stars, and may not come we, every thirsty inquiring mind, let us venture into the realm of the velvet blue above what wealth what beauty is in store, see your beautiful evening star one of the most beautiful of the planets how I love to gaze upon her she bears me through infantude my imagination soars aloft. I have visited some of natures wonders of great views, have looked from top of Lookout Mountain on bottom of the great Atlantic through Mammoth Cave beneath the thundering Cataract of Niagara Falls which so filled me with wonder and admiration as to make me speechless. But all of these are tame compared to the relevations brought to me of the beauties of heaven at night through a telescope."—The Scientific American.

That Moon Photograph.

(See "A Good Observation," page 98, November, 1920, issue.)

Andover, Mass.

To the Editor:

The reversal of holes to projections, which your Scout noticed in pictures of the moon, is likely to occur with any unfamiliar object, the picture of which is sharply black and write. The reason is that we always interpret the picture of a hole by the fact that the shadow is on the up-light side, and the picture of a projection by the shadow on the down-light side. If we are familiar with the sort of objects represented, we know which is which, and we interpret correctly. Or if there is in the picture a good deal of half-tone, neither dead black or dead white, this gives us the hint, and the eye interprets the rest to agree.

But where both these aids are lacking, as sometimes in pictures of the moon, the eye simply guesses—and as often wrong as right. I have often noticed this in lantern slides. A series of pictures, all taken with the light coming, let us say, from the right, is followed by one in which the light comes from the left. The eye has the right-hand-light habit more or less fixed. It will, then, almost always with pictures of the moon, reverse the first left-hand-light picture, and usually the second. This is especially the case if there is a little light in the room itself, coming the wrong way of the pictures. Under these conditions, I have had virtually an entire class reverse the same illustration.

Turning the picture upside down, of course, makes the lighting correspond with the habit and the real surroundings. Or if the interpretation was correct at first, turning upside down may make it go wrong. Often when the first guess is wrong, this sticks so firmly that the picture refuses to go right at all. I think, however, that only geometrical designs with conventionalized shadows are likely to be thus persistent; and these have really no right or wrong. At any rate, a familiar scene never reverses.

Edwin Tenney Brewster.

Suns of Night.

BY CHARLES NEVERS HOLMES, NEWTON, MASSACHUSETTS.

Like diamonds sparkling clear and bright
  Amid an ebon dome,
At twilight wake the Suns of Night,
  And shine where'er we roam;
Where'er we roam, where'er we be,
On foreign strand or foreign sea.

Some sparkle with resplendent light,
  Some twinkle with dim rays,
Some shine like beacons clear and white,
  Or burn with ruddy blaze;
But all seem like bright, sleepless eyes
Of divers sorts and divers size.

And all are monarchs of the night,
  Yet each king reigns alone
O'er silence, space and satellite,
  Upon a flaming throne;
O'er silence, space and satellite
Until King Sol puts them to flight.

The hill is crowned with gold
  By the newly risen sun;
Thus in poetry we're told
  The new day has begun.
—Emma Peirce.

EDITORIAL

The Great Desecration of Nature.

At present there is staring the American people defiantly in the face the greatest desecration of nature that the world has ever known. In voicing and emphasizing this fact that everybody knows we make no accusation against any one. We are speaking from the naturalist's point of view. We believe that the present coal situation is not only a desecration of Mother Nature's bountiful supply but a fiendish mismanagement and an outrageous swindle of defenceless human beings.

There is no supply that Mother Nature has more bountifully provided than the supply of coal buried in the depths of the earth where the ravages and extravagances of mankind could not easily use it all within a short time and leave future generations coalless with the inconceivable and unthinkable loss and suffering that would necessarily follow. Nothing more plainly shows design on the part of the Creator than these two things, the supply of coal and the difficulty of accessibility. It is evident that both capital and labor, good method of transportation and good distributing centers are required to make this bountiful supply readily available. But look at the situation. It is not a result of the war. It is not a matter of one year or another. It is a matter of outrageous, contemptible design on the part of certain persons for a series of years. It is not the mission of the naturalist to locate the fault nor to tell how it should be remedied, but as we consider this great providential supply of nature we believe that no other question at present stands so clearly before thinking men and women and demanding immediate solution as does this question of coal supply.

Nowadays in astronomical circles we have been hearing much of the doctrine of relativity, the thought being that size, motion, etc., depend upon the relation of one thing to another. From the point of view of such relation this outrageous mismanagement of the coal supply has been for a long time rapidly hoisting Messrs. John D. Rockefeller of the Standard Oil Company and all connected with that great, so-called monopoly away up into the realms of fame and appreciation. If one were fully to express the depths of degradation into which this coal business has fallen, the contrast would canonize John D. Rockefeller and all his associates.

A few years ago we heard many complaints of Mr. Rockefeller. He has outlived that. He has proved by his innumerable gifts to charity, education and religion that when there is a surplus profit in oil he makes good use of that profit in the great cause of humanity. Who ever hears of a shortage of transportation, who ever hears of a strike of employees of the Standard Oil Company, who ever hears any jarring or discordant note? Everything goes as smoothly as oil itself. On this doctrine of relativity we hold up the Standard Oil Company as a bright and shining example. The business is handled in a businesslike manner, the price is kept within reason, and the managers make good use of any extra profit they may receive.

But, ye gods, if one were to express himself fully on the coal situation it would make the linotype machine too hot to set the type for this article and would require the addition of several new words to the biggest dictionary ever issued. Now men who know or should know may well pause over many questions alleged to be pressing—the League of Nations, the Russian problems, our relations to Japan—and consider that the one great problem for the United States to solve is this coal supply question.

The government controlled the mines during the war and made a mess of the business, as it did also of railroads, telegraph lines, express companies and several other things. The government is or should be a business institution. In any other business institution when a certain set of workers are doing their work especially well, or at any rate better than those of other departments are doing theirs, the logical method is to assign the work to the workers who have best demonstrated efficiency. Perhaps it is in more than a joke that we suggest the coal mines be given to the Standard Oil Company. Practically and theoretically most of us are not in favor of a monopoly, but here is a case where not a theory but a condition confronts the country.

There is, however, one redeeming, bright spot in the whole situation. There seems to be no fault on the part of local coal dealers. They are fellow sufferers with consumers, and perhaps from a financial point of view suffer even more.

* * * * *

This partly jocose suggestion that the coal mines be given to the Standard Oil Company may also be a sort of emblematic prediction of what is really going to happen—oil taking the place of coal as fuel. "The Literary Digest" for February 19, 1921, contains an almost startling article, "Coal Doomed by the Coming Age of Oil." This predicts that such an age is not only coming but is really here. In a quoted article by R. P. Hearne in "The Sphere" (London) this statement is made:

> "Within ten years the power monopoly of coal will be broken, and it will be broken not by political or economic methods, but by the arrival of a new fuel which will displace coal. Long before our coal measures are exhausted coal-mining, as we know it to-day, will have ceased, and the coal strike will become as obsolete as coal itself.
>
> "These may sound daring prophecies; but every rise to-day in the price of coal, and every coal strike and threat of coal strike, is hastening us toward the earlier realization of my statements.
>
> "The age of liquid fuel has already commenced, and we are only at the beginning of immense technical, industrial, and social developments. Already road motor-transport has become a rival of the railway, and already, by this altenative means, the railway strike is robbed of its power to cripple the community. The road motor has broken the power of the railway strike. Liquid fuel will soon break the power of a coal strike to paralyze the activity of the community. For this reason alone the coming of liquid fuel will be a great social boon."

The article contains astonishing illustrations of the world's oil supply superior to that of coal.

Here's hoping the Standard Oil Company won't let the coal managers (?) get hold of this supply.

Nature, Science and Sportsmen.

"The last shall be first, and first last." In other words, there are astonishing anomalies in this world and quite frequently things go contrariwise to what one would naturally expect. In one's own affairs frequently what seems at the time to be the greatest misfortune turns out to be the greatest of blessings. The same is true in the affairs of nations. Horrible, cruel, devilish as is war, it is in the long course of historical events clearly evident that wars have improved and advanced civilization. Can there be a greater anomaly than that—savage war improving civilized nations?

With this little bit of harmony—or rather shall we call it discord—I want to go back to my boyhood and bring to the reader some thoughts that have more and more impressed themselves upon me, many of them in spite of my own wishes. It has been truly said that every boy is a savage. I am sure that I was preeminently so. I was a vigorous illustration of that saying. Added to my own natural instincts for killing something was the active stimulus made more urgent by the need of earning pocket money. A gun, my dog, my snaring and fishing equipments were the dearest of all my possessions. Never was I so happy as when I was ruthlessly killing every kind of quadruped and bird that came in sight. I made no exception of our song birds, notably the robins, because for years I had a standing order from an invalid relative to supply something of wild life for broth every day or two, and when I could not get a squirrel or a rabbit or a wild pigeon I selected larger song birds. I knew no limit and desired none to the shooting and snaring slaughter. My happiness was measured by the extent to which the game bag was filled. I had permission from the family and from the neighbors to snare, trap, hunt and fish on all the premises in the vicinity and I exercised that liberty to the utmost and without hesitation. All my spending money, indeed the money with which to buy a suit of clothes when I left the farm to enter the village school, was the result of snares and gun.

Supplementing this income was what in those days was regarded as liberal pay, some two dollars a day, as guide for city merchants who came on hunting trips to Colchester, Connecticut. Although I was an ardent sportsman yet I did not think of myself by that name because, with all the power I possessed, I hated the term "sportsmen." Sportsmen were the ones who I thought were interfering with my liberty. They were passing laws restricting the use of snares and announcing the times of year when game might be shot. I defied all such laws and received a special price for game obtained out of season. I did not suppose that to be wrong but on the contrary to be praiseworthy because skill was needed to accomplish it.

What business had those city sportsmen to restrict my liberty or to prevent me from shooting everything on my father's farm and those of my neighbors who were kindly interested in my successes? I grew up hating the very word sportsman. In all that carnage and reckless shooting there is just one bright, redeeming spark. It made me a naturalist and illumined the path forward that led me to the study of biology. But from an entirely different point of view than that I held in my boyhood I am still hostile to sportsmen. I cherished the delusion that I had cast away my savage, brutal hunting instincts and had become a decent member of human society. I had, as I thought, put aside the gun to take the camera and the field glass. Instead of the game bag I had a notebook. But unfortunately I transferred into this new mental situation a good deal of the old spirit of superiority. The farms were ours. What right had any one to interfere? I was "It" in that region. What right had the sportsmen to come there to shoot or fish? Later I thought, perhaps in the spirit of repentance for the slaughter of which I had been guilty in my boyhood, to keep pets of all kinds and to attend them with assiduous and loving care. Here again came another anomaly in which things went contrary to what I anticipated. I so thoroughly loved these pets that I looked with horror upon any one who would use them for experimental purposes, but later I learned that the vivisectionist is humanity's and the lower animal's best friend. He does not limit his experiments to benefits to the human race. But that is another question about which I shall hope sometime to have something further to say.

To go back to the question of the sportsman. There is one consolation in reviewing my own boyhood. I was not so very bad a chap after all. I was only following the custom of a good many boys and men who get hold of a gun. They seem to believe that a thing worth doing at all is worth doing to an extreme. There was just one reason why I did not exterminate all the game in my neighborhood and all the song birds. The task was too great for one boy, and luckily for the animals there were in that region not many other boys or hunters with my bloodthirsty instincts. As I have grown older I have discovered that the only ones who had any thought for the preservation of the animal life of Colchester, Connecticut, and its vicinity were those city sportsmen that I so hated as also did most of the farmers.

I cannot recall a single farmer who had any regard for conserving wild life and game. Perhaps that was an exceptional community and perhaps it was not. At any rate, recent years have brought the truth home to me that it is the sportsmen and the game association and the game wardens and the fish and game commissions of the cities that are the real lovers of wild life and its real protectors. We who love nature from the aesthetic and educational points of view should hail with delight and get busy in cooperation with those who are doing real practical work of conservation. The whole is greater than the part and the whole of wild life is tremendously benefited by the sportsmen who shoot a few. They know better than I knew that there should be a limit to killing, that it is not wise to kill the goose that lays the golden egg. Some of those who do a deal of talking about the lovely four-footed animals and the dear birds and kindness and gentleness to all of God's creation would do well to affiliate themselves with the organizations for the protection of game and fish. Such societies are holding the restraining hand on the destructive imps like me and all of that ilk, young or grown-up.

The Remedy is Outdoor Interests.

I have noted that within the past few weeks the daily of Stamford and the two weeklies of Greenwich, as well as local papers throughout the state and indeed occasionally a New York paper, have been protesting against the type of motion pictures offered for children's daily fare. These publications have lamented not only the bad quality of the pictures but the perniciousness of packing children into crowded halls be the picture good or bad.

Undoubtedly every one will agree that a large part of the stuff presented on the screen is not fit for children. That even the managers agree with this statement is evident because they sometimes advertise something especially for the children, and on such occasions, let it be said to the credit of the theatres, the children do get something really good and worth while.

Several of the lamenting publications advocate that the children be outdoors engaged in play and other activities, that more attention be devoted to the playgrounds and to the systematic management and oversight of these playgrounds. Therein is the error. The very fact that children beg to go to the movies shows that they crave mental as well as physical interest, and it shows also that the mental interest is superior to the physical interest, making the motion picture house a greater attraction than the playground.

We are too much accustomed to think of the child as a little animal, forgetting to a great extent that it is a little thinker and sharply observing seer. But the child will see, hear and think whether the adult wants it to or not. Right here is the danger for the child if it goes wrong and the benefit if it is guided aright. No one ever heard of a child lowering its moral tone by athletic and playground activities. It is when children hear bad talk or see bad pictures or talk of bad things among themselves for lack of anything better to talk about that the deviltry comes in.

When every one admits that the realm of the child is in God's great out of doors why are so comparatively few people ready to couple up that outdoor existence with mental activity, with seeing, thinking and talking? There are but few organizations that recognize this prominent fact and chief among these is The Agassiz Association, worldwide in its interests, with headquarters at ArcAdiA, Sound Beach, Connecticut. Forty-six years ago Mr. Harlan H. Ballard of Lenox, Massachusetts, with a wisdom far beyond that time or even the present time, saw that the child's chief dominion is in seeing, hearing and thinking, and that therein is the greatest danger if the child goes wrong. It is for the purpose of guiding observations and thoughts into what John Greenleaf Whittier calls the real fairylands that The Agassiz Association was established, and its work has steadily though slowly grown all these years.

Now the well meaning editors will not be able to reform the movies until the general consensus of adult opinion wants them reformed, and the movie managers will put on a picture really worth while for the child only as frequently as they think it will be a paying proposition and no oftener. But you local educators and philanthropists agitating your brains what to do for the children, you are cordially invited to turn your attention directly to The Agassiz Association. It has solved the problem and is continuing to solve it, not with a great flourish of trumpets but in its own quiet methods of work, ignoring the references to it now and then as a petty hobby or a fanaticism. Some of you are, like the man in "Pilgrim's Progress," gathering with a muckrake a few straws (of reform and movie improvement) while an angel is holding over your heads and those of the young folks you wish to benefit a great golden crown of the radiating sunshine of outdoors.

A comparatively few discerning, thinking and charitably disposed persons have caused ArcAdiA to grow from a simple little building in a back yard to the present equipment of some dozen buildings and several acres of ground. Yet, astonishing as it may seem, there are still well meaning workers in child welfare and adult welfare of all sorts and kinds except this most natural of all who look with quizzical expression as they visit our premises and inquire, "Why, what is all this for?"

Dearly beloved friends, it is for just the thing you are trying to get, and I wish you would tell me some way by which you can be shown in your blindness, deafness and dumbness that here is the thing you are searching for and do not seem to know how to reach.

But in sharp contrast on the other hand blessings on the heads and hearts of our chosen band of the select few who by their memberships and contributions have seen that here is the hope for coming generations. God speed the day when it shall grow into a greater university and a hundred per cent of usefulness and benefit to all humanity.

At a recent public meeting in the interests of education held in the Town Hall of Greenwich, a prominent philanthropist said to me, "You and your work surely deserve the approval of everybody because you have shown how to get interest and entertainment in the simple things of the world around us."

That kind-hearted man was only partly right. We deserve more—a check.

To Live is Greater Than to Get a Living.

The Agassiz Association stands not for any fad or hobby but for ideals. It believes that it is more important to teach youth how to live than to teach them how to make a living. In other words, we believe that the great thing to do in this world is to see and to tell in good form what is seen. In that belief we have struggled on for forty-five years and shall go on in the same way for all time. We have been criticized as living too much in the ideal, for dealing more in the interests of a plant in the garden than in the cooking of that plant. We care more for the boy or girl, the man or woman, who raises that plant than we care for its price in the market. We have steadily and stoutly maintained that our schools incline too much toward the utilitarian. We believe it to be an error for anybody to say, "Do not put in nature study. That is too ideal. Our young people must be trained to make a living They must be early introduced to the shop or the office." Strictly speaking the two things should never be compared. A comparison is made not to exclude utility but to emphasize more strongly the ideal.

We are therefore delighted when President Nicholas Murray Butler of Columbia University in his annual report of December 4, 1920, strongly emphasizes the ideal as vastly superior to the utilitarian. This quotation from the report is the gist of President Butler's praiseworthy opinion. We heartily commend the report in both its educational and religious aspects. Every school and every church will find or should find inspiration. In the matter of education, President Butler says:

"Both school and college have in large part taken their minds off the true business of education, which is to prepare youth to live, and have fixed them upon something which is very subordinate, namely, how to prepare youth to make a living. This is all part and parcel of the prevailing tendency to measure everything in terms of self-interest. Economic explanations of the conduct of individuals, of groups and of nations—that is, explanations based upon desire for gain or love of power—are sought rather than explanations based upon intellectual or ethical foundations. But a civilization based upon self-interest rather than upon intellectual and moral principle would swiftly lapse into the barbarism out of which it has come. An educational system based upon self-interest is not worthy the support and the sacrifice of a civilized people."

Personality School and Camp.

On Cape Cod, with rolling waves on both sides and the best of seashore air, at Brewster, is located Sea Pines School and Camp of Personality. The property includes more than one hundred acres of open fields, pine groves, rambling walks and drives and a long beach frontage. It is an ideal location for school and camp and both purposes are accomplished by their sessions—a first term beginning in September, a second in April and a third for the camp and school beginning at the last of June. There is no session of the school in midwinter, thus affording an excellent opportunity for the pupils to go South with their parents or enjoy their homes. The motto "personality —

plus"—really means something. It harmonizes well with the idea of The Agassiz Association that real education consists in thinking out one's own problems and responsibilities. The girl is assisted by others as is a Member of The Agassiz Association but not machinelike, and does not merely follow instructions and formulae devised by others. We take the following quotation from the school announcement:

"A girl's sense of woman's responsibility to laws, her recognition of woman's relation to current events, her appreciation of things that make her think, not simply remember, are best evidences of that costly human attainment—a girl's education.

"A good education involves great expenditure of energy; it takes all the time, strength, and self-denial one is capable of giving. Vicarious information can never save from fatal ignorance. Knowledge must be one's own, if it shall save the day when unexpected tests come."

The editor of this magazine has visited the school and the summer camp. Last spring a Chapter of The AA was formed from which we shall expect good things. The environment is ideal for a seashore camp and the management is peculiarly effective. We cordially recommend Sea Pines at Brewster, Massachusetts, as a good school and a good camp.

He who has learned to love an art or science has wisely laid up riches against the day of riches; if prosperity come, he will not enter poor into his inheritance; he will not slumber and forget himself in the lap of money, or spend his hours in counting idle treasures, but be up and briskly doing; he will have the true alchemic touch, which is not that of Midas, but which transmutes dead money into living delight and satisfaction.—Robert Louis Stevenson.

Thus, the older a man is, the more he must depend upon his own hygienic sagacity for health and long life. The lives of almost all the centenarians I could find have shown that they owe their longevity far more to their own insight than to medical care; and very likely there is a far greater individual difference of needs than medicine recognizes as yet. — "The Atlantic Monthly."

Now Let Us Really Live.

The war and the election are over and we have Woman Suffrage and Prohibition.

What an immense amount of time and expense has been put into these causes which after all are not ends in themselves but ways and means to what the advocates regard as a higher and better plane of living and of civilization.

Let us give a little more attention to education. Let us really enjoy the better America for which we have worked and struggled.

Isn't it strange that so much time and effort are devoted to getting ready to live? As one looks back over progressing civilization one is astonished to perceive how much time has been devoted to improving the situation or the earth as a place of residence and a place of association with one's fellow beings. We wonder if these problems of housing, food and social conditions will ever be settled. Some of them have been settled and it does seem as if in the future not so many great adjustments will be necessary.

One fact is plain. We are here on this beautiful earth with a multiplicity of interests and surroundings. We are to stay here at the longest for only a few decades. Let us devote more thought, energy and time to the appreciation of our environment.

Would it not be strange for a party to visit Rome or Egypt or the Holy Land and devote all the time or ninety-nine per cent of it to the ways and means of travel, to the settling of disputes with other members of the company, to arguing about the past and the future, to talking long and loud about a thousand and one minor matters, and devoting a small per cent to the real seeing and enjoying of Rome, Egypt and the Holy Land? We now are in Rome, Egypt and the Holy Land but is not our party neglecting the real purpose of our visit? We are not an imaginative party traveling to imaginary resorts of imaginary interest.

"As we journey through life let us live by the way."

"Life is real, life is earnest."

LITERARY NOTICES

The Sequel to the Death of a Wandering Snowy Owl. An Ornithologist's Dream, Illustrated. A Poem. By J. Warren Jacobs, Waynesburg, Pennsylvania.

This is a dainty, beautifully printed and beautifully illustrated, descriptive poem on the death of a wandering snowy owl. Mr. Jacobs is well entitled to the term, poet naturalist. He sees phenomena of nature with an artist's poetic eye, although in the main he is a well informed, practical ornithologist. He has done more for fine estates that wish to have efficient bird houses than has any one else. In fact he is a leader along that line especially with houses specially designed for the purple martin.

Wonders of Insect Life. Details of the Habits and Structure of Insects. Illustrated by the Camera and the Microscope. By J. H. Crabtree, F. R. P. S. New York City: E. P. Dutton & Company.

In this book a great variety of insects are briefly and well described from a popular point of view. The illustrations prepared from photography and photomicrography are sharp, clear, interesting and well arranged. It is a readable and entertaining book. The author is evidently a good naturalist with sympathetic regard for the popular reader. It of course does not claim to be a complete entomology, but it takes insects of greatest interest and skillfully portrays them.

The Burgess Bird Book for Children. By Thornton W. Burgess. Boston: Little, Brown & Company.

This volume, published several months ago, has greatly increased Mr. Burgess's fame. He is well-known through the newspapers as the author of interesting bedtime stories, and in this book he has continued the pleasing narrative style which is peculiarly his own, and which here represents him at his best. Fortunately he has enough of the naturalist's spirit to prevent him from distorting facts, although he advances boldly on the permissible ground of humanizing and idealizing. The book makes no attempt to become a textbook of ornithology and there is no formal descriptive matter. He has wisely omitted all context in fine type for parents, teachers or naturalists, and has gone straight to the child and into the mental land where the child lives. The book is ideally adapted to children, and unlike most of that kind, will not be disliked by naturalists, or even by the birds themselves, for the reason that it does justice to the subject.

The Burgess Animal Book for Children. By Thornton W. Burgess. Boston: Little, Brown & Company.

In view of the great success of "The Burgess Bird Book for Children" one would naturally suppose that it would be followed by a book on four-footed animals; indeed, a naturalist wonders why the quadrupeds did not precede the birds. We have always considered the fanciful portrayal of four-footed animals as more amusing than that of birds, probably because so many four-footed animals are kept as pets. The book is in Mr. Burgess's usual style, so familiar to readers everywhere, and depicts a wide range of four-footed animals from an aspect that undoubtedly appeals to some children more effectively than the naturalists' ordinary description.

There are no technical terms or expressions that might confuse the young mind. Descriptions of the animal's habits are made with clearness and simplicity. We cordially recommend the book.

Textbook of Pastoral and Agricultural Botany. By John W. Harshberger, Ph. D. Philadelphia: P. Blakiston's Son & Company.

This is a study of useful and injurious plants of farm and country with especial reference to the agriculturist. Many of the illustrations are novel, some showing animals that have been affected by various stock killing plants. Readers will be interested in seeing the effect produced in animals that have eaten the loco-weed, larkspur and other plants. The list of injurious plants is long and astonishing. A series of illustrations shows sheep and hogs that have eaten the white snakeroot.

Wild Creatures of Garden and Hedgerow. By Frances Pitt. New York City: Dodd, Mead and Company.

The intent of this book is especially to interest the boys and girls. The stories are told in simple language and the subjects are the everyday creatures that one meets in garden and meadow, such as mice, birds, frogs, toads, etc. All human beings are inquisitive. We walk about as animated interrogation marks, asking how and why the creatures around us do thus and so. The author has tried to answer these questions and does so in a pleasing manner. Although the observations were made in England they will nevertheless appeal to our American naturalists.

THE AGASSIZ ASSOCIATION
Established 1875 Incorporated, Massachusetts, 1892 Incorporated, Connecticut, 1910

The Early Beginnings of ArcAdiA.

In a bright, beautiful and auspicious forenoon in the latter part of August, 1908, the Reverend George Bennett of Stamford called at Dr. Bigelow's home on Grove Street in that city. The two sat on the veranda and discussed the need of a larger plant for the work of The Agassiz Association. As a result of that conversation the Reverend Mr. Bennett published an article in "The Stamford Bulletin," a newspaper published by the present efficient and genial printer of THE GUIDE TO NATURE, Mr. R. H. Cunningham, of Stamford, in which he graphically described what he had seen in what he called a shanty on Grove Street. That article was reprinted in THE GUIDE TO NATURE beginning on page 225 of our number for September, 1908. It was the first public announcement that a larger equipment was needed and was the germ that through a long course of events has developed into the present ARCADIA. We have not room to copy the article which occupied some two pages but we quote the opening and the closing paragraphs:

"It can be safely and sanely stated that one of the most remarkable nooks in our city today is to be found on Grove Street, the home of our well-known townsman, Dr. Edward F. Bigelow, whose reputation as a nature student, nature lecturer and interpreter of nature has gone far and wide. It is by no means strange that many people visit the place, and examine with deep interest the work that is done under

"WHAT HE CALLED A SHANTY ON GROVE STREET."

conditions so contracted and confined. This, however, is explained by coming in contact with the man, the good genius of the place, one might almost style him wizard, in contemplating what he has evolved from his congested surroundings.

. . . . .

"The work laid out and defined is to open the eyes of the busy world to the beauty and symmetry of nature around, something absolutely necessary in these days, as a corrective and healthful stimulus in the dull and daily grind of things. In our townsman, The Agassiz Association has undoubtedly found its man. Let it now give him a showing in a fair opportunity to labor, as becomes the great organization which he represents."

Soon after writing the article, Mr. Bennett moved to Iowa, where he has developed into an accomplished naturalist and is doing excellent work on "Iowa Conservation," the magazine of The Iowa Conservation Association. To that publication we are indebted for the accompanying cut. Under date of January 22, 1921, Mr. Bennett writes as follows:

"I could not say just what I was doing at the particular time you mention, but all along during those years of my residence in the town of Stamford, first in Glenbrook and then in Springdale, my time was largely occupied with newspaper work and being in a country church pulpit on the Sunday. Loyally supported by an earnest band of workers we organized the little Union Church at Turn-of-River. Dr. Frank Barnes of the Sanitarium was the energetic leader here, and he can tell you about it. He can also tell you of my connection with the Stamford Rural Association movement. The files of 'The Stamford Advocate,' if examined, during those years would bear witness to my contributions, for a considerable period, of a weekly letter under the caption, 'Upon Stamford's Borders,' and signed 'Fleetwing.' And whatever criticism might be advanced regarding the strength or stretch of my wing, I think it would be conceded that it was fleet."

We have always cherished a cordial feeling for our good friend, Mr. Bennett. He is not only a believer that God is in nature, and an acceptable expounder of the Gospel, but he is an ardent student of nature, and a good journalist. We congratulate him on his excellent work as secretary and registrar of the work of the Wild Life Protection and Propagation. In an announcement of the summer school of that organization at McGregor, Iowa, an extended eulogy of the Reverend George Bennett by the association concludes as follows:

THE REVEREND GEORGE BENNETT.

"The founder of the institution is a minister of the Congregational Church, and cherishes the fond hope, that among other things, the American School movement will have the effect of intensifying in the hearts of the clergy of every church, the great claims that the Revelation of God in Nature has in the splendid field of effort in which they move, unifying and crystallizing, as they do, that which is the basis of all life's hope and vision."

In an illustrated article in the magazine, "Iowa Conservation," the conclusion is as follows:

"It is hoped that, under the leadership of Mr. Bennett and his associates, the Wild Life School will continue to extend its influence until scores of our citizens will look forward to spending their vacations at McGregor, in the midst of unexcelled scenery, and where, under the guidance of specialists in several departments of science, they may learn to interpret the secrets of the great library of nature.

"'If thou art worn and hard beset
With sorrows, that thou wouldst forget;
If thou wouldst learn a lesson that will keep
Thy heart from fainting and thy soul from sleep,
Go to the woods and hills! No tears
Dim the sweet look that Nature wears.'"

Death of Clinton R. Fisher.

Clinton R. Fisher, Treasurer of The Stamford Trust Company, Stamford, Connecticut, died suddenly of apoplexy on Tuesday evening, February 15. For several years Mr. Fisher had been suffering from heart trouble. This in the past year had increased notwithstanding careful and assiduous medical attention, and for the past three weeks he had not been able to visit the banking house with which he was connected. We quote the following from "The Daily Advocate" of Stamford:

"Mr. Fisher is survived by his wife, who was Miss Janet Sammis, the daughter of F. H. and Elizabeth Sammis of Stamford, and by one son, Edward C. Fisher, and by his mother. Mr. Fisher was born in Darien, July 13, 1870. He was the son of Daniel M. and Emma L. Fisher.

"When The Stamford Trust Company was organized, in 1889, Mr. Fisher was a member of the staff. He had been with the company ever since, except for a period of somewhat more than a year when he was in the brokerage business in New York. He had been treasurer of the Trust Company for the last three years, and during the war period he handled all the detail work of the Liberty Loan and Victory Loan business for his bank."

* * * * *

By the death of Mr. Fisher the banking business has lost an efficient officer, Stamford has lost a highly esteemed and valuable citizen, and The Agassiz Association has lost a faithful friend. Mr. Fisher's interest in The AA and his kind assistance date from near the time when the Association came in the care of the present management. Notwithstanding his duties at the bank as an expert financier, he for several years cheerfully and generously audited the books of The AA, and otherwise manifested much good will toward the work. His friendly counsels and personal aid were appreciated and valued. Mr. Fisher possessed a winning personality. This with his ability as a business manager and skilled financier made him one of our most valuable citizens. He was active in church and civic duties but not ostentatiously so. Whatever he undertook he did well, but never with a flourish for self-aggrandizement. What he did he did in the simple, modest manner of a quiet, conscientious citizen.

Perhaps he himself did not realize in what high personal regard he was held by a host of friends. His good life, his personally endearing qualities, his efficiency in business matters are a lesson that should impress itself upon those that came in association with him.

A large circle of friends extend genuine sympathy to the members of his family.

Prince Kropotkin and The Agassiz Association.

The newspapers of January 29 had extended articles making the startling announcement that Prince Kropotkin of Russia had starved to death in Moscow at the age of seventy-eight years. He was known everywhere as a geographer and historian and as taking an active interest in opposition to the Czarist regime. "The New York Sun" says:

"As a champion of Russian emancipation he was feared by the governments of Czar Alexander III. and Czar Nicholas II. and was exiled to England, where he lived for forty years until the Czar Nicholas was overthrown.

"Immediately after the formation of Kerensky's provisional government Prince Kropotkin returned to Russia and was received in triumph. At the time of his death, however, he was living furtively with his wife and daughter and was in constant danger of execution by the Bolsheviki, who regarded him as a counter revolutionary."

Prince Kropotkin was one of the foreign admirers of The Agassiz Association and did much to introduce the work in several countries, believing it should be world-wide. He advocated personally by letter and by magazine articles the principles of The Agassiz Association. In a pamphlet that we issued about the time of moving from Stamford to Sound Beach we published an entire page of quotation from an article that he had written in the "Nineteenth Century" magazine, in which he gave in detail our well-known, excellent characteristics. From that we repeat the following sentences as expressing his approval of the Association as a world-wide organization:

"Is it necessary to insist on the benefits of The Agassiz Association, or to show how it ought to be extended? The greatness of the idea is too clear. . . . The Agassiz Association has a brilliant future; it will surely extend all over the world."

We enjoy the entire magazine but I have been especially interested in Dr. Bigelow's educational articles. There is such great need for revision of our old ideas concerning girls, especially. My heart gave a little extra thump of pleasure with the knowledge that Dr. Bigelow is writing so instructingly on this subject.—Mrs. Ella B. Beckwith, Chicago, Illinois.

Permit me to state that the class is finding the magazine of great interest and stimulus in arriving at the enjoyable and pleasurable side of the science we are pursuing. Perhaps at some time we may be in a position to furnish you some interesting biological data from the far southwest.—Miss Mattie F. Kidd, Secretary Zoology Class, Southeastern State Normal College, Durant, Oklahoma.

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Fame is such that even the richest town of the United States we occasionally discover is not known by every one. An important factor in the building up of Greenwich through our magazine has been the faithful manner in which Mr. Laurence Timmons has been an advertiser. Almost since the magazine started he has been an ardent friend of the town and of the magazine. He has occupied a conspicuous position at the top of our first advertising page. Our magazine travels the country over in addition to its large local circulation.

Mr. Timmons appreciates the fact that every copy issued has been of benefit to him, and we appreciate the fact that he has faithfully stayed with us. By good methods he has built up a large real estate business in which his faithfulness and genial personality are valuable assets. Everybody likes him, and everybody feels that he knows Greenwich from A to Z, past, present and future. Probably no man in the town has a more vivid prophetic view of what Greenwich is rapidly coming to be than has Mr. Timmons. Those of our readers that are interested in Greenwich real estate consult with him as we are glad to learn. He stands for Greenwich and expresses that belief practically in loyalty to its own and only magazine. That is more than some other persons can say who do a good deal of alleged shouting about Greenwich.

Winter Sunsets.

Softest shell pinks,
  Expanse of snow;
Planets and stars
  In the afterglow.

—Emma Peirce.

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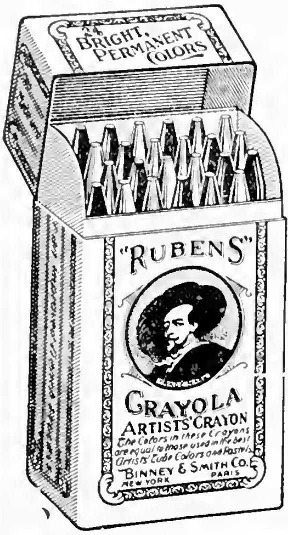
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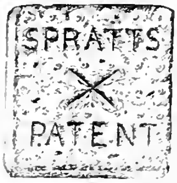

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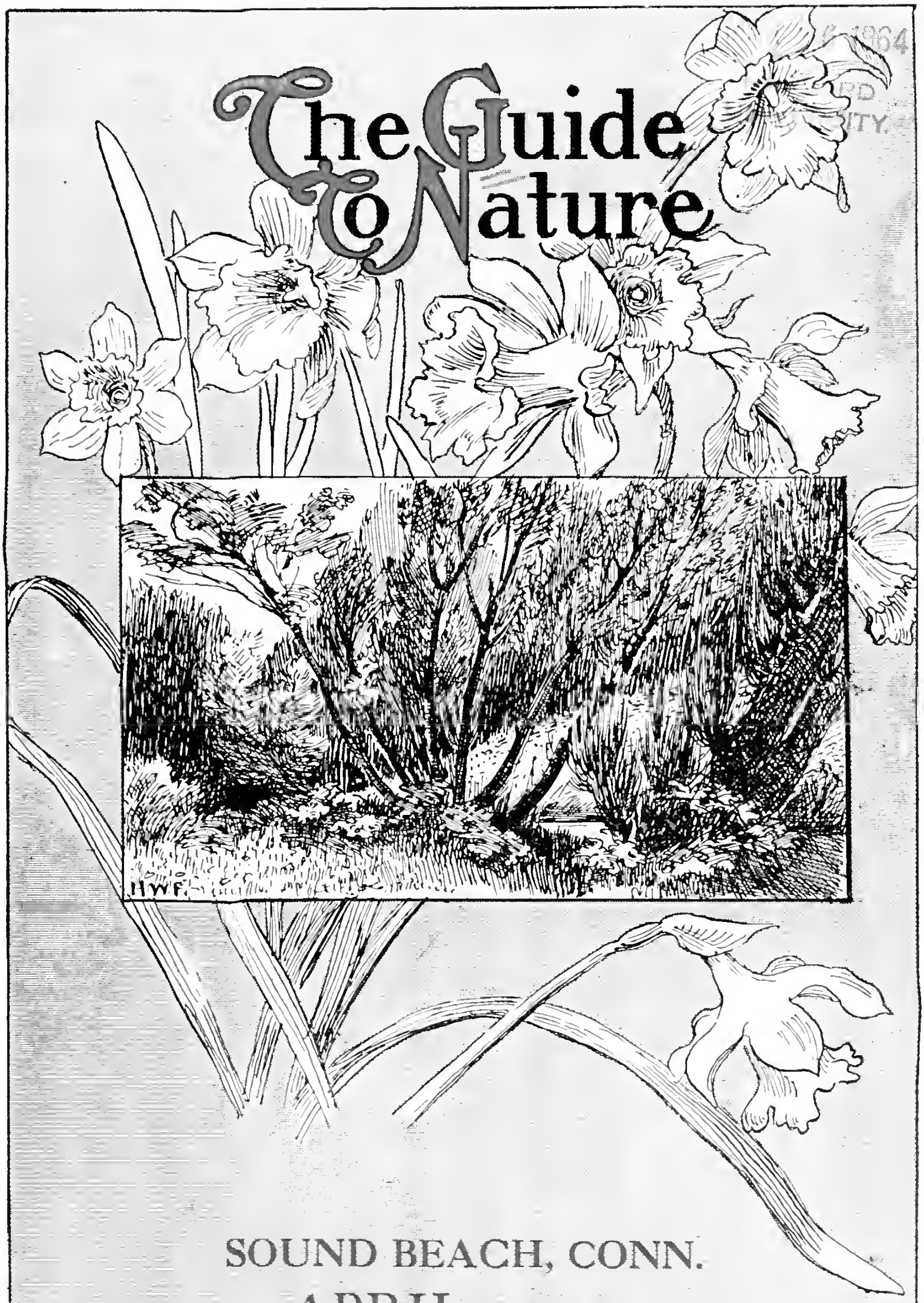

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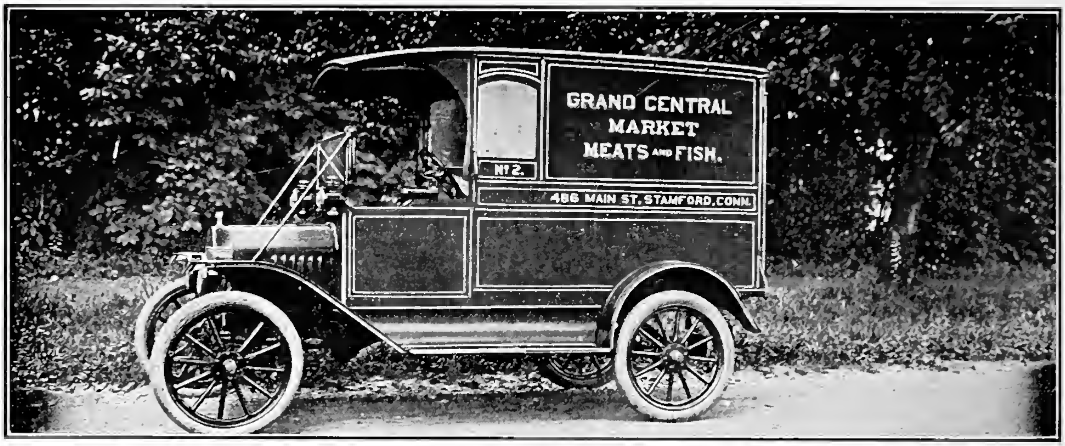

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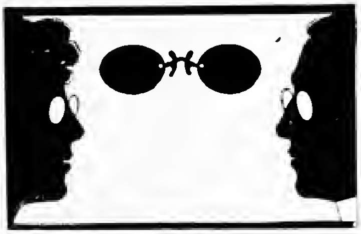

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The past:

This well-known store was established and opened to the public on April 18, 1896, under the firm name of Hartwell & Co. In January, 1906, the manager, Mr. W. J. Delap, was admitted to partnership and the name was changed to Hartwell, Delap & Co. At this time the store was enlarged by installing a department for children on the second floor and by adding a shoe department in an extension of the building in the rear.

On February 24, 1910, the incorporation of The Hartwell-Delap Co. was formed with Frank E. Hartwell, President, and W. J. Delap, Treasurer and General Manager. That organization has continued to the present day.

The steady growth of the business soon necessitated still larger quarters. In 1913 ownership of the present location was acquired and during the summer of 1915 the entire building was remodeled. A new front was added, the building was extended twenty-five feet in the rear for the three stories. The ground floor in the new building is entirely devoted to men's clothing, hats and furnishings. The second floor is devoted to the Children's Department with a cosy corner and Rest Room for ladies. On the third floor are the executive offices, tailor shops and stock room. This very modern building is open to the light on three sides, affording unusually good ventilation, and well deserves the name, "The Daylight Store." This new store was opened to the public on November 10, 1915.

And now:

Monday, April 18, 1921, begins the six day celebration. This celebration is a departure from the usual, in that it will be permeated by the sentiment of the occasion mingled with good fellowship and appreciation of the loyal patronage for the Quarter Century.

The week will be especially interesting in novel features and advanced ideas in the showing of merchandise for father and son. Your inspection is cordially invited.

THE HARTWELL-DELAP CO.

48 and 50 Park Row

"THE LIVE STORE"

Burdett-McGillivray Company

RETAILERS OF DRY GOODS

WOMEN'S, MISSES', CHILDREN'S AND INFANTS' GARMENTS.
STYLE, QUALITY, ONE PRICE AND THAT THE LOWEST.

ADVOCATE BUILDING, STAMFORD.
PHONE 268

Merrill Business College

Our Secretarial Course prepares both Young Men and Young Women to hold responsible positions.

Bookkeeping, Shorthand, Stenotypy,
Typewriting and English Branches

SOUTH NORWALK STAMFORD PORT CHESTER

INDIVIDUALITY AND SMARTNESS . . . .

styled to accord with the desires of well-dressed man and a satisfying answer to fashion's demand, are the dominant factors that always keep

COMES - NORTHROP
HEADWEAR
far ahead of the ordinary

THE

COMES–NORTHROP CO.

445 MAIN STREET
STAMFORD, CONN.

Manufacturers and Retailers of **HATS**

FOR MEN WHO CARE

EGYPT
of
Perfume Culture
THE EGYPT LADY

"Egypt" is a new conception by a new concern; a compelling fragrance originated for the woman who demands originality, refinement and culture in every particular of her toilet. In its odd, hand-painted bottle, "Egypt" will grace the most artistic and esthetic boudoir.

Originators and Sole Manufacturers

THE EGYPT LABORATORY
Stamford, Connecticut
P. O. Box 471.

The Shopping Place For Over Half a Century

THE C. O. MILLER CO.

ATLANTIC SQUARE Established 53 Years STAMFORD, CONN.

Stamford's Trading Place of Over Half a Century

THE WINTER OF HIGH PRICES IS SAFELY OVER

THE SUMMER WITH LOW PRICES IS AT HAND

This store had always prided itself on giving every customer the biggest possible "money's-worth," until war prices came. Then all our best efforts were fruitless, for nobody could either give or get real money's-worth.

Now "money's-worth" has come back to us and we are far more delighted to give it than you can possibly be to receive it.

The new merchandise that is coming into our store looks splendid to us, and will look the same to you; for quality is so much better now in so many things that were not made up to standard by the hurried hands that did such poor work for the past couple of years. Now they are doing expert and skillful labor again, and the quality is better, while the prices are so much lower.

So we turn our faces to today and to tomorrow with every hopeful expectation of serving you vastly better this year, and bringing back to you the old pleasure and satisfaction of shopping with us because of the excellent money's-worth that we shall always be able to give you.

THE C. O. MILLER CO.

ATLANTIC SQUARE : : : : : : STAMFORD, CONN.

The LOCKWOOD & PALMER Co.

Wholesale and Retail
Dealers in

HARDWARE

AGRICULTURAL
IMPLEMENTS
House Furnishings, Etc.

TOOLS
OF
All Kinds

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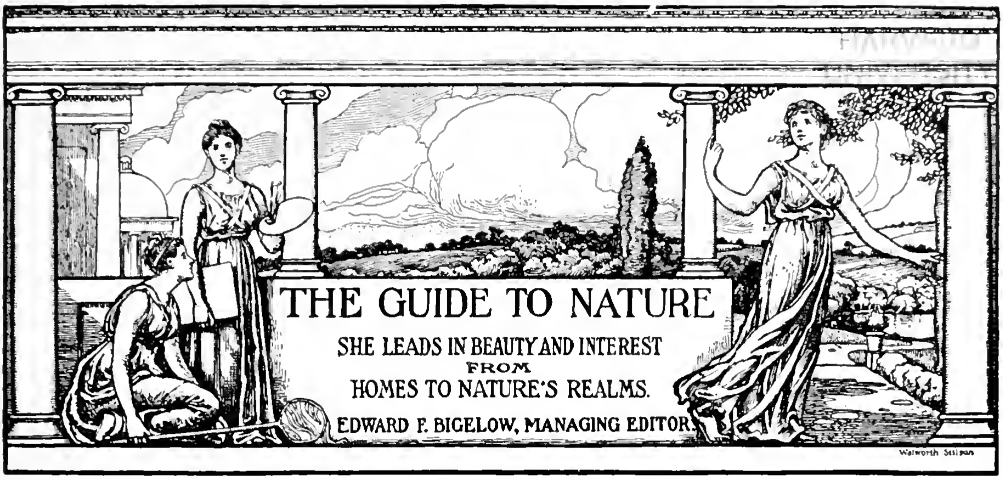
THE GUIDE TO NATURE
SHE LEADS IN BEAUTY AND INTEREST
FROM
HOMES TO NATURE'S REALMS.
EDWARD F. BIGELOW, MANAGING EDITOR.
Walworth Stilson

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How I Became Interested in Geology.

By Theodore H. Cooper, Batavia, New York.

"WE all miss congenial people, people who are going our way, and whose companionship would make life sweeter for us. Often we are a day too early, or a day too late, at the point where our paths cross. How many such congenial souls we miss we know not, but for my part, considering the number I have met, I think it may be many."

The foregoing extract from John Burroughs's "The Summit of the Years" applies to books as well as to people.

My interest in geology was aroused by finding an old copy of "Steele's Fourteen Weeks in Geology in a secondhand shop. I would have missed a great deal if I had never become interested in this subject and yet what slight chances there were that I should. I had a vague notion of what geology is, for I had seen samples of "rock" in a cabinet in a high school room. But these rocks had always looked pretty dead to me, and their names and all the names connected with this science which I had noticed at the bottom of pictures of prehistoric animals were so unpronounceable and meaningless that I had become a little prejudiced against geology, supposing it to be so dry that if used in small words it would float away in the air.

They sounded when pronounced to me something like Walt Mason's "Thor-dineriomegantosaur-megopium-permastodon-letheriumsohelpmejohn," or like a friend that came to me recently with the startling fact that he had read of a carnivorous mastodon's tooth weighing twelve pounds. "Are you sure it was a carnivorous one or was it the insectivorous kind?" I asked. "I dunno, it had one of them long names, but anyhow it weighed twelve pounds."

I opened the book and turning over a few pages came to a picture of two extraordinary looking sea monsters, one with a whalelike body and a crocodile's head, the other looking like a huge swan without feathers. "Ichthyosaur and Plesiosaur" was written below. This meant nothing to me of course, but something else did as I glanced at the opposite page. "The eyes were often two feet in diameter." Some animal! I bought the book for ten cents, took it home and read what

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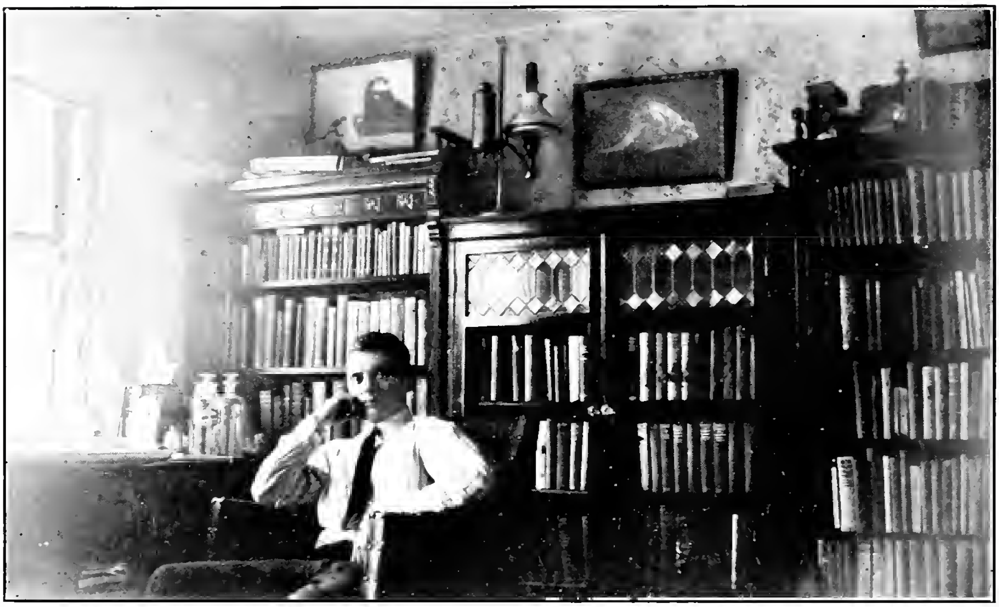
I could understand, and wished I could understand the rest. Perhaps I could by starting with the first page and going slowly, looking up each long word as I came to it.

I worked my way through to page 101. At the bottom of this was a footnote which read: "To me it seems, that to look on the first land that was ever lifted above the waste of waters, to follow the shore where the earliest animals and plants were created when the thought of God first expressed itself in organic forms, to hold in one's hand a bit of stone from an old sea beach, hardened into rock thousands of centuries ago, and studded with the beings that once crept upon its surface or were stranded there by some retreating wave, is even of deeper interest to men than relics of their own race for these things tell more directly of the thoughts and creative acts of God.—Agassiz."


MR. COOPER IN HIS LIBRARY.

This was easily understood. I looked up Agassiz in my encyclopedia and found that he had written several books. I bought his "Geological Sketches," read them and then got "The World Before the Deluge" at the public library.

By this time I saw some meaning in the long names. "Saur" or "saurus" meant lizard or reptilelike: dinosaurs—"terrible lizards."

I had also become familiar with some of the names of the different geological periods of time. "Jurassic," anything that pertained to this was sure to be worth reading. "Carboniferous," this was the full-grown name for coal. They were not hard after I had pronounced them a few times.

Probably the most interesting book I have ever read that pertains to geology is "The Lost World" by A. Conan Doyle. This is really a story and I can recommend it to any one whether he knows anything about geology or not. If he does not, he will want to know after reading it, and if he does it will be all the more interesting.

I have never had but one opportunity to hear a lecture on this or any other scientific subject. One was given here on "Hunting Big Game in the Rocks." It was illustrated with stereopticon views of restorations of dinosaurs, fossils, etc. I went. The admission was a quarter but I would give five dollars to hear another like it.

Upon inquiring among the men in the shop where I work if they heard the lecture I found none that had. Some even scorned such an idea.

Strange that the ignorant should be so anxious to remain ignorant! If it had been a prize fight or a so-called "entertainment" costing a dollar there would have been a crowd of these worthies extending from the platform out through the door of the hall to the middle of the street.

I will now enrich the world's scientific literature with the story of the first fossil that I found.

While in the country searching for specimens of rock that I could identify I found what looked like a cow's horn stuck in a piece of cement. A most unusual combination! I broke this out and found it was much heavier than an ordinary cow's horn. It was solid stone. Holding a microscope to the freshly broken "cement" I found it was composed, among other things, of minute shells, brachiopods and bryozoans. This "cow's horn" must be a fossil. I had never before seen a fossil. I did not expect to find a fossil in a stone wall. I hurried home to find out if possible what it was. My imagination named it successively a mastodon's tooth, a dinothere's toe, and the horn of some ancient monster.

I found that it was really a specimen of horn coral (*Zaphrentis ponderosa*) and the "cement" was the Silurian or Devonian mud in which it had lived and which had buried it several years ago.

I mention this as an example of several discoveries of a like nature that I have made since then.

I converted a bookcase with glass doors into a museum and in it I have all my specimens.

Snakes for Campers.

Mr. Allen S. Williams asks, "What do campers know about reptiles?" They know a good deal about snakes. In one camp, where I was a few years ago, but with which I am not at present connected, I vividly recall that on the evening of my arrival the girls, supposing that every naturalist revels in snakes, greeted me with an unanimous shout, "Come and see our snakes." The reader may naturally suppose that the first thing that entered my mind was that there was some snake faddist in camp who had a lot of snakes in boxes, cases, etc. But not so, I found that the girls meant that gigantic snakes went swimming with them.

It appeared that on the section of the beach where they went in swimming these gigantic five or six foot water snakes liked to go in at about the same time. But the snakes went not for fun but in opposition to the swimming instructor. On that part of the beach, a bit long for that matter, there were innumerable bullfrog tadpoles of which the snakes were fond, and with which they would fill up until they bulged with tadpoles and literally presented a knotted appearance. The girls explained all this, and showed me some of the snakes, entertaining me by a song in which they screeched and screamed and giggled and shouted, "There he comes, there he comes, look out for him."

Then thinking that a naturalist must take a special joy in "such things," they wanted me to see one of these big fellows close at hand. So a delighted group led me forward, as the guide led Mark Twain and his party to see the mummies, but in this case there were no preserved mummies, for unfortunately the snake they had buried a few days before lacked any preservative material. The girls, however, didn't mind a little thing like that, and with the aid of sticks and one hoe they soon unearthed the snake and held it up for what they supposed would be my admiration. In deference to their desire to entertain me I did try to camouflage my feelings and to express with apparent joy my delight in seeing such a specimen of snakeship.

But, Mr. Williams inquires about snakes—not those that swim around where the girls go in bathing, but those he carries in bags and boxes and with which he entertains his friends. The editor of this magazine has the good fortune to be personally acquainted with this famous herpetologist and cordially recommends him to our inquiring friends who may want to know about snakes. Address: Allen S. Williams, 782 East 175th Street, New York City.

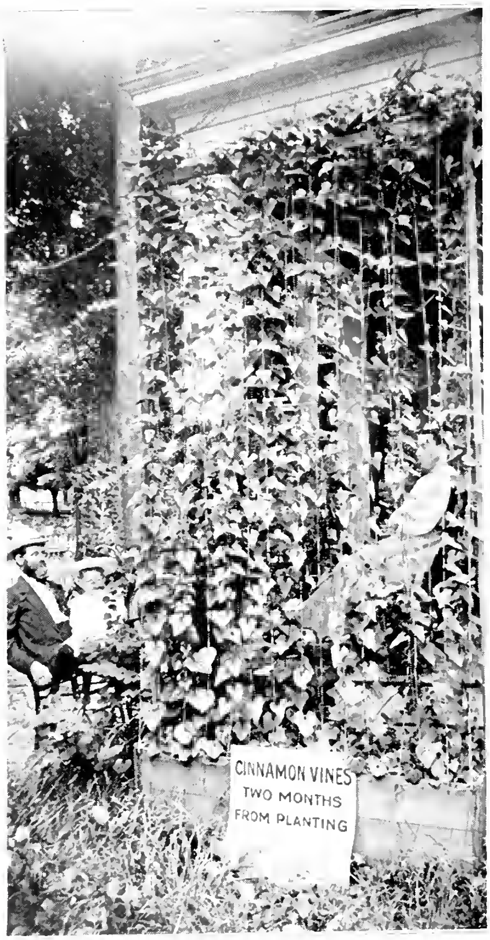
In the new mineral collection of the Boston Society of Natural History, an entire shelf is filled with specimens found when the Boylston Street subway was dug almost in front of its own door.

THE PLANT WORLD
UNDER CARE

Chinese Cinnamon Vines (Dioscorea Batatas).

BY A. T. COOKE, HYDE PARK, NEW YORK.

These interesting vines were first brought to the United States about the year 1870. They came from China, that far-away land of wonder and mystery, but where the Chinese first found them is not known. The name, "cinnamon," was given to them on account of the odor of the bloom, which is similar to that of cinnamon. The fragrance is remarkable and too delightful to describe. When my vines are in bloom my neighbors a full quarter of a mile away note their sweet perfume.



When first introduced to this country the tubers sold for ten dollars each, and it was then believed that as in China they could be profitably grown for food, and would rival if not supplant the potato. Such has not been the case, one objection being the difficulty of digging them. However if in time the potato fails to produce seed balls and seed and finally deteriorates and vanishes, as some scientists predict, then perhaps cinnamon vine tubers will take its place and help feed the world. One strong factor in their favor is that cinnamon vines have no insect enemies whatever. In my fifty years' experience, growing millions of them, I never saw a rotten tuber or any blight or disease of any sort among them.

The tubers grow straight down, the big end at the bottom, and in rich soil often attain a length of twenty inches or more the first season. In old vines of five or ten years the tubers attain enormous proportions.

A curious fact about the tubers, and one not generally known, is that new ones are formed every year from the old tubers, the old being absorbed in the new and larger growth.

One of the accompanying illustrations shows the shape of a typical tuber, and the other one of my vine-covered walks ten years after planting. I was one of the pioneer growers and have grown them continually since. They are unquestionably the most beautiful and attractive of all climbers. They are selling today faster than ever before. Only the highest merit can account for their ever increasing popularity. If given support they climb thirty or forty feet, branching profusely, and are covered with pretty, heart-shaped, glossy leaves that turn to a golden yellow in the fall. The wealth of tiny white bloom with its exquisite perfume adds a charm unknown to all other climbers. The tubers are hardy and grow larger from year to year. The tops die down every fall but grow again very rapidly in the spring.

The vines are the hardiest, surest growers, even under adverse conditions, of anything I have ever noted. I will cite a few cases.

One spring soon after planting an underdrain became clogged and the running water flooded part of the plantation all summer long. I supposed that there the crop would be ruined but the tubers turned out just as good as those in drier ground.

Again, in my yard I had a large tub over two feet deep constantly filled with cold running water from a spring. One summer I noticed a vine growing up from the bottom of that tub. When it reached the surface I pulled it up and a cinnamon vine tuber was at the bottom. The vine had grown fully two feet, with numerous leaves, at all times entirely under water.

So much for growing in water. Now for the opposite extreme. One autumn I went into the dark cellar where I store the tubers in winter, and discovered a lot of vines climbing over the tables and shelves as best they could. All of these, one measuring twenty-two feet, had come from one large tuber accidentally left on the clean cement floor. They were as white as snow and had grown without soil or water, in total darkness.

The tubers in growing will penetrate anything softer than stone. I dug a very curious one that had reached a large clamshell embedded hollow up in the soil. In its attempt to go through the shell the tuber formed a spiral three times around and then gave it up. I kept this freak tuber on my desk all winter, using it as a paper weight till planting time in the spring.

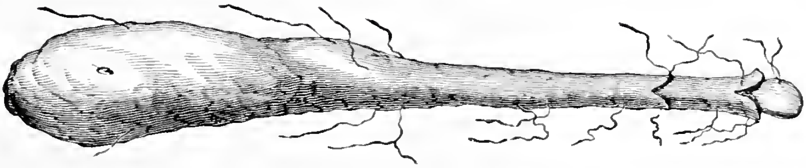
The most extraordinary freak vine I ever produced grew about ten years ago. It had variegated leaves, beautifully striped with white and green in about equal proportions. It was marvelously beautiful and came true from planting both bulbs and tubers. I was sure I had found a fortune—but, alas, I lost all by an unfortunate accident. I have been on the constant lookout for another, but among all the millions I have grown for the seed and florist trade in the past fifty years I never saw another like it. Nature is ever producing strange freaks, sometimes at long intervals, and I am still looking.

Country Life in America

AN ARBOR OF CINNAMON VINES.

Into the chill of the Winter air
  Creep the vigor and warmth of Spring,
And all about, with abandon rare,
  Her largess she doth fling:
For Spring is the wizard without compare,
That, marshalling forces everywhere,
Doth make of this earth a place so fair,
  The poets of it sing.

—Emma Peirce.



A CINNAMON VINE TUBER.

TO KNOW THE STARRY HEAVENS

The Heavens in April.

By Professor Samuel G. Barton of the University of Pennsylvania.

THIS is one of the two eclipse periods of the year. The first eclipse of the year is an annular eclipse of the sun on April 7. The eclipse has no great interest for us, since no part of the eclipse can be seen from any part of the United States. The narrow path in which the eclipse is annular—that is, where the moon appears as a black disc on the face of the sun and with a ring of the sun about it—lies over the North Atlantic and Arctic oceans. Western Asia, Europe, Northern Africa and Greenland will see the eclipse as partial.

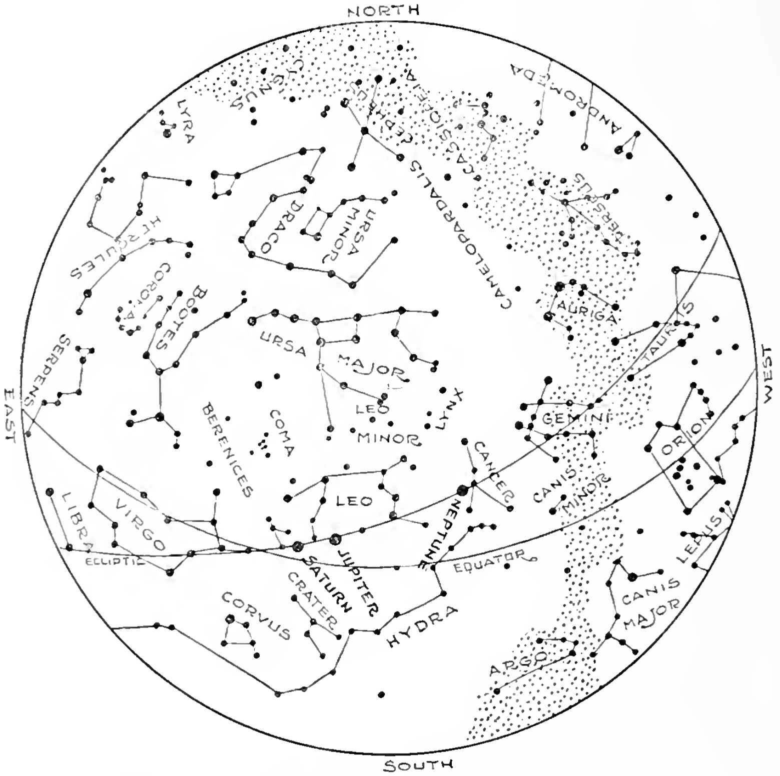

NORTH
LYRA
CYGNUS
CEPHEUS
CASSIOPEIA
ANDROMEDA
PERSEUS
CAMELOPARDALIS
HERCULES
DRACO
URSA MINOR
CORONA
BOOTES
AURIGA
TAURUS
SERPENS
URSA MAJOR
LYNX
LEO MINOR
COMA BERENICES
GEMINI
ORION
EAST
WEST
CANCER
CANIS MINOR
LEO
LIBRA
VIRGO
ECLIPTIC
NEPTUNE
JUPITER
SATURN
EQUATOR
LEPUS
CRATER
CORVUS
HYDRA
CANIS MAJOR
ARGO
SOUTH

Figure 1. The Constellations at 9 P. M., April 1. (Turn the map so that the direction faced is at the bottom: that is, if facing east hold east at the bottom as south now is.)

The second eclipse also occurs this month. On April 22, in the early morning hours—that is, after the night of April 21—there will be a total eclipse of the moon. The earth casts a great conical shadow in the direction opposite to the sun. In Figure 2 we show the circular section of this cone 59,000 miles in diameter in the place where the moon crosses it, and the moon's relative path in crossing it. The important times of the eclipse are the time when the moon first comes into contact with the shadow, shown in position 1 of Figure 2; the time when the moon is wholly within the shadow, which is the time of the beginning of the eclipse as total, shown in position 2; the time of the middle of the eclipse, which is 1:44 A. M., Central Standard time; the time when the moon first leaves the shadow and the total phase of the eclipse ends, in position 3, and the time when the moon leaves the shadow altogether, marking the end of the eclipse, in position 4. Due to the refraction of light by the earth's atmosphere the shadow is not absolutely black, so that the moon does not wholly disappear even when in the shadow. Its disc can be clearly seen shining with a peculiar reddish tinge in most total eclipses. As in this eclipse the moon does not pass close to the center of the shadow, there should be considerable brightness to the eclipsed moon. Such an eclipse has but little scientific importance.

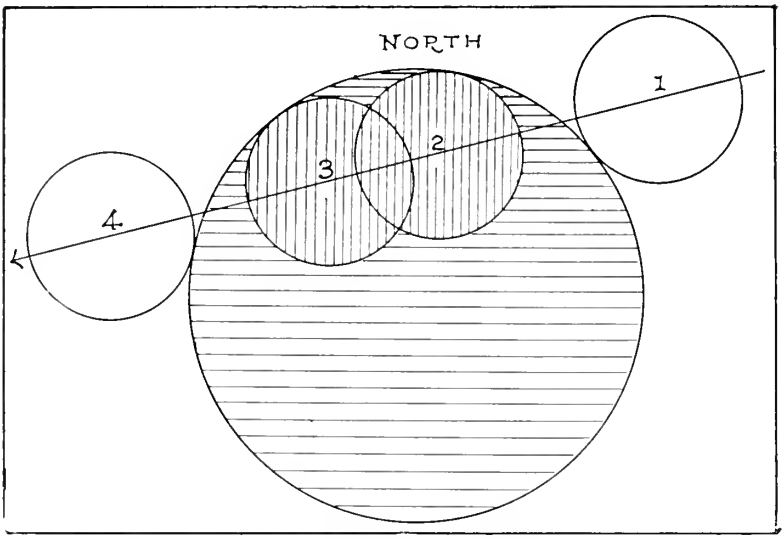


Figure 2. Total eclipse of the moon April 22, 1921. 1, Eclipse begins 12:03 A. M. 2, Totality begins 1:23. 3, Totality ends 2:05. 4, Eclipse ends 3:26. (Central Standard Time. An hour later in Eastern Standard Time.)

* * * * *

The Planets.

Venus is still visible, but low in the west. On last January 9 those who had clear weather had the pleasure of seeing three planets, Venus, Mars and Uranus, at the same time in the field of a small telescope. Since then Venus and Mars separated, until they were about eleven degrees from each other. Then they began to approach each other again, until now on April 4 they pass again, but on this occasion they will not be close when they pass. On April 22 Venus passes the sun and thereafter is a morning star. It has been an evening star since July 3, 1920. Jupiter and Saturn being among the outer planets, change their positions slowly. Their positions are marked on Figure 1. On April 10 the plane of the rings of Saturn passes through the sun. It will require about four hours for the rings moving at the rate of six miles per second to move through a space equal to the sun's diameter, 866,000 miles. At this time the only part of the rings illuminated by the sun is the edge. The rings are so thin that this light is not sufficient to render the ring visible, except in the very largest telescope. There the presence of the ring is manifested by the appearance of a very slender and faint line of light passing through the planet itself like a needle. As the rings and the brighter of its ten satellites lie in the same plane, the plane of Saturn's equator, these satellites appear too along the line of light. The shadow of the ring appears on the planet as a narrow black line. The appearance is about as shown in the upper of the two in Figure 3, except that no satellites are shown in the drawing.

The lower part of Figure 3 shows Saturn as it appears when its wings are open widest. It is then generally conceded to be the most interesting object to be seen through a telescope. In its present state, apparently without its ring, Saturn is shorn of its great glory and lacks interest, except to those who have seen it at other times. There is a brighter belt at the equator and certain poorly defined spots, but no conspicuous details. Not only has the ring vanished but its light is lost and the planet is only about half as bright as when the ring is in good view. The magnitude at this time is 0.7 at its opposition. In 1915 its magnitude was 0.2, the difference being due to the position of the ring. At present Venus, with its narrow crescent, is much more interesting to the ordinary person than is Saturn.

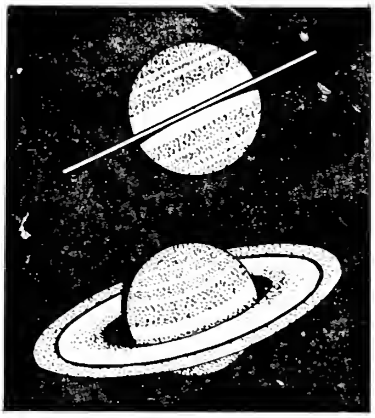


Figure 3. The rings of Saturn as seen now and as seen when widely opened.

Although Venus comes closer to the earth than any of the other principal planets, and to us is the brightest of all, our knowledge of the conditions of the planet are not as complete as in the case of most of the other planets. When Venus is close to us, as now, it is in almost the same direction as the sun, and is thus nearly invisible in the sun's rays. At this time, also, it exhibits merely a narrow crescent, so that but little of the surface of Venus is seen even under these poor conditions. Certain markings or shadings have been asserted to exist, but their existence has not been proved. When the planet passed between us and the sun, as it did in 1874 and 1882, there was definite evidence that it was surrounded by a dense atmosphere. Hence we probably cannot see the surface itself. Since we cannot see any definite markings on the surface we cannot determine the period of rotation of the planet. Some have claimed that the vague markings which they saw indicated rotation in a little less than a day. Others claim the period is the same as that of its revolution about the sun, or 225 days, so that it keeps the same face toward the sun at all times, just as the moon keeps the same face toward the earth. We can only say at present that we know nothing positively either about the surface details or the period of rotation of the planet.

Again, as Venus has no satellites, its mass cannot be determined with the same accuracy as is possible in the case of planets which have satellites. As seen in a telescope, the planet appears simply as a brilliant object, showing phases but lacking the interesting details which some planets show. The more remote and less brilliant planets yield us more information than Venus. The atmosphere of Venus and its size make it more like the earth than any other planet, and conditions on the planet are probably nearer like those on the earth than those of any other planet.

April.

BY FREEMAN FOSTER BURR, WHITE PLAINS, NEW YORK.

Red are the maple buds,
Green are the fields;
To the warm April rain
All the world yields.

Blackbird from meadow tree,
Bluebird from sky,
Call to the soft'ning mold
Where the flow'rs lie:—

Bloodroot and adder's tongue,
Columbine red,
Nodding anemone,
Winter is fled;

Spread to the sun your leaves,
Wake to our call;
Catch in your petal-cups
Raindrops that fall.

Robin and meadow lark
Whistle and sing,
Welcoming back again
April and spring.

Plant a Tree.

BY DAVID H. WRIGHT IN "THE CONSERVATIONIST."

If when I am gone
Thou would'st honor me,
Then plant a tree.
Some highway, bleak and bare,
Make green with leaves.
So radiant and fair
And full of leaves, my monument will be
So ever full of tuneful melody.
My monument will be
A sight most rare—
Trees planted everywhere.
A highway broad from city to the sea.
Plant this in memory of me.

DOMESTICATED NATURE

Pet Foxes, Chickens and Rabbits.

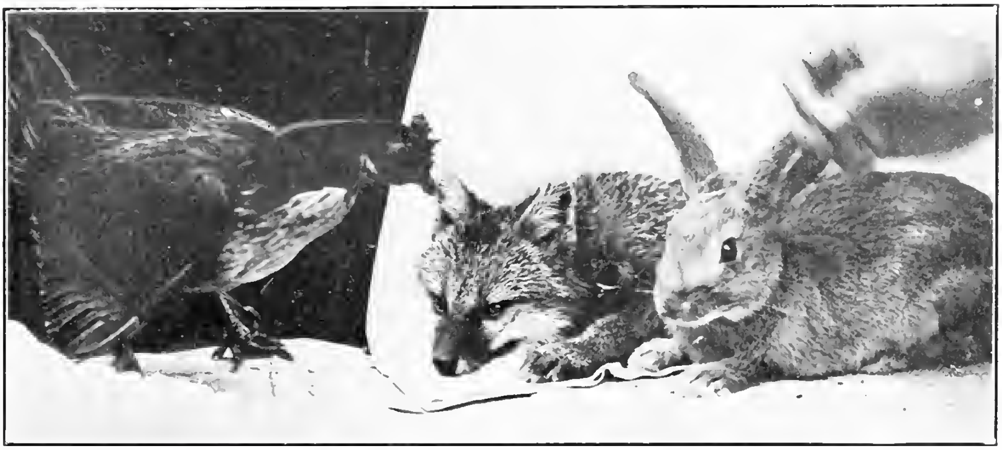
BY MISS ANNA K. BEWLEY, FORESTGROVE, PENNSYLVANIA.

The more we learn of the ways of wild animals the less we are apt to fear them. While it does not seem proper to endow them with human traits I am convinced that they have much more intelligence than we give them credit for.

Few people for instance would attribute much individuality to grey foxes, but having been "personally acquainted" with about twenty of them at different times during a period of perhaps five years, I am convinced that no two of them are alike in disposition. They may have similar characteristics but are not alike.

Last summer we had two young grey foxes about six weeks old. One would permit himself to be handled and petted and would take food daintily from one's hand, showing his appreciation in various ways such as allowing himself to be posed for his picture, in company with the cat, dog, rabbits or chickens. The other would not eat at all when any one was looking or was near his pen. These foxes were brothers, having been taken from the same "nest" at the same time and in the same manner. As neither had been hurt there could have been no other reason for their behavior than personality.

Every one that has had much to do with chickens will note the marked individuality of hens, no two being alike. As to rabbits, I think them the least intelligent of all animals. A tame rabbit will allow any one to handle it, while a wild one fears almost anything. Foxes, however, are able to distinguish between people. I have at the present time a fox that no one else can handle.



THE HAPPY FAMILY!

Nature's mirrors are the best,
Framed in fragrant green,
And never in their liquid depths
Is aught but beauty seen.
—Emma Peirce.

A Dog's Memory.

BY DOROTHY A. BALDWIN, HARDWICK, MASSACHUSETTS.

An interesting instance of a dog's memory and keenness of scent was shown by a Scotch collie belonging to my sister.

She had brought the dog with her on a visit to us in the fall, returning home with him in the early part of November. Late in January I sent to her by mail a sweater which I had been making. She wrote that when the package arrived the dog sniffed it eagerly, and when she opened it he squirmed with delight, wagging his tail, rubbing his head against the sweater and "talking" or crying in a way that he has when he is particularly pleased to see any one.

All through the winter, whenever my sister wore the sweater, the performance was repeated. Later when she wore it while visiting us he paid no attention to it. Evidently it was the scent of his old friends, not the color or style that pleased him so much, and his keen nose was able to detect that scent even after the sweater had been repeatedly worn by some one else.

My sister writes that whenever a package comes from us he shows the same delight, although he is entirely indifferent to packages from any one else. Even if it be ripe cucumbers, which we have handled very little and which are certainly uninteresting to a dog, it sets his tail wagging, although the package must certainly have accumulated many other scents along the way.

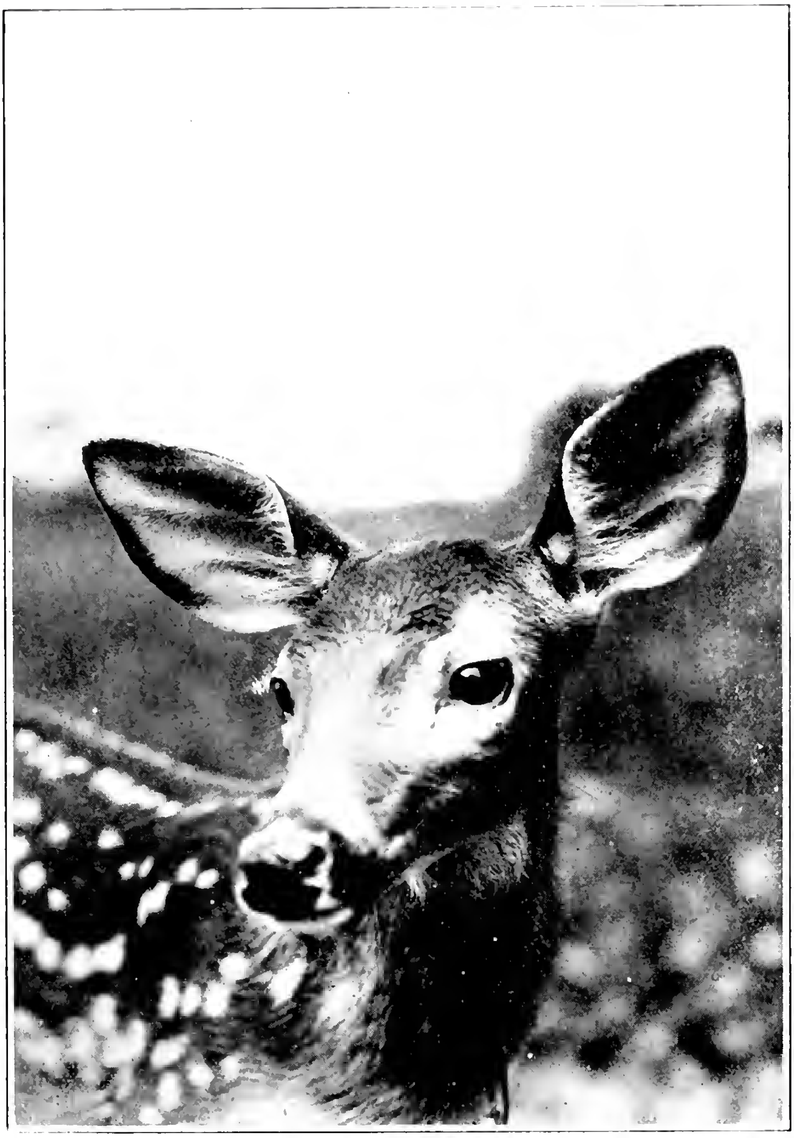
A Lovable Pet.

Pulaski, New York.

To the Editor:

Miss Helen Barber of Parish, Oswego County, New York, in company with her older and her younger brother, was sent to the pasture in search of the family cow. The pasture extends back to a large tract of forest. At the edge of the woodland they saw, instead of the cow, a small animal approaching them in long zigzags. The two younger members of the trio were frightened and retreated, but the older boy, about fourteen years of age, stood his ground. His bravery was rewarded by a gentle fawn that came to him and nibbled at the leg of his trousers. The little creature was hungry. The boy took it to the house, and there fed it freely with milk. The father knowing that it was contrary to the state law at that time of year to possess a deer ordered the children to return to the place where they had found the deer and to leave it there. Two days later they returned to see what had happened and there they found it, but so weak that it could not walk. They again took it to the house and notified me. By order of the state department they were permitted to care for the fawn until it was self-supporting.

"WOULD PLAY WITH HER LIKE A LAMB."



A BEAUTIFUL PORTRAIT OF THE FAWN FROM "THE CONSERVATIONIST."

Miss Barber as well as the family became much attached to the fawn, but the girl was the fawn's first favorite. It seemed to know her and would play with her like a lamb, she being the only one to feed it. The gentle animal recognized her footsteps from those of any one else, even when confined in a box stall in the barn. When it heard the girl coming the door must be guarded, if it were open, or the fawn would run out to meet her. The little girl, who was about eleven years old at that time, became greatly attached to the fawn, and I believe it was the saddest day I have ever spent during my seven years as a State Game Protector when it became my duty to kill the deer to relieve it from the incurable injury caused by a fall against an unseen barbed wire fence when at play.

Claude J. Quick.

Oh wild New England Nature,
How potent is thy spell!
How strong thy call, insistent,
To all who erst did dwell
Amid thy matchless beauties,
In youth or in their prime,
And who in love of country
Are steeped for all of time.
—Emma Peirce.

EDITORIAL

Immortality?

The proverbial thoughtlessness of humanity in the rush and whirl of its own selfish interests occasionally receives startling corroboration. It is the ordinary events of life and death that are the most miraculous but they frequently go unnoticed and unthought of by most human beings.

Could there be anything more astonishing than the fact that here is a good boy who died and no one mourned his death? His outlook on life was as bright, hopeful and happy as that of any one who has ever lived, but could there be anything sadder than to think his lively, healthy body decayed and has so passed on to another stage of existence, thus fulfilling the mortality of earthly bodies so excellently described by Bryant:

"Earth, that nourished thee, shall claim
Thy growth, to be resolved to earth again,
And, lost each human trace, surrendering up
Thine individual being, shalt thou go
To mix for ever with the elements,
To be a brother to the insensible rock
And to the sluggish clod, which the rude swain
Turns with his share, and treads upon."

But the perishing of that beautiful body that must be scattered far and wide in dust among the elements is not the saddest part, but rather the fact that no one among all his acquaintance mourned his death. It is true, as Bryant has said, that the gay laughed and "the solemn brood of care plod on," and each one as before will chase his favorite phantom. Such is the sad thoughtlessness of mankind.

Those of us who like to philosophize on the great problems of life and death have arrived at the conclusion that at least in this case there is fair psychological and physical proof that he not only left his earthly body but his young mentality and entered a realm which we in faith believe, yes, more than that, have positive knowledge, know. "Eye hath not seen . . . neither have entered into the heart of man," in the days of that little boy's mental activity, "the things which God hath prepared" for him to be and to accomplish.

He went out into the Great Unknown and spirit world as remote as that which he left, traveling on, on gradually, gradually into the great unknown distance of time, space and mental ambitions and desires. There in that remote realm probably he frequently looks back upon that early earthly existence and wonders what after all is

THIS BOY DISAPPEARED FROM EARTH WITH NO HOPE OF IMMORTALITY, AND NO ONE MOURNED HIS LOSS. EVEN HE DID NOT REALIZE IT!

immortality. If he has gone through such changes and scenes and complete transformation as not to know himself, not to have his friends know him, even if he were to meet them, what is it that in his transformed existence continued for him, that entitles him to the term immortality? Wherever he is, in whatever realm, surrounded by whomsoever he may be, no one knows him now who knew him then and he himself has the impulse to press on to make the most of the realms of new worlds and new existences.

How much is there of continuity of a mental thread when such an earthly existence merges into another so remote in time and space as to be inconceivable? What can be the immortality when memories are none from that new existence and when hopes and ambitions of entering into that new existence are none?

And yet the passing on of this hero was not an exception from that shared by many other boys and girls but the saddest part of it is that no one recognizes its pathos and no one seems to recognize the innumerable parallels of the past that go into human lives. Should not he have been entitled to at least a measure of immortality, to at least some continued existence, some knowledge of future and past friends associated into one union? Was he a bad boy? No. In that distant realm of thought and years perhaps he has learned the lesson that immortality is perpetual transformation, frequently with not even the link of the past that Dr. Holmes assigns to the chambered nautilus.

Who was this particular boy that we have in mind in this question of transformation? They called him Eddie then; now they call him editor—of this magazine.

* * * * *

Since the foregoing editorial was written, "The Literary Digest" has the following comment and quotation:

There is a metaphysical puzzle here that may contest the poetic appeal for interest. It shall be left to the reader to decide whether here is a step beyond Villon's "Ballade of Dead Ladies." "Harper's" for February is the purveyor:

Cumulative Death.

BY SUSAN M. BOOGHER.

Where are those others
That were I
Who living die?

Where is the child
I used to be,
Whose listening eyes
Gazed, finger-lipped,
Upon the world's surprise?
Where now the ardent boy
Whose skyey youth
Consumed itself in sums of truth?
Where the man
Who learned at last
To walk the world
With eyes downcast
From stars?

Where lie
These shadowy others
That were I?
What mounds not made with hands
Are hidden in the years
Through which life
Masquerades with bells and fife? . . .
Life, the jester at the court of fate,
Who sobs beneath his laughing breath
"I, Life, am cumulative death!"

"Something Within Themselves."

[Letter from the Editor of This Magazine in "The Daily Advocate," Stamford, Conn.]

A few days ago I attended the dinner of the Sunrise Club in New York City, where 350 persons listened to eloquent addresses on the observance or the lack of observance of Sunday. The speakers represented a variety of creeds and no creeds.

I have read the argument by Stamford ministers, by the attorney for some movies, and by others, and have also read articles on the same subject in the New York newspapers.

Far and away the best argument I have heard or read—perhaps not strange to say, if one gets the right perspective—is from a woman manager of a theatre. Mrs. Emily Wakeman Hartley, as reported in The Advocate of Thursday, has in my humble opinion excelled them all. She says:

"When the United States is spending hundreds of millions of dollars every year for education, it would seem as if people need a little time to read, and I know that a good many of them might devote time with profit to acquiring a better knowledge of the English language. One of the great faults of the present generation is that too few make use of their gray matter; I mean that they do not seem to realtize that they have something within themselves, and do not need to depend wholly upon outside matters for amusement. And a person who always has to be amused or entertained cannot be happy, for he hasn't the creative spirit. The woman who makes a mat for a table and the man who uses his hands to make a simple thing like a bench, will find in that exercise one of the greatest joys that God has enabled him to possess."

* * * * *

Ay, there's real philosophy for us—the gist of much that makes life best worth living. In many things we depend on others. We are social beings. But we must also learn to think and to do things for ourselves. In my own line of life's work—the study and appreciation of nature—I find with many people this element of nature desecration or sacrilegiousness: "Tell us a lot of funny and interesting things of nature; entertain us." In the modern rush and unrest few, oh, so few, seem to have the time for the Wordsworth or the Thoreau view of nature. It's "Tell about the curious antics of the Hullygalub from the Bullybaloo land." Stamford woods and fields seem not entertaining enough.

Bradford Torrey tells of a boyhood experience with a man who greatly influenced him for life. That man sat for half an hour "looking at Nat Shaw's haystack and the old barn beyond."

Wonder what he saw!

I think, Mrs. Hartley, he was doing what you so eloquently advise—finding something within himself.

The Difficulty of Comprehending an Ideal.

In an interesting sermon that draws a lesson from George Washington and his life, preached by the Reverend Gerald A. Cunningham of St. John's Episcopal Church, Stamford, the speaker dwelt especially upon the difficulty that Washington had in getting people to understand his object and purpose.

Washington wanted to establish a new country on the fundamental principles of democracy. It seems simple enough to us now. But the eloquent speaker brought out with remarkable clearness that Washington at the time was misunderstood and that not one state at the time of his greatest need had sent its quota of troops to his assistance. "Connecticut was way behind hers."

Mr. Cunningham said that every one should read the life of Chief Justice John Marshall by Beveridge, who surprised all his friends and relatives and enemies by writing a great book. "He brings out that the hardest thing in this world is to make folks understand an ideal."

Aye there you have it, and it is encouraging to us workers of The Agassiz Association. It has been difficult to meet expenses, difficult at times even to have a home, difficult every month to issue a magazine, difficult to meet even half of the demands that come to us, but all these difficulties fade into insignificance in the presence of this hardest thing in the world, namely, "to make folks understand an ideal."

To us here at ArcAdiA our purpose seems the simplest proposition in all the world—recreation and education in nature. "Per Naturam ad Deum." Study nature and from nature rise to the worship of nature's God. But the trouble is that many persons stand in astonishment and ask, "What does all this mean? What do you do? I don't understand it."

I am glad we had a Washington's birthday and that the Reverend Mr. Cunningham preached that sermon. It contained encouraging, cheering words.

Spring?

There's something in the air!
In woodlands brown and bare,
In gardens everywhere,

On all the nearby hills,
By all the little rills,
Whose ripple the silence fills;

O'er rolling meadows wide,
The banks the road beside,
And marshes at low tide;

In fields that wait the ploughs,
Among the orchard boughs,
Where, later, bees carouse;

In every thoroughfare,
With all the birds that pair,—
There's something in the air!
—Emma Peirce.

The only active silver mine in New England is at Newbury, Massachusetts.

LITERARY NOTICES

THE OUTLINE OF HISTORY. Being a Plain History of Life and Mankind. By H. G. Wells. New York City: The Macmillan Company.

These two volumes of more than a thousand pages are evidently not written from the historical point of view but as a preface to the right understanding for the future. The outline is a preliminary argument for peace and prosperity. The publishers emphasize in their announcement in bold black letters these last sentences which we have put in italics.

"The need for a common knowledge of the general facts of human history throughout the world has become very evident during the tragic happenings of the past few years. There can be no peace now, we realize, but a common peace in all the world; no prosperity but a general prosperity. *But there can be no common peace and prosperity without common historical ideas.*"

When so much of the book evidently points to the future the reader can but wonder why the author does not propound more definite statements of what he expects mankind to accomplish by this panoramic knowledge from the earliest geological ages. From the naturalist's point of view the outline impresses one as top-heavy at the beginning. Mr. Wells draws a great amount of material from geology up to the time of the arrival of man on earth and then bids good-by to all scientific endeavors.

Some of us, in fact, a great many of our readers, believe that for a clear understanding of the past, in view of peace and prosperity for the future, we do not need to give so careful consideration to the horrible wars and the work of the guillotine of the past, to realize that this world is not so much a place for man to devil in as to delve in. The chief work of mankind in order to achieve the best peace and prosperity is to understand nature and how best to draw upon her bountiful sources. A little general stress is laid upon cultural education but practically none upon science. Our modern scientific workers and inventors are not even mentioned. It is astonishing that so much attention is given in the first part of the first volume to dinosaurs and allied forms of life in great detail, indeed, entering into extended discussions as to the spinnerets of the spider and the tracheal tubes of insects, telling of the early forms of ferns, etc., etc., and then with the advent of man the whole of nature is discarded.

So far as the outline deals with nature it gives one the impression that what she did was to prepare a fighting ground for the subsequent nations. We have, for example, a great amount of space devoted to the wars of England, France and Germany, and one looks in vain for even the slightest reference to the accomplishments of any one of these great nations in making the world a comfortable place for residence.

Since the days of the cave man some things have evidently happened for the future peace and prosperity of mankind, besides guillotines, gunpowder and gunboats, to make our old earth so long geologically developing a worth while place for mankind.

It is a curious fact that Volume I has many extended references to elephants and mastodons but in Volume II, when we are supposed to be ready to fit up this earth, there is no reference to Benjamin Franklin, Thomas Edison or Luther Burbank, nor any mention of hosts of others who have done the real work of developing the earth as an abode of present and future peace and prosperity. It also is curious to note the extended references to China and the comparatively limited number to the United States. There is less than a sentence of reference, in the entire thousand pages, to the automobile and but little reference to modern agriculture. To natural history as a whole there is only one brief mention in the beginning of the book to a natural history museum supposedly in the days of the dinosaurs. There are a few slight references to astronomy but without the personality element entering in. There is only one reference to the heavens and that is to astrology.

Notwithstanding this ignoring of nature after man arrived we can but say a good word for the author for so fully portraying the earliest geological and biological phases of the earth. In later chapters in telling of wars and religions and struggles of mankind he has furnished some interesting reading, so interesting that the book is regarded as one of the best sellers and is included among the books of the hour. Mr. Wells is a skilled writer and though sometimes he becomes independent of facts he is excusable, as he has succeeded in setting people to reading, thinking and talking. He has produced an outline of history that tends to draw mankind into one common brotherhood. He shows that after all we are not merely a community formed of United States, England, France, Germany, Japan, Russia, etc., but we are one great human family. When he recommends us to lay aside the gun and gunboat he is commendable. He has accomplished much in urging us to stop studying new ways by which to kill men but he should have gone further and have at least pointed out the possibilities of the future through a better knowledge of nature. It is evident from reading various notices of the book that everything that Mr. Wells writes calls out a host of unfavorable critics but it must be encouraging to him and the publishers to note that it brings a much larger host of purchasers and readers.

Everyday Adventures. By Samuel Scoville, Jr. Boston, Massachusetts: The Atlantic Monthly Press. Price $3.00.

Here is a delight for the outdoor rambler at all times of the year. The author is a real, all-the-year-round naturalist. He is not limited to the burst of spring nor to the vacation days of July and August. He proves this in his chapters in the early part of the book on "Zero Birds" and "Snow Stories." The book is an enjoyable one, written in a delightfully simple and interesting style without any attempt to be technical or rhetorical. It takes nature just as the author has found her, detailing first one thing and then something different, yet there is a line of consecutive thought so that the book is not at all scrappy. The illustrations are from some of the best nature photographers of the country.

"FLYER—THE SQUIRREL."
Cut from "Everyday Adventures" by courtesy of The Atlantic Monthly Press.

Mr. Scoville Formerly Lived in Stamford.

In response to a letter of inquiry from the editor of this magazine Mr. Samuel Scoville, Jr., wrote as follows:

"I formerly lived in Stamford but was never a member of The Agassiz Association although I believe my brother belonged.

"You ask me to tell you when I first became interested in nature study. I think that I have always been interested in out-of-door subjects. When I lived in Stamford as a boy I spent most of my time in exploring the woods and the Sound and in enjoying little adventures with the wild folk whom I met, and I have kept this up ever since. After I left college and started to practice law in New York I still lived in Stamford and used to take long walks after dark, that being the only time that I had to get out of doors, and have often explored all of your country around Sound Beach late at night both winter and summer. Personally I believe that if one will learn their way into the world of the wild folk they will add a great happiness to their lives. A little knowledge of the birds and flowers and trees and animals keeps one out of doors and keeps one so interested that he never finds time to grow old.

"I think I still know all the country between Greenwich and South Norwalk and could find my way blindfolded all around Stamford and Sound Beach. One of my best fishing ranges in the Sound was Horse Neck Steeple over the north chimney of Deacon Ford's house in Sound Beach and the Yale and Towne chimney in the first gap among the trees at the end of Davenport's Point. It was called Decker's Ground and was a wonderful place for blackfish. I have no doubt the reef is still there although perhaps the ranges are gone.

"Give my love to all the wild folk who live in your part of the world and to all the tame folk who have learned their secrets."

ARCADIA

Miscellaneous Contributions.

Mr. Ellis B. Noyes, Portsmouth, Va.: Gall grass growth.

Mr. A. McEwen, New York City: Beautiful spiral shell over thirteen inches in length.

Mrs. Peter Bain, East Orange, N. J.: Cowry shells that have been used as money in Africa, and other miscellaneous small shells.

Mrs. C. W. Dreyer, Sound Beach: Beautiful oil painting of ship at sea.

Dr. Henry B. Ward, in Charge Faculty, Department of Zoology, The University of Illinois, Urbana, Ill.: Microscopical apparatus and mounted slides from the laboratory of his father, the late Dr. R. H. Ward of Troy, N. Y. Material packed and shipped through the kindness of Mr. Sanford L. Cluett, Troy, N. Y.

A Convenient Bee Frame Lifter.

The Agassiz Association acknowledges with gratitude and appreciation the receipt of a convenient frame lifter sent by Mr. John E. Reigner, 456 Hanover Street, Pottstown, Pennsylvania. This is a device for removing any frame from a hive. It is labor saving and especially convenient in removing the first one, which beekeepers sometimes find difficult to lift out. We think that most beekeepers will use it in that manner and after the first frame is out will separate the others by the hive tool and remove them in the usual way. We are glad to make acknowledgment to Mr. Reigner and to show his device to our visitors and students.

The Guide to Nature is interesting and instructing, ever demonstrating the the truth its title page is carrying. Its monthly issue is anticipated and with it a desire to express to the editor my appreciation.—Miss L. Cheshire Hoyt, New Canaan, Connecticut.

The Laboratory at Cold Spring Harbor.

We now know that summer will soon be here and we are reminded of the delights of biological study by the receipt of the announcement for the summer of 1921, the thirty-second season, of the Biological Laboratory at Cold Spring Harbor, Long Island, New York. This laboratory is favorably located for its special work. It offers picturesque surroundings, convenient buildings, good fare and particularly a high grade board of instructors. The rates of tuition and also of board are moderate. For further information address the Biological Laboratory, Cold Spring Harbor, Long Island, New York.

"A Real Urgent Need."

New Haven, Connecticut.

Dr. R. W. Shufeldt,
Washington, D. C.

My dear Sir:

I read with great interest your letter to Dr. Claxton published in The Guide to Nature for February.

I have studied nature with children in school and camp and observed nature study as taught in a great many schools. I feel there is a real, urgent need for just the sort of pamphlets for teachers that you suggest I wish the idea could be put through immediately.

Edward A. C. Murphy.

For the sick and the sorry and the weary at heart stands a refuge at their very doors. There needs but sight to the unseeing eyes and the unstopping of deafened ears, and the way to the World where the sweet Wild-Folk dwell lies open. Therein is happiness that time cannot tarnish, the stilling of sorrow and rest from toil. Let him who hears the call heed it as he values his soul's welfare.—Samuel Scoville, Jr., in "Everyday Adventures."

PUBLISHER'S NOTICES

'Tis not in mortals to COMMAND success, but we'll do more, we'll DESERVE IT.—Addison.

LOCAL.

Modern Clothes Washing.

Don't wash in the old-fashioned way. The world moves onward in better methods of doing things. One of the great problems of life is the drudgery of the household. Dish washing machines are helping solve part of that problem but an equally important part is clothes washing. Now that difficulty has been met. The White Wet Wash, Stage Street, Stamford, Connecticut, has worked it out so that the cost is minimum and the results effective.

Readers of this magazine will find it profitable to read their advertisement in this number and to telephone Stamford 969 for further particulars.

The White Wet Wash automobile calls anywhere in Stamford or its suburbs and takes the clothes—even wool, silk, yes, blankets and rugs without additional charge and without worry to the customer. It is a simple matter to chuck everything into the bag that is furnished, tie a string around the top of it and let The White Wet Wash do the rest.

Nowadays electric appliances make ironing at home a less formidable task.

The Comes-Northrop Company's Store.

We are not surprised that this company has had to enlarge its store some thirty feet, taking a skylight in the rear into the main part of the store. Ever since this enterprising business house commenced advertising in The Guide to Nature it has prospered. The enlargement to the store adds room for some twenty dozen more soft hats, making it now the largest haberdashery in Stamford. We congratulate the managers upon their well deserved success.

GENERAL.

Do You Wish to Travel Abroad?

Here is an excellent opportunity to travel through Europe, Japan, China, in fact around the world, on tours under the personal charge of Mr. W. A. Waterman, formerly principal of the Greenwich (Connecticut) Academy for girls.

The editor of this magazine is well acquainted with Mr. Waterman and believes that he is of the ideal personality to make European travel a delight. He has had extended experience in this line of work since he left schoolteaching and has met with remarkable success. We cordially invite our readers to correspond with him at the address given in his advertisement in this number.

I received the sample copy of The Guide to Nature. It is the best magazine I have ever read and I subscribe to several. . . . I am now a night fireman in a factory and I find an hour or so at odd times through the night to go out and observe the stars when the atmosphere permits.—Theodore H. Cooper, 56 Columbia Avenue, Batavia, New York.

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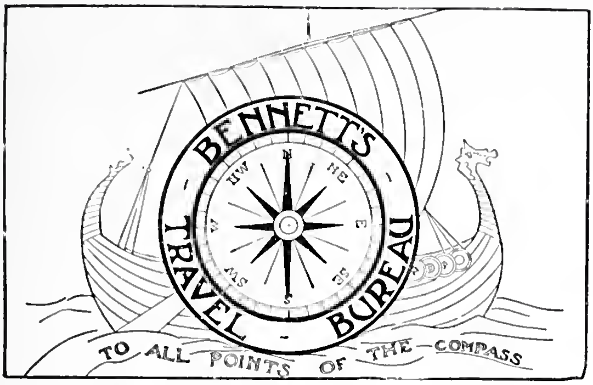

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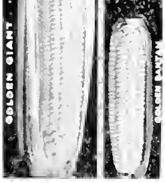

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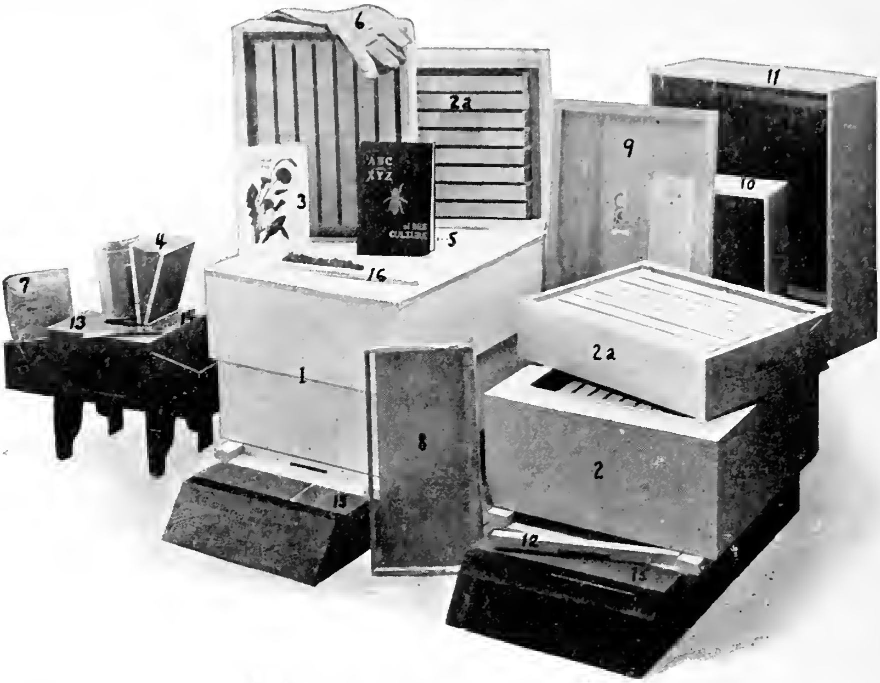

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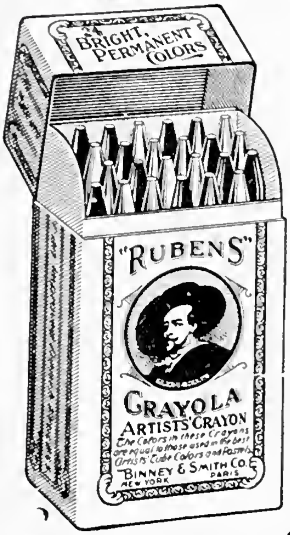

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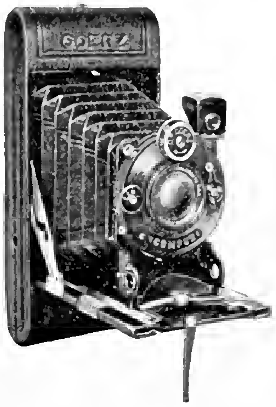

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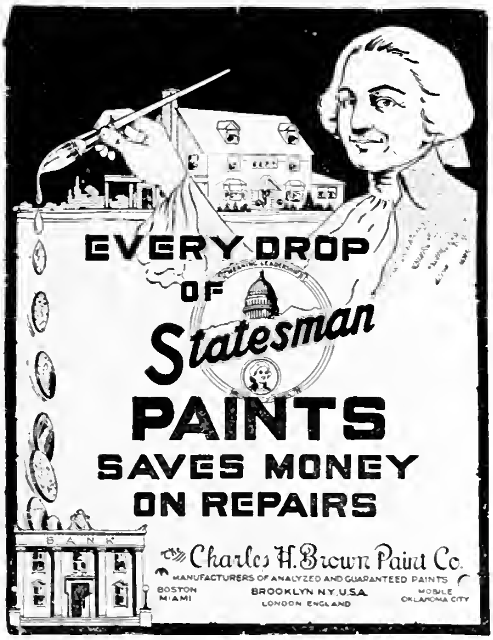

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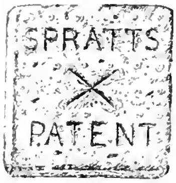

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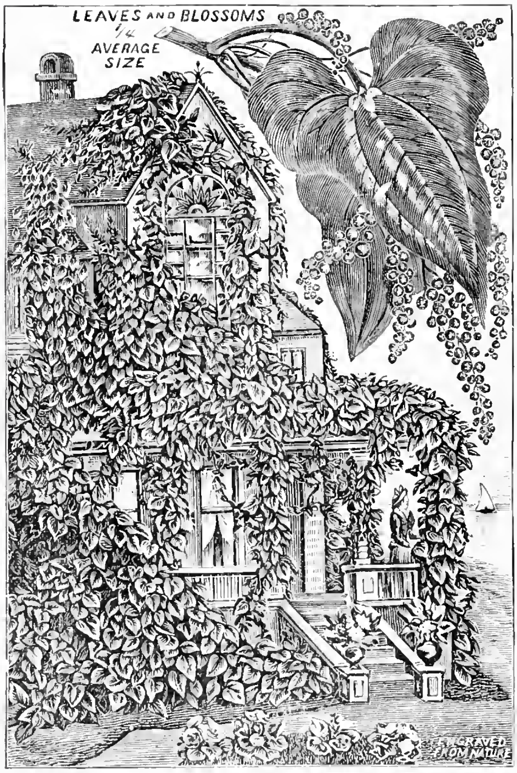

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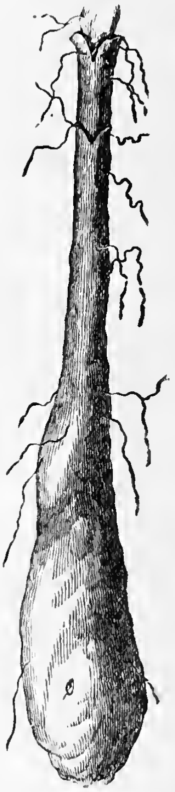

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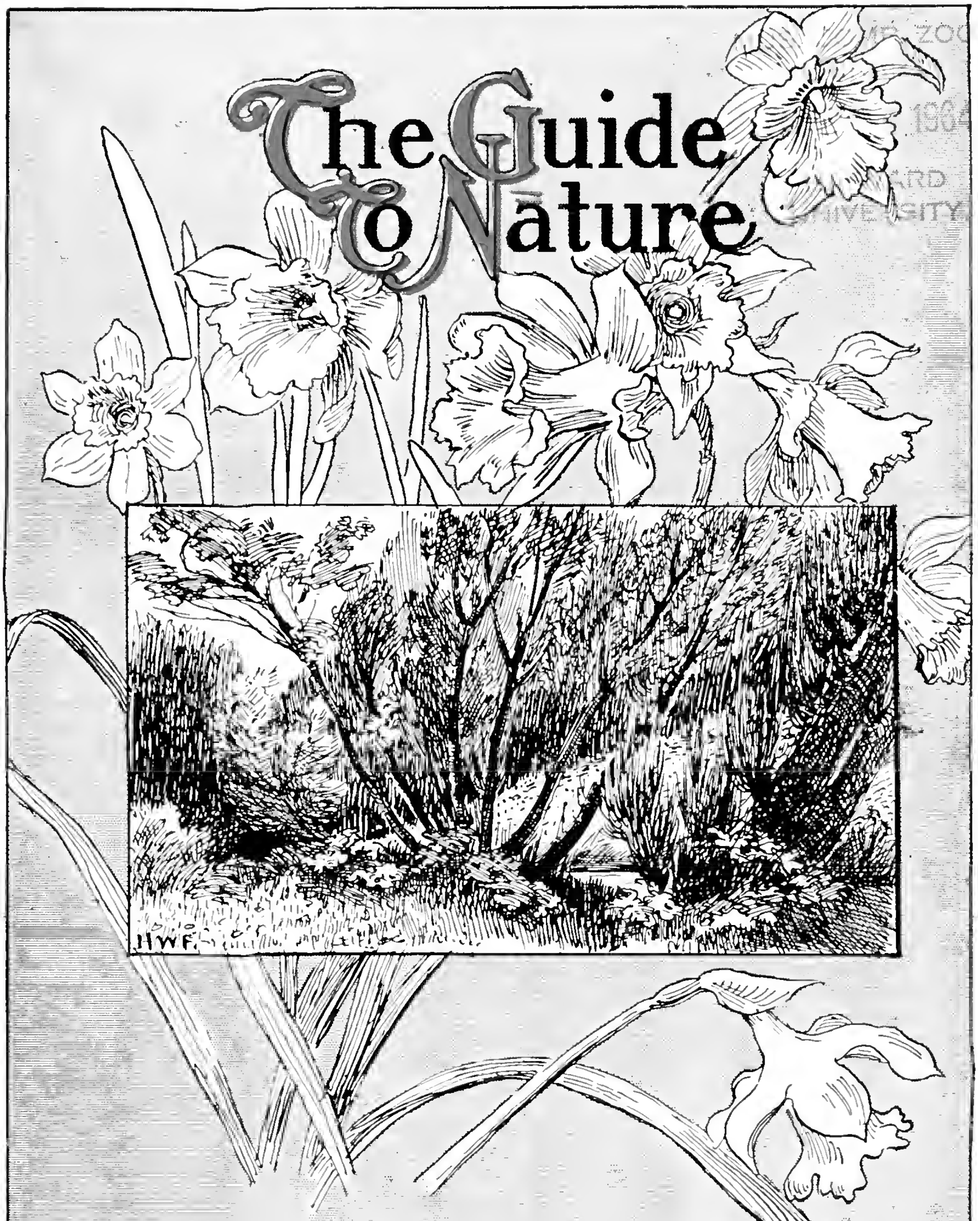

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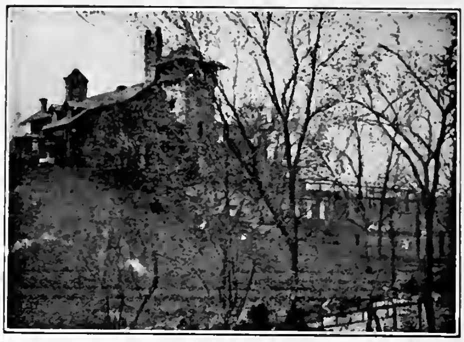

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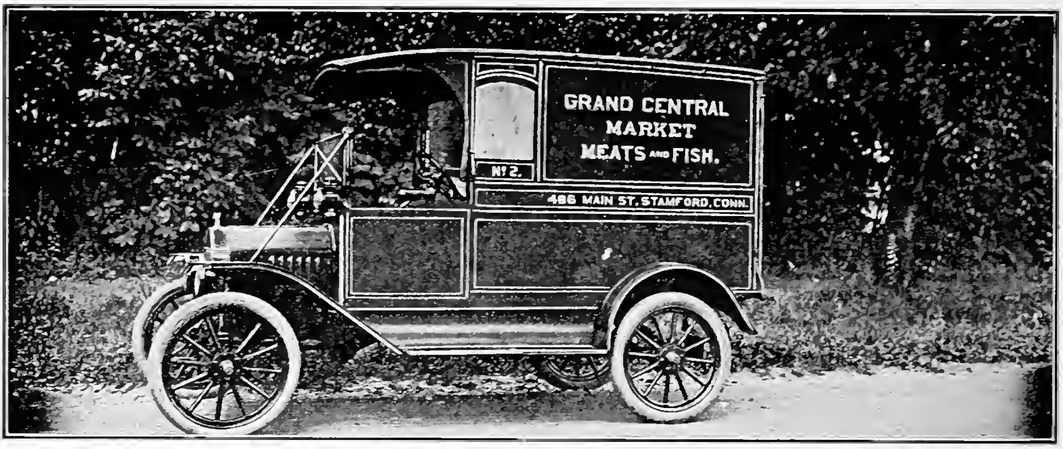

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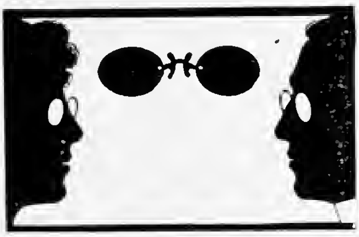

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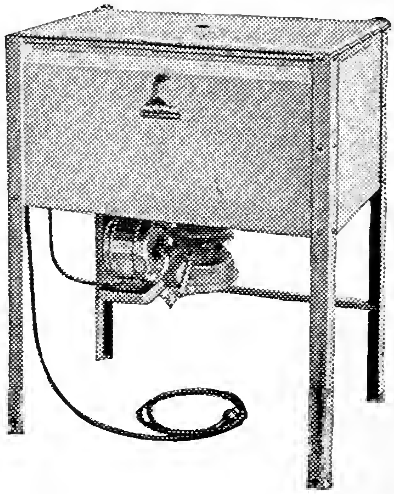
[This advertisement was written by the editor of this magazine after careful investigation of the merits of The Mermaid Dish Washing Machine sold by The Connecticut Light and Power Company, Greenwich, Conn.]

THE MERMAID MAKES DISH WASHING A DELIGHT



Among the most meritorious of labor saving inventions is the modern Dish Washing Machine, and of these the Mermaid appears to be the most satisfactory. With it the drudgery of dish washing for a family of four three times a day is reduced, by actual experience, to six minutes each time, and this is allowing one minute for draining off the water.

The machine is well and strongly made, the motor is powerful, and the result of the work is satisfactory.

With it dish washing ceases to be a household nuisance and becomes a pleasure.

These assertions are made, not by the manufacturer nor by an agent, but by a disinterested investigator who studied various makes in stores in three cities and in actual use in hotels and restaurants in New York City.

We have used the machine three times a day for several weeks, and know whereof we speak.

The Mermaid is certainly the best made dish washer of moderate price now in the market.

For further particulars, telephone, call or write ArcAdiA (Telephone 55), Sound Beach, Connecticut, or

THE CONNECTICUT LIGHT AND POWER COMPANY

GREENWICH, CONNECTICUT

Burdett-McGillivray Company

SHOWING THE NEW SPRING AND SUMMER STYLES

Women's Porch and Street Dresses in pretty Ginghams and Tissues......... $3.95 up to $12.50

Children's Dresses in the new models. Youthful styles—ages 2 to 16 years... $2.95 up to $12.50

Phone 268

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WILL YOU TAKE ORDERS OR GIVE THEM?

Merrill Business College

Our Secretarial Course prepares both Young Men and Young Women to hold responsible positions.

Bookkeeping, Shorthand, Stenotypy, Typewriting and English Branches

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INDIVIDUALITY AND SMARTNESS . . . .

styled to accord with the desires of well-dressed man and a satisfying answer to fashion's demand, are the dominant factors that always keep

COMES - NORTHROP
HEADWEAR
far ahead of the ordinary

THE

COMES-NORTHROP CO.

445 MAIN STREET
STAMFORD, CONN.

Manufacturers and Retailers of **HATS**

FOR MEN WHO CARE

SEEDS THAT GROW

We're in a position to render you prompt, efficient service at prices below those of other reliable seed houses. We carry a complete line of

Vegetable and Flower Seeds, Lawn and Garden Tools, Fertilizers, Insecticides, Etc.

Our prices include free delivery. This alone should be a good inducement to patronize home trade.

ALWAYS AT YOUR SERVICE

MORAIO BROTHERS

FLORISTS

447 Atlantic St.
Stamford, Conn.

64 Purchase St.
Rye, N. Y.

Place Your Order at Either Store

The Shopping Place For Over Half a Century

THE C. O. MILLER CO.

ATLANTIC SQUARE Established 53 Years STAMFORD, CONN.

The Trading Place of Over Half a Century

OUR DAILY AND EARNEST EFFORT

is to serve you well

We suppose that it is too much to hope that our service may some day become perfect. It is too much to hope for that no customer of ours will find fault with our service at one time or another. But we promise never to let up on our daily effort to perfect our service and to try to make amends when it may fall short. This is your store—used by you, we trust, many times each month and year, and yours to suggest improvements, ours to put them into operation. What can you suggest today?

By the way, have you noticed that

Money Buys More and More Every Day Now

See how much more your money will buy this Spring than it did last, in this store, which is full to overflowing with New Goods.

THE C. O. MILLER CO.

ATLANTIC SQUARE : : : : : : STAMFORD, CONN.

The LOCKWOOD & PALMER Co.

Wholesale and Retail
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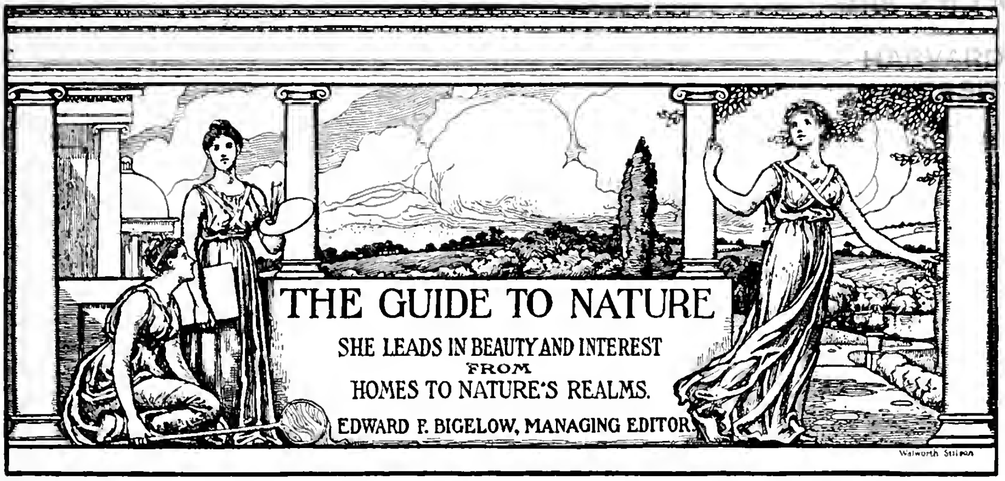
THE GUIDE TO NATURE
SHE LEADS IN BEAUTY AND INTEREST FROM HOMES TO NATURE'S REALMS.
EDWARD F. BIGELOW, MANAGING EDITOR.

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Volume XIII. MAY, 1921 Number 12

Spring in Southern California.

By Mrs. Fannie E. Blakely, Botanist of ArcAdiA, Now Studying the Flora of Lower California.

I shall always be glad to recall that I spent the date of this vernal equinox upon the Verdugo Hills. To ramble over their sunny slopes, bask in their flowery dingles and thread their glens fragrant with mountain lilac, is a new and delightful experience to one used to our slow coming New England springtimes.

Winter on a mountain mesa in the shadow of this green range is thoroughly enjoyable. There is such freedom in it, such bodily comfort, such variety. I have but to step off my doorstone to be in the midst of the strange, desert wildness that has brooded here for hundreds of years. Save footpaths here and there leading from one to another of the small homesteads, there is nothing on many a square acre of this heather covered expanse that speaks of human occupancy. I can nestle down amid the sage and greasewood and be as remote from human companionship as if I were the first inhabitant. The wind tosses and rustles the low evergreen vegetation with that peculiar sound that is the desert's own voice heard for ages on the semiarid plateaus that circle the world. In all directions are flowers—lupines, blue as the sky or purple as the cloud shadows on the hills; wallflowers, yellow as daffodils; here and there a pentstemon, bright as flame—all set in a wide flung sprinkling of snowy nievita illumined with the covenas in violet blue, and the gilias in every shade of lilac and rose, and among them, covering the ground, a carpet of smaller blooms from the size of a pinhead to a thimble.

I doubt not Connecticut will seem soberly dressed after this riot of color. The very soil here seems to glow with cinnabar and saffron tints, and the sun's daily march through a cloudless sky, over a land of serrated peaks, purple shadowed canyons and warm tinted vales, recalls one to a sense of strangeness in New England's soft and tender days.

Life in my tiny bungalow is much like camping. It is pleasant to roam the mesa in the warm light of the descending sun and gather the next day's kindling wood, snapping off the dry stems of the sage, resinous as pine and aromatic as mint. In the sharp, clear air of the mornings the breath of them ascends heavenward from my tiny

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chimney like incense. Blue as the lupines of the mesa, it drifts down the slope to where, amid the silvery sage, the alfilerilla is opening in the first rays of the sun, tinting the ground as pink as the dawn lighted peaks of the Coast Range seen against the western sky. A little later the birds come in companies, gathering around the cabin for the crumbs thrown out for them the night before. There are diminutive native sparrows of various kinds, all melodiously talkative, and finches, also of a diminutive kind, who hop about on the flower carpet all aglisten with ruddy streaks on breast and sides as if bedraggled with its purples. They fly up betimes on to the cabin roof to warble loud and long. A mocking bird perches on the clothesline pole and sings jubilantly, looking down on the merry flock indifferently for, being an insect eater, he has other breakfast resorts in view. It is my impression that the few birds this region supports have become thus partially domestic, gathering around the homes of man for food and protection.

The four-footed creatures are noticeably shy and silent. I have a few times seen, very early in the morning, the long ears of a jack rabbit appear above the sage as he nibbled the young leaves of the wild broom; and sometimes from my window see a native squirrel sitting motionless on a boulder with his absurdly abbreviated tail discreetly concealed as if he were ashamed of it. I have at times caught him in the act of going into his burrow which is near-by, close under a stone pile and concealed by tufts of wild oats. It is a round hole about six inches across with clean-cut edges and opening directly downward. There is no disturbed earth to betray its locality nor any trail leading to it. Its occupant enters by the stone pile which he evidently reaches by a circuitous route that leaves no trace.

Climbing the hill trails I sometimes come upon the nest of the wood rat, built of sticks and leaves and well up from the ground in the branches of a low tree or shrub, for by a strange reversal of the rule the native rats live in trees and the squirrels in the ground.

Little gray and brown lizards can be counted on wherever the sun shines brightest and the ground is hottest. They dart hither and thither as if bent upon nothing in particular but activity for its own sake. Among them the horned toads scamper excitedly, but with a slower and clumsier motion. One of them will sometimes linger on my doorstep to divert himself with queer little nods and winks. Taken in the hand they show no fear, submit to have their heads scratched, close their eyes and swell out their sides in the drollest toad fashion. I understand, however, that they are not toads but a species of lizard.

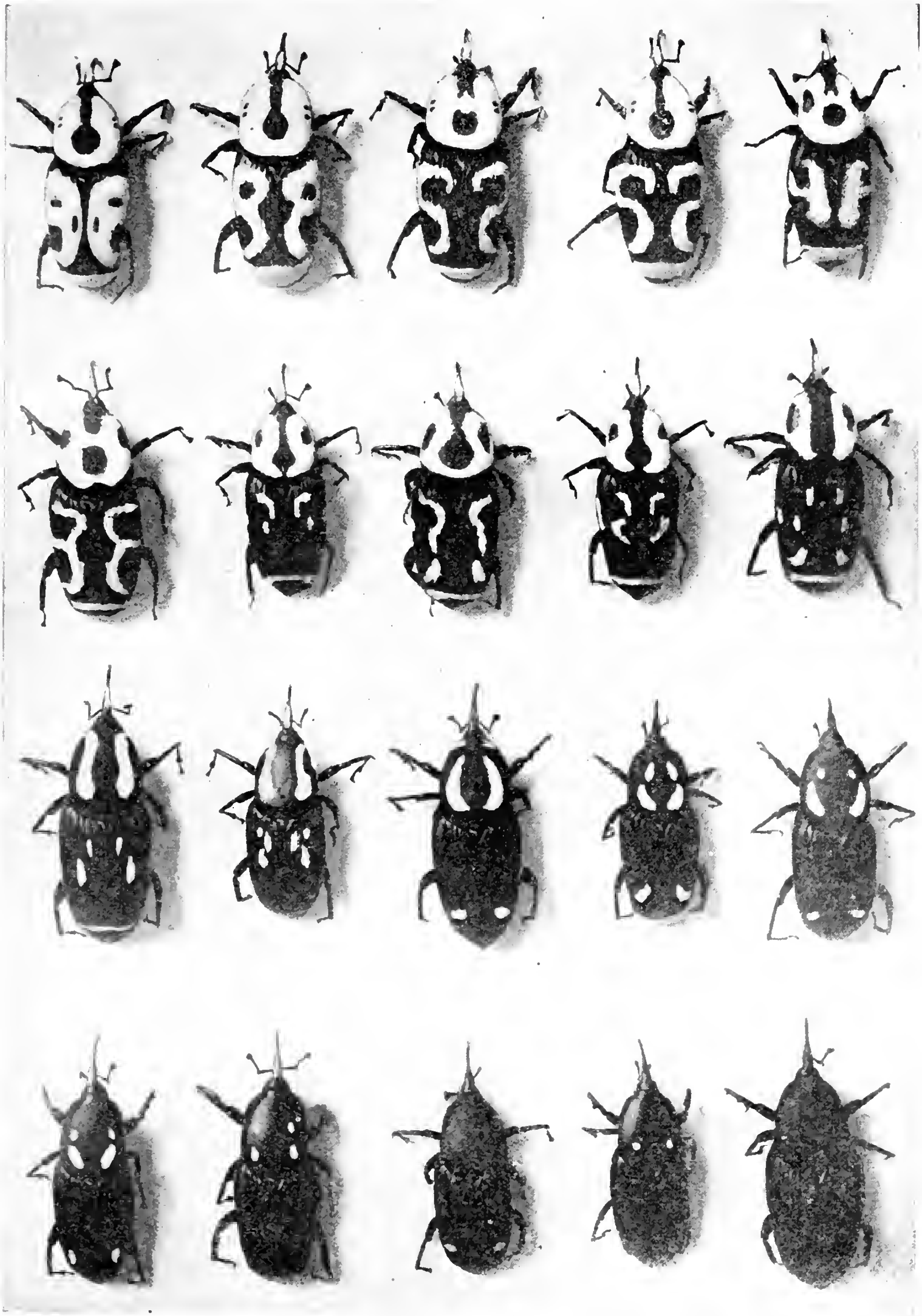
I imagine that insects are rare at all seasons. At intervals a scorpion is found concealed under a flat stone. I have seen a few house flies, a few spiders, a few small butterflies, and have heard the song of crickets on especially warm nights. During an exceptionally warm spell in February I found a colony of large yellow wasps sunning themselves near the cabin. They appeared every day during the warmest hours, piling themselves up three layers deep on a flat stone. I inferred that they were hibernating beneath the stone. Of late I have not seen them there but have encountered them among the shrubs of the mesa, flying singly in a blundering and aimless manner as if still half asleep.

I shall carry away from this mountain valley the memory of its sun flooded, color flooded days. I shall also carry the memory of its strangely silent nights. I have walked the mesa when it lay silvery in the moonlight and the mountain walls loomed large and dim and been conscious of a silence so profound and all pervading that, like the darkness of old, it could almost be felt. I have listened for a sound that the midnight watcher has been known to sometimes hear—the howl of a lone wolf in some yawning canyon of the Sierra Madre, or the cry of some lingering coyote chasing rabbits on the Verdugo Hills. But the only nature voice that I could count upon with certainty was the muffled chirp of a solitary cricket in some sheltered nook under a sun warmed stone: and the only sound from the world of men, the scarcely distinguishable whistle of the Southern Pacific Midnight Express speeding through the San Fernando valley toward "The Land of Little Rain."

Variation of the Palm Weevil.

[From The Journal of Heredity.]

While collecting in the vicinity of Daytona, Fla., April 5 to 9, 1919, I made two visits to a freshly cut cabbage palmetto stump, the sap of which had started to ferment, and captured ninety-two specimens of the palm weevil (*Rhynchophorus cruentus* Fabr.). This large series was taken to show to what extent the species varies both in size and color. The males are readily



VARIATIONS OF THE PALM WEEVIL.

The color pattern, which is dark red, was painted white in order that the pattern would show more clearly in the photograph.

recognized, regardless of size and color, by the noticeably thicker and roughened beaks or rostra. The following figures show that size and color are in no way sexual characteristics and that those referable to the two larger groups are remarkably uniform in numbers, while those that might be termed strictly intermediate are comparatively few. The entirely black form is known as variety *zimmermanni* Fabr.

TABLE OF COLORS.

Entirely black 38 specimens — 20 males and 18 females.

Red present to a greater or less extent on the rostrum, thorax, elytra (wing cases), legs and the basal and anal segments of the abdomen, 42 specimens (21 males and 21 females).

Thorax and elytra both slightly marked with red, legs entirely black, 6 specimens (3 males and 3 females).

Thorax only slightly marked with red, rostrum and tibiae reddish, 5 specimens (2 males and 3 females).

Elytra only slightly marked with red, legs black (1 female). Total, 92.

TABLE OF SIZES.

Smallest specimens, males and females, 28 mm.

Largest specimens, males and females, 36 mm.

Not exceeding 30 mm., 14 males and 16 females; entirely black, 7 males and 7 females; marked with red, 7 males and 9 females.

Exceeding 30 mm., 32 males and 30 females; entirely black, 13 males and 11 females; marked with red, 19 males and 19 females. Total, 92.

EXPLANATION OF PLATE.

First row: 1, 2 and 3 males; 4 and 5 females.

Second row: 1, 2, 3 and 4 males; 5 females.

Third row: 1 and 2 females; 3, 4 and 5 males.

Fourth row: 1 female; 2 male; 3, 4 and 5 females.

This series shows practically a complete gradation between an almost red specimen (the first in the series) and the pure black specimen at the end of the last row.

CHARLES W. JOHNSON.

Boston Society of Natural History,
Boston, Massachusetst.

Flies in Winter.

BY DR. A. F. GORDON MACKAY, MECKLENBURG, NEW YORK.

I recently noticed an article in "The Rural New Yorker" that dealt with the question, "Where does the house fly go in the winter?" I have wondered over this because the accepted theory does not always answer the question. For instance, last February I moved into a house in which there had been a fire only once in four years, in the early days of January last. On the third day after our entrance I noticed one or two flies on an east window in the warm room. I have also at other times noticed flies in other sections of the country in the middle of winter. Where do they come from and how do they subsist?

Moreover, when living in New Jersey along the seashore some years ago, I found mosquitoes in the house in the dead of winter. Sometimes in very cold weather we found it comfortable to open the register in our bedroom (it was only in very cold weather that we did so) and on those occasions we had a visit from the mosquito. Sometimes they did not bite, but at other times they were as friendly and familiar as they were in the heat of summer.

I have a theory that when they were not visiting us they were possibly in the radiator, but how they subsisted or got back there again is difficult to imagine because we always closed the thing before going to bed. Once or twice we managed to catch our visitors. They seldom buzzed or became active until the lights were turned off.

I should like to have some comment on these facts, as I am not entirely satisfied with my own theories, and my opportunities were too limited to obtain full information.

Do Moths Use "Wireless"?

It has for long been known that certain species of moths are able to communicate with one another even though separated by a considerable distance. This fact is to be noticed very plainly during the pairing season. A female of the Vapourer Moth (Orayia) may be enclosed in a wooden pill box. She will then attract males from all directions, and these will come from a distance of a mile or two.—Scientific American.

TO KNOW THE STARRY HEAVENS

The Heavens in May.

By Professor Samuel G. Barton of the University of Pennsylvania.

THE bright winter constellations have now disappeared from our map, to be replaced by the fainter summer constellations coming up in the east. The great dipper is now almost overhead and the little dipper, Ursa Minor, is well above the pole.

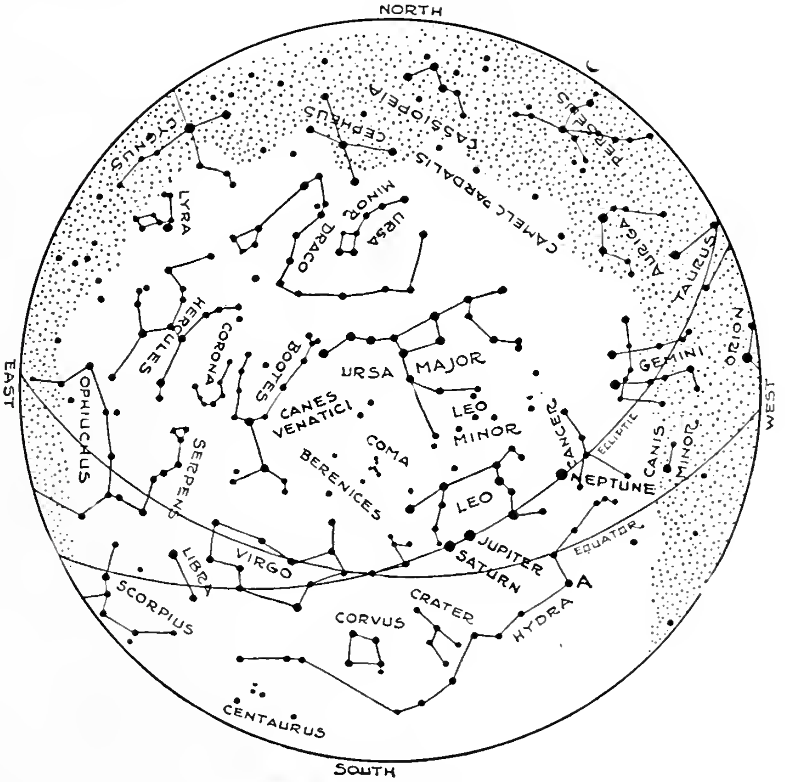

NORTH
SOUTH
EAST
WEST
CYGNUS
LYRA
CEPHEUS
CASSIOPEIA
PERSEUS
CAMELO PARDALIS
URSA MINOR
DRACO
AURIGA
TAURUS
ORION
GEMINI
HERCULES
CORONA
BOOTES
URSA MAJOR
CANES VENATICI
LEO MINOR
CANCER
CANIS MINOR
ECLIPTIC
NEPTUNE
OPHIUCHUS
SERPENS
COMA BERENICES
LEO
JUPITER
SATURN
EQUATOR
A
VIRGO
LIBRA
SCORPIUS
CORVUS
CRATER
HYDRA
CENTAURUS

Figure 1. The constellations at 9 P. M., May 1. (Hold the map so that the direction faced is at the bottom. That is, if facing east hold east at the bottom as south now is.)

While Ursa Major, "the big dipper," is the best known constellation, it is surrounded on nearly every side by constellations which are faint and among the least widely known. These, too, are well located now. Just south of the handle of the dipper is Canes Venatici. It contains fifteen stars visible to the naked eye. It is best known by reason of the fact that the great spiral nebula called the Whirlpool Nebula is located in it. This spiral nebula is the finest of its class. It shows well, however, only when photographed with a long exposure. Just south of Canes Venatici lies Coma Berenices, a concentrated group of faint stars, twenty of them being visible to the naked eye. West of this, just above Leo, is Leo Minor with fifteen naked eye stars. West of this is Lynx with twenty-eight naked eye stars. This constellation was invented by Hevelius in 1690. He said the name was given to it because only a lynx-eyed person could see it. It is full of fine double stars. Twelve Lyncis is a fine triple star.

On another side of Ursa Major we find Camelopardalis, with thirty-six naked eye stars. This is not now in good position. Other constellations surrounding Ursa Major are Draco, Bootes and Leo. These are better known. Draco is faint. Leo and Bootes have only small parts of them joining Ursa Major and their brighter stars are distant. Thus Ursa Major is surrounded by constellations which are decidedly faint. This no doubt makes it more conspicuous than it would be otherwise.

Venus, which has been conspicuous as an evening star, is now equally conspicuous as a morning star. It is brightest May 28. It is visible in the east before sunrise.

* * * * *

Jupiter Satellites.

The telescope is believed to have been invented first by Lippershey in 1608. In 1609 Galileo learned that such an instrument had been made, but no more. He then tried to reason out the means by which it would be possible to see distant objects, and soon solved the problem and made a telescope. His first telescope magnified only three times, but in a short time he made one which magnified thirty-two times. He made many telescopes with his own hands. Galileo did more than make telescopes; he used his telescopes to study the heavenly bodies. He was the first to use the telescope as an astronomical instrument. Naturally he turned his telescope on the moon and planets first. The power of three showed little. At one o'clock in the morning of January 7, 1610, he turned his higher power telescope on Jupiter. He saw the disc of the planet and three stars near it, as shown in Figure 2. The stars were nearly in a straight line and rather striking in appearance, but Galileo thought of them merely as stars which happened to be so arranged. For no particular reason he turned his telescope on Jupiter again the next night. What he saw is shown in Figure 2. The three stars were now all on the same side of Jupiter and closer to each other than on the previous night. As Jupiter moves among the stars, he might move and leave the three stars on the same side. However, at this time Jupiter should have been moving in the opposite direction from that in which it seemed to move from the positions of the stars. Now thoroughly interested he waited anxiously for the next night. He was disappointed to find it cloudy. On January 10 he found two stars again on the east and the third he supposed was behind the planet. Evidently the motion of the planet would not account for these changes. The changes must be primarily due to motions of the stars. On January 11 he saw two stars in about the same positions, but one much brighter than on the previous night. Taking the facts together he concluded that there were three stars revolving about Jupiter. On January 12 he saw a star on each side of Jupiter and about three o'clock another appeared faintly on the eastern side. What wonder that he was observing at three o'clock in the morning! Who that had the slightest spark of enthusiasm would not under these conditions? On January 13 he saw for the first time the four satellites, and his discovery ended. He continued to observe the positions until the end of March.

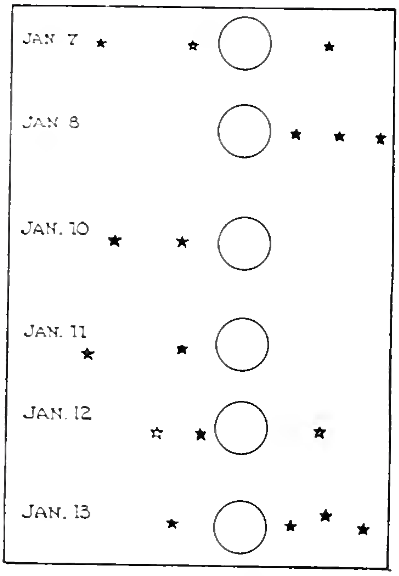


Figure 2. The satellites of Jupiter as they appeared to Galileo in January, 1610, when he discovered them.

To those familiar with these bodies it seems strange that he should not have seen the four at the same time earlier. They may be seen about three-fourths of the time. The explanation, no doubt, is that one happened each time to be close to the planet, and hence not visible in his small telescope.

From the days of Galileo these bodies visible in the smallest telescopes have had the admiration of those who have seen them. Five more satellites are now known to be moving about Jupiter, but these five are so very faint that to see them taxes the powers of the largest existing telescopes. The four bright ones—the Galilean satellites, as they are known—are in a class by themselves, both in respect to Jupiter's satellites and those of other planets.

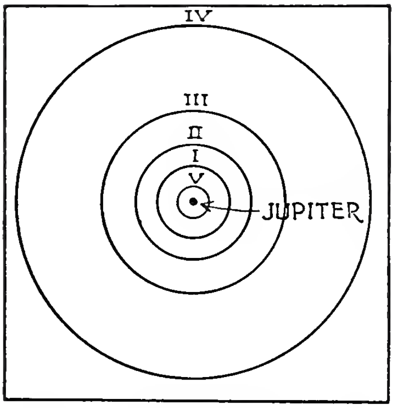


Figure 3. The orbits of the five inner satellites of Jupiter.

In the days of Galileo, however, the interest in Jupiter's satellites was of a different kind. It is almost impossible for us to realize now how important his discovery was in his day. They were the first satellites known: in fact, even the word satellite was yet to be formed, and the word telescope, too. Galileo called the bodies the Medicean planets, in honor of his patron. It was still pretty generally believed, as taught by Ptolemy, that sun, moon and planets revolved about a fixed earth. Copernicus had published his theory that the sun was the center, but only a few as yet accepted it. Men had difficulty in seeing that the moon would not be left behind as the earth moved about the sun. The satellites of Jupiter, however, were doing this very thing, and gave a model of the solar system as Copernicus claimed it to be. The satellites of Jupiter made an overwhelming argument in favor of the theory of Copernicus. The phases of Venus, also discovered by Galileo, were impossible in the older theory. Many important things have since been discovered in connection with these satellites. Their motions made a very delicate test of the accuracy of the law of gravitation. From their eclipses the fact that light has a measurable velocity was discovered.

Plumbers vs. Astronomers!

Admiral J. A. Hoogewerff, superintendent of the Naval Observatory in Washington, has trouble getting astronomers at $1,000 or $1,200 a year, which is the amount allowed for some of the young assistants who gaze nightly at the stars. They work in a cold observatory all through the winter and the admiral says their physical sufferings are often great. They have to be enthusiasts in their profession.

Such an enthusiast applied some time ago to Admiral Hoogewerff for one of the vacant places. The admiral talked to him for a while and discovered that he had no technical education or qualifications for the job.

"I'm sorry," said the admiral, "but I cannot give you the position."

"Very well," said the applicant. "If I can't get it, I'll go back downtown and keep the job I had."

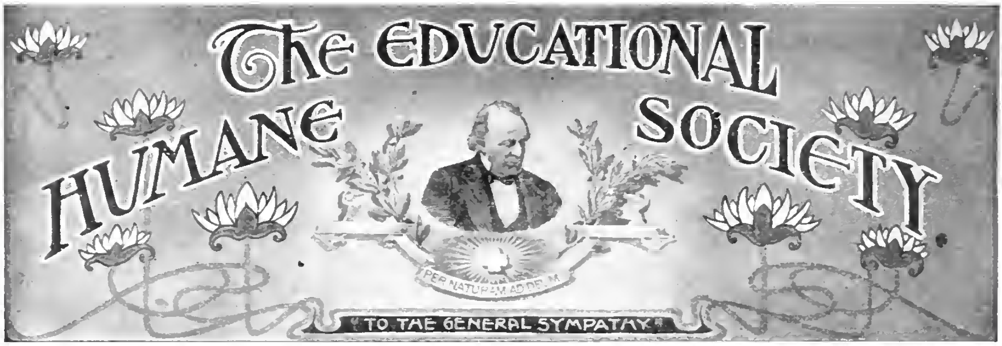
"What is it?" inquired the admiral.

"I'm a plumber's assistant. And let me tell you, I'm making a lot more money in the plumbing business than I can make as an astronomer."—Brooklyn Eagle.

The astronomical instruments which the Germans stole from Pekin in 1901 have at last been returned. Among them were several that were built in 1673 and shortly thereafter by Jesuit missionaries, after the design of those of Tycho Brahe. A still earlier set, which had been displaced from use by those of the Jesuits, were made about 1279 and followed Persian models. Among these last is the earliest known equatorial mounting.

Spring is the most becoming robe
The old earth dons in the changing year,
And yet through all the passing months
We would not have it thus appear,
For green of Summer, fires of Fall,
And snow that forms the Winter's pall,
Have all their place in the scheme of things,
And but enhance the joy of Springs.
—Emma Peirce.

The Educational Humane Society



A Chapter of the Agassiz Association. (Incorporated 1892 and 1910.) The Law of Love, Not the Love of Law.

A Pet Raccoon.

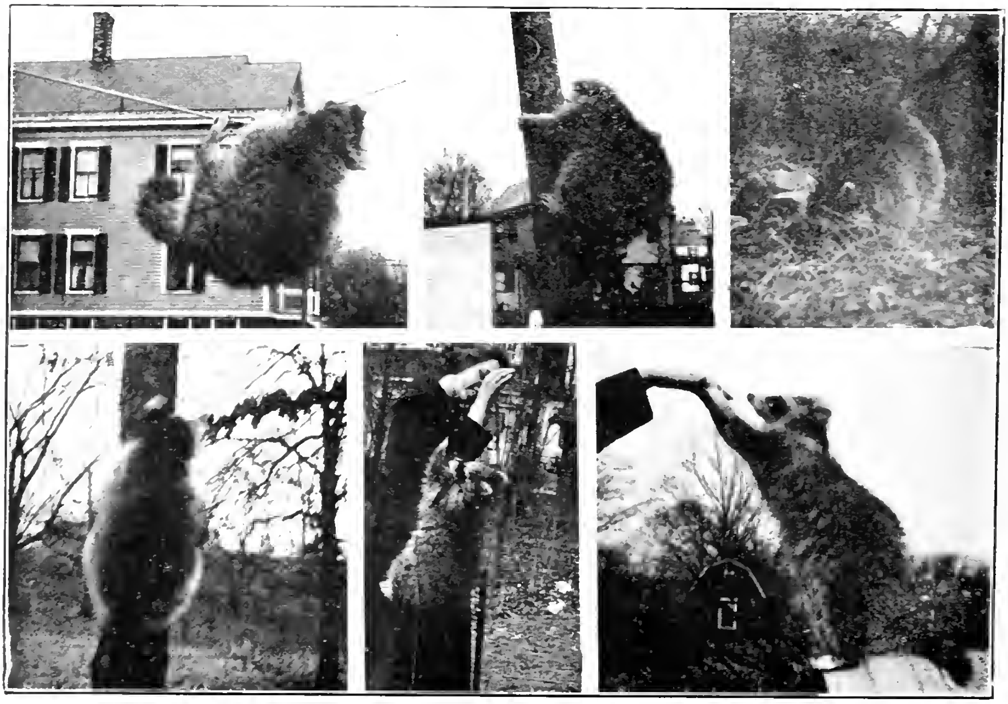
Poughkeepsie, New York.

To the Editor:

Last summer while climbing a mountain, or rather a large hill, eight miles from Poughkeepsie, New York, I happened by merest chance to find a raccoon's nest in a large balsam fir. The hollow in the tree was a little over two feet across and was entered by a small opening about a yard from the ground.

There were three young in the nest, apparently less than a week old and scarcely larger than my hand. Fortunately for me the mother was not at home. I took one of the babies home with me that I might have a chance to observe its habits. This was about the tenth of July. The mother coon showed her wisdom by moving immediately. When I revisited the place the next day there was no sign that it had been inhabited.

For three days my little raccoon refused to eat and I thought he was on a hunger strike. Later on he was persuaded to take warm and sweetened milk from a small bottle and tiny nipple. When he was a month old he ate bread and milk. He loved sweet things and would lie on his back and suck a stick of candy in perfect contentment.



A VARIETY OF ANTICS OF THE PET RACCOON.

His teeth were small but very sharp. When he was four months old his baby teeth came out and he grew a set of larger teeth. His jaw is very pointed, and in front the teeth are small and close set but on the sides, in the same position as our canine teeth, are four terrible, long fangs as sharp as needles.

Coonie washes his bread and meat before eating it. He doesn't seem to care if the water is dirty. He would wash a perfectly good slice of bread in a mud puddle for lack of better. His paws are tiny, dainty and black, with five slender, clever fingers. He seems almost human in his manner of handling things. He eats nuts like a squirrel, standing on his hind legs and holding them in his front paws.

He weighs fifteen pounds now and is so fat and furry that he looks clumsy but he can run faster than a dog. He seems to flatten out and slide when he is in a hurry. We keep chickens but although he has had many opportunities he has never tried to molest them. They are afraid of him, however, and do not go nearer than they can help.

I think that Coonie is far more intelligent than a cat. He is very clever about opening doors unless they are latched. He stands on his hind legs and throws his whole weight against the door. If that does not work he puts his claws in the crack and pulls toward him. He is a very fine climber in spite of his weight and the delicacy of his claws. Once he chased a cat up a tree and nearly caught it.

Coonie has been so tame and tractable that my father is anxious to buy another and raise coons.

ALICE HALL.

Why Does the Dog Do It?

The strangest thing I have ever seen an animal do, writes a contributor, is especially interesting because there seems to be no satisfactory explanation of it. There is a fine, well-fed dog in Indianapolis that spends the largest part of each day, rain or shine, in running alongside certain electric cars. Many dogs run after cars and automobiles, but of course this dog keeps up with the particular car he chooses, and never loses it; at each stop the dog is at the front of the car, barking, and biting the fender.

He does this only on the Pennsylvania Street line, and usually he sticks to one car; but occasionally he will change from an uptown to a downtown car in the middle of his run and stay with the latter during the rest of the day. For months he has never failed to appear somewhere along the line and start his day's run. None of the car men or passengers owns him, but everyone who travels on that line knows his antics well.

His tireless pursuit of the car is remarkable, not only because he is so persistent and methodical in it but because of the astonishing physical endurance that enables him to keep up the chase. He is never behind the car: usually he is ahead of it ready to greet it with joyful barks when it stops. In summer and winter I have watched him running wildly along at all hours of the day. The most inclement weather does not stop him; I have seen him at times with his shaggy front covered with ice from his breath.

Was there some one on one of those cars at one time whom he loved and whom he expects to see there again? Or is it just his way of enjoying himself?—The Youth's Companion.

Dogs, human beings and other animals enjoy doing the things that are primitive and natural. The dog is primarily a chaser, and he chases the trolley car because chasing is deep in his nature. For the same reason a golfer likes to tramp over hill and dale, the hunter shoulders his gun and goes through the field and forest. The fisherman goes to the pond or the brook because of original primitive instincts along those lines. It really is amusing to note how sometimes primitive instincts are displayed. They seem to go astray along divergent lines and that is why we notice the dog and laugh at his antics. But the cat plays with the mouse or with the spool of thread for exactly the same reason that the dog chases the trolley car.—E. F. B.

Trailing robes of glory,
Comes the Goddess of the Spring,
To write the old, old story
Of the earth's awakening.

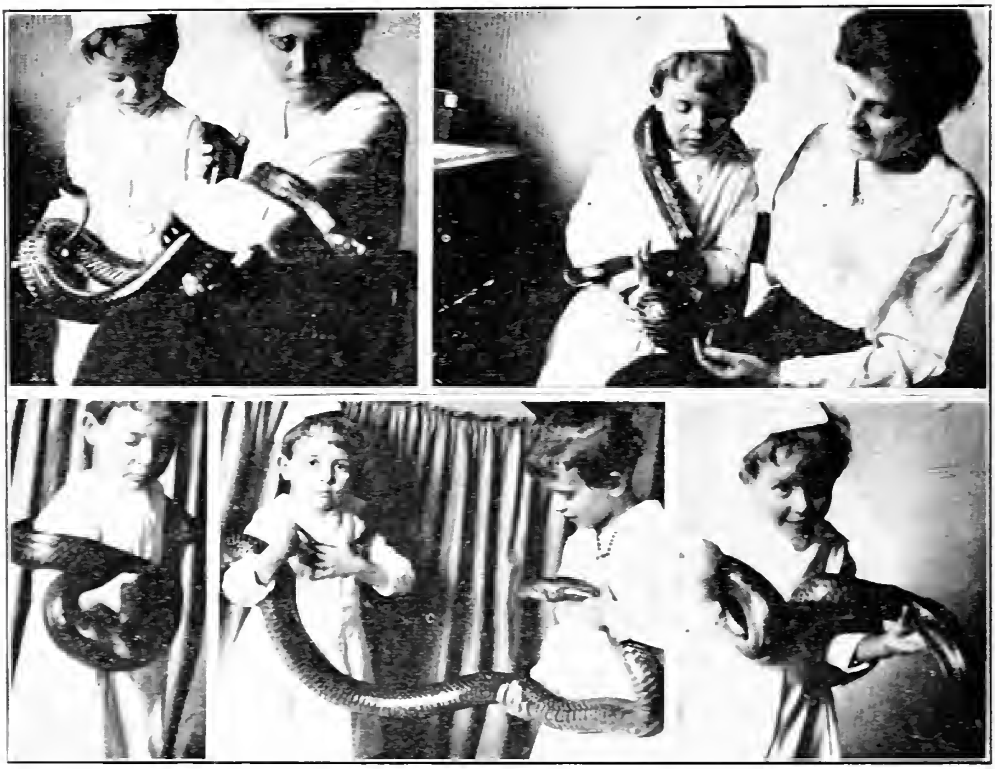
—Emma Peirce.

Seven Foot Snake as Household Pet.

Cincinnati, Ohio.

To the Editor:

You are constantly teaching us to use our eyes and see the beautiful things about us, so I am going to ask you to use your eyes and see my family with its latest pet. Both my boys happen to be girls but even so I am trying to teach them to "use their eyes" and particularly to be unafraid of things they may encounter in their walks and rambles through the fields and woods. For some time my little girls wanted a pet snake, with the result as shown in the pictures.



LOTS OF FUN WITH A SEVEN FOOT, TWENTY POUND SNAKE.

My original intention was to get a king snake but I could not find one and so, as second choice, decided on the indigo or gopher snake from the description in Ditmar's "Reptile Book." I obtained one from the Odell Learn Company of San Antonio, Texas, a concern claiming to be the largest snake exporting house in the country. The price was five dollars. It is over seven feet long and weighs twenty pounds. For a time I kept it in a large cage in the cellar on account of the warmth there. The cage is about thirty inches by almost four feet, and the floor is covered with horse bedding and in one corner is a fairly large, flat pan of water.

We have had the snake not quite three months, yet in this short time it has grown very, very tame, following the children up and down the stairs. As far as I have been able to observe, it really enjoys being petted. As Anita, aged five, approaches it on the floor, the snake slowly rises in an upright position in much the same way as we are accustomed to see in pictures of cobras, the baby stoops and the snake rests her head on the baby's shoulder To crawl over our laps while we are reading is a frequent performance.

I envy you your attendance at the meeting of the New York Reptile Society. I too am a member but have never been fortunate enough to be in New York when a meeting occurred. How I would have enjoyed seeing and handling the boa constrictor of which you write.

My experience with snakes is rather limited. I have never before had as large a snake as my indigo snake. Among the various ones I have had as pets years ago were our ordinary garter snakes, the local water vipers, hognose and a diamond rattler, the latter fifty-three inches long, a wonderfully handsome specimen. I handled that fellow about as I do the indigo snake now. I looped him about my shoulders and carried him looped over my arms. Occasionally I turned him loose in my laboratory for exercise when I had several hours' work there. I kept him in an old aquarium with glass bottom. This was easily cleaned with a wet cloth. I wiped up all about the snake, then pushed it into another corner and after cleaning where it had been pushed it back to its former place. I do not believe I would attempt anything like that again, but at the time I was considerably younger and of course much more reckless and foolhardy. Never did that rattler attempt to bite me, but of course I never treated it roughly nor was I ever mean to it and I aimed never to frighten it, so apparently we were the very best of friends.

DR. G. A. HINNEN.

Observation of Ants.

Port Matilda, Pennsylvania.

To the Editor:

When I was a child I was taught that ants were anty-mires. Probably all country children were taught the same name for the wonderful insect.

A post on our portico had become decayed inside, also infested by black ants. Some were much larger than others and had wings. I often amused myself watching those large black ants, and thought probably they were the same, without wings, that would infest our sugar barrel. We would lay tansy around to protect the sugar. There is a black ant, also a small red ant, that visits cupboards. The red ant is considered worse than the black one, it being particularly fond of pie.

Ants will bring up mineral from underneath the nest and when examined on graves in the cemetery seem to have chippings of bone. A good dose, a gallon, of petroleum on the nest will end their labors.

Before a rain vacant spots of earth or trodden paths are sometimes scattered full of small nests of ants.

Large nests may be seen near the road between Tyrone and Warriors Mark, in other words east of Tyrone probably two miles. Also near Altoona are nests a foot or two high or higher. The place is known as Ant Nests and building lots are being sold there.

There has been considerable worry among women over ants visiting peony buds which are often literally covered with them, probably after the aphides, their milk cows, and protecting the buds. Sometimes the buds that were covered by ants die. It may have been the aphides that killed them or the ants after some saccharine substance.

HARRIET E. WILSON.

This unusual observation of chips of bone found on graves in old cemeteries was referred to Dr. W. M. Wheeler, a specialist with ants, at the Bussey Institution for Research in Applied Biology, Forest Hills, Boston, Massachusetts, and he writes as follows:

"There seems to be nothing improbable about ants bringing up chippings of bone in cemeteries. The nests evidently go down sometimes to a distance of six or eight feet in the ground, and very small objects such as fragments of bone might be brought to the surface. On the plains in Wyoming Professor Hatcher many years ago found that the teeth of small fossil mammals were often collected on the mounds of the Occident ant. These small teeth may have weathered out of the ground in places and have been brought up onto the mounds, or they may have been carried up from beneath the surface. I remember Professor Hatcher saying, however, that these accumulations of small objects on the mounds of this ant made them excellent places for collecting the teeth of small fossil mammals."

"Spring is Here."

The breezes crooned it to the hills,
The sunbeams told the trees,
The flower-fragrance in the air
Apprised the wandering bees.

The birds are caroling abroad
The best news of the year:
Writ large, it is, on all outdoors,
The message—"Spring is here!"
—Emma Peirce.

THE
AGASSIZ ASSOCIATION
Established 1875 Incorporated, Massachusetts, 1892 Incorporated, Connecticut, 1910

Our Best and Unique Testimonial.

Implicit Confidence by Our Friends in Our Future Growth and Prosperity.

WHO was that wise and laconic philosopher who said, "Institutions that the people really want do not need to be endowed"? Whoever he was, he was only partly right. He voiced a phase of the great truth but only a phase. It is true that some institutions have been endowed far beyond what they need for efficiency. It is also true that endowments have continued some institutions that the world does not need.

Then too there is a third point that endowments have not aided a Cause but have lifted the responsibility from people living who should carry that responsibility. Life is real, life is earnest and life is present. Humanity quite rightly has a benefit of the heritage and advancement of the past, but it should also never be forgotten that work is for the worker and some of the greatest joys of this world are in carrying responsibilities.

Unique among all humanitarian, educational and uplifting organizations is The Agassiz Association. Never, although it is almost half a century old, has it had a gift in a will. It did receive five hundred dollars from the executors of the will of the late Pauline Agassiz Shaw because it was evident from personal letters that she so wished that to be, continuing at any rate for another year her gift of one hundred and twenty-five dollars every three months, but aside from that, notwithstanding the liberal gifts of many philanthropists while living, no one has remembered The Agassiz Association in a will.

At first thought that is very discouraging, but upon more careful consideration it is not wholly so. Our friends have recognized the worthiness of the organization during their lives and, so far as the work they have helped sustain is concerned, they have paraphrased the words of Bryant—they have approached the grave sustained and soothed by an unfaltering trust that the work they had helped would be carried on by some one else, and they have left the burden

"Like one who wraps the drapery of his couch
About him, and lies down to pleasant dreams."

It is not only astonishingly encouraging that so many of our good friends who have gone over to the Great Unknown had evidently implicit confidence that the work they had helped sustain would go effectively on but it puts upon the living a great responsibility. And it also issues an encouraging call to our new friends who are constantly coming to us.

To give, to cooperate in the work of a thoroughly noble organization is a real pleasure and no one has ever been lacking in appreciation of the friends of The Agassiz Association to deprive others of that pleasure. This point of view is nicely expressed by one of the best friends The Agassiz Association ever had, the late Commodore E. C. Benedict of Greenwich. His repeated gifts in moderate sums amounted to two thousand dollars. He was thus the most generous of our benefactors in recent years. Not many months before his death he made this statement to the manager of The Agassiz Association:

"I have had it in mind for some time to give you ten thousand dollars but have come to the conclusion either that the time is not right for such a gift or that it would not be the complete benefit I would wish it to be. It would deprive others of the responsibility and pleasure of giving and it might give the impression that I had so completely taken ArcAdiA and its work in my care as to make it a one man affair. Sometime I may see my way clear to carry out this long cherished intent to good advantage to all concerned."

The gift was never made, but we hold our kind friend in as deep gratitude as if he had made it.

Our next largest contributor was the late Honorable Zenas Crane of Dalton, Massachusetts. His gifts were repeated and many, and never did a letter of appeal go to him without a response of usually fifty or one hundred dollars.

In this connection, so far as the call to "carry on" comes to our present prospective friends, the words of Abraham Lincoln in his famous Gettysburg dedication speech seem especially adapted:

"The world will little note, nor long remember, what we say here, but it can never forget what they did here. It is for us, the living, rather to be dedicated here to the unfinished work which they . . . have thus far so nobly advanced. It is rather for us to be here dedicated to the great task remaining before us—that from these honored dead we take increased devotion to that Cause for which they gave the last full measure of devotion."

The angel of death has deprived us of many of our very, very good friends, and it seems fitting that our gratitude should include definite mention of some who have passed on from this life, leaving the responsibility to carry on unlessened and the joy of giving not marred.

Necrology	The Agassiz Association	In Memoriam

Sound Beach:
Mr. Albert Ferris
Mr. Lewis H. Freedman
Mrs. Grace Lee Smidt
Mrs. J. Edgar Willing

Greenwich:
Mrs. Elizabeth Milbank Anderson
Commodore E. C. Benedict
Mr. E. C. Converse
Mr. George Lauder, Jr.
Mr. Frederick C. Manvel
Mr. R. J. Walsh
Mr. Charles T. Wills

Stamford:
Mr. William B. Beckley
Mr. Harry Bell
Mr. George C. Blickensderfer
Mr. Belden B. Brown
Mr. John A. Brown
Judge John Clason
Mr. Albert Crane
Mr. J. Walter Davis
Mr. Seth G. Fessenden
Mr. Clinton R. Fisher
Dr. Amos J. Givens
Dr. Ernest J. Lederle
Mr. Charles O. Miller
Honorable E. L. Scofield
Mrs. Walter M. Smith
Mr. William D. Smith
Mr. Warren H. Taylor

Elsewhere:
Mr. Samuel P. Avery, Hartford, Conn.
Professor Charles E. Bessey, Lincoln, Neb.
Mr. Jefferson Butler Detroit, Mich.
Mr. John Lewis Childs, Floral Park, N. Y.
Honorable Zenas Crane, Dalton, Mass.
Mr. Thomas Edwards, Rye, N. Y.
Mr. R. M. Erving, Groton, Mass.
Mr. Arthur A. Estabrook, Boston, Mass.
Dr. Lewis Henry Jones, Ypsilanti, Mich.
Mr. J. Langeloth, Riverside, Conn.
Mrs. Olive Thorne Miller, Los Angeles, Cal.
Reverend C. Richard Oertel, Cuba.
Mr. John Phin, Paterson, N. J.
Mrs. M. Louisa Ross, New York City.
Honorable Eugene Secor, Forest City, Iowa.
Honorable D. O. Wickham, Cleveland, Ohio.

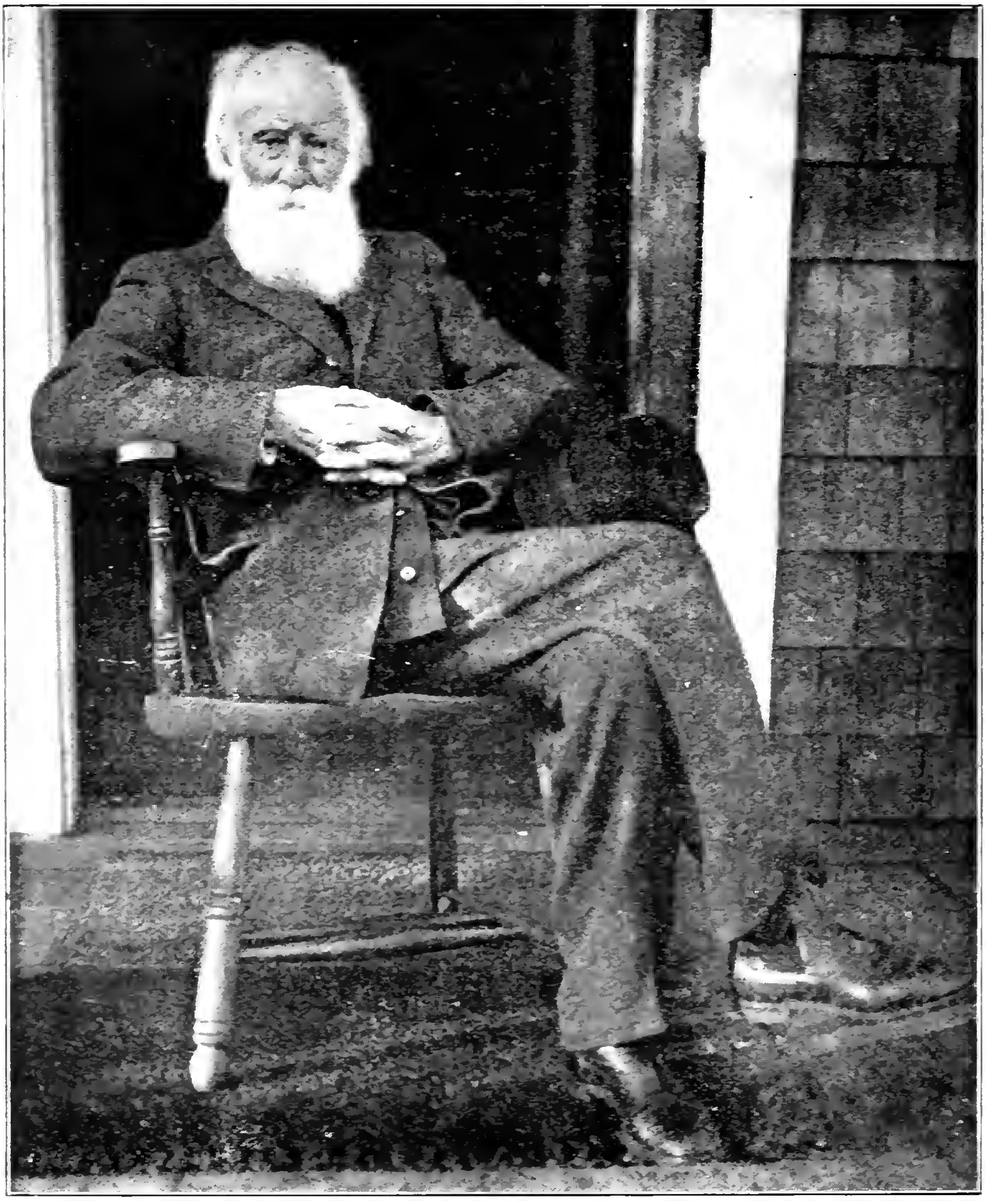
Death of John Burroughs.

John Burroughs, world famous naturalist, died on a train on March 29 while en route from California to his home at West Park, New York.

Death occurred in a Pullman compartment at 2 A. M., when the New York Central train No. 16, known as the New York-New England express, was passing through Kingsville, Ohio.

Mr. Burroughs, who had spent the winter in California, had been in feeble health for some time. Had he lived until April 3, he would have been eighty-four years old. He was the most famous naturalist ever produced by America and his nature studies along many lines have been accepted as authoritative.

John Burroughs was born at Roxbury, New York, April 3, 1837, received an academic education, and after teaching school for eight years and serving as a treasury clerk and national bank ex-



JOHN BURROUGHS AT THE ENTRANCE TO THE WELCOME RECEPTION ROOM ON HIS VISIT AT ARCADIA IN 1917.

aminer for the ten years following, then turned to his natural bent, the study o horticulture, birds, flowers and the common wild animals of the temperate zone.

He was a great friend of the late President Roosevelt, and one of Burroughs's books deals with tramping and camping with that eminent American.

Burroughs also was known as a philosopher, while his literary style was regarded as that of the first order, its simplicity and clarity being admired by all critics.

Burroughs's literary efforts and nature studies extended over a period of more than sixty years. He was given an honorary degree of Doctor of Literature by Yale in 1910, and a degree of Doctor of Humane Letters by Colgate University in 1911.

Burroughs was accompanied on the long journey eastward by his granddaughter and a physician. When the naturalist left Pasadena he was so ill he had to be carried aboard the train.

It was recalled that only last year when Burroughs had his annual outing with Henry Ford and Thomas A. Edison, he enjoyed himself by chopping down a tree at Napanoch, much to the amazement of his younger pals.

Death of E. C. Converse.

Edmund Cogswell Converse, financier, of Greenwich, a good friend of The Agassiz Association, died in Pasadena, California, Monday, April 4, following an attack of heart failure, with which he was stricken just after midnight. He was seventy-one years of age.

Mr. Converse was eminently successful along various lines of banking and of corporation management. He also was a skilled director of farming on an extensive scale, owning and managing through Mr. Drew, an excellent adviser, a two thousand acre farm known as Conyers Manor. He was a self-made man. His advance from one success to another was remarkable and rapid.

He was the personal friend of the late Mr. Bruce and one of the original trustees of the Bruce Museum, but owing to his increasing cares along a multiplicity of lines he a few years ago resigned that position.

Mr. Converse was an occasional though never an extensive contributor to the work of The Agassiz Association, his first gift being one hundred dollars for the Sound Beach Observatory. He sent that amount to the editor of "The Greenwich Press" to be forwarded, as an article telling of the value and necessity of such an observatory had been published in that paper. Only a short time before his death he sent us twenty dollars. Members of The Agassiz Association unite in extending heartfelt sympathy to members of the family in the loss of this good and efficient man.

Harry Bell.

Harry Bell—the name sounds boyish and he was a boy at heart, though he was seventy-two years of age at the time of his death that took place at his home in Stamford, Connecticut, Wednesday evening, April 13. He retained throughout his life the greatheartedness of a boy who is popular with his mates. Everybody who knew Harry Bell loved him. There was a geniality and kindly spirit that radiated cordial good will and endeared him to all.

Locally he was known as a prominent citizen and banker, descended from one of the original settlers of Stamford. His entire family for many generations has been prominent in local affairs. "The Stamford Advocate," in an extended account telling of his prominent business positions, membership in various organizations, etc., makes this truthful statement:

"He was extremely modest. His chief pleasure was found in making gifts to his friends and to those in need."

He was a frequent contributor to The Agassiz Association and the manner in which he made those gifts testified that the giving afforded him genuine pleasure. With him it was plainly blessed to give. His good will and cordial words often brought with them full as much encouragement as the more substantial contribution. His manner was charming. Though he was never actively engaged to any great extent in nature studies, conversation with him showed that he was a lover of the outdoors, especially of the rural districts of Stamford. He so thoroughly appreciated his community that he seemed to receive evidences of love from the roads, the fields and the farms, as he received it from the people. To them all he radiated love.

Few business men of his great ability have so gentle and modest a bearing. He never seemed aggressive, but was always boyish in the continued youthfulness of his heart. His outlook upon life was bright. In his death we lose one of our best friends.

Death of John Lewis Childs.

John Lewis Childs of Floral Park, Long Island, New York, died while asleep in a berth on a Pullman of a New York Central train from Albany on Saturday morning, March 5. When he retired Friday evening he was apparently in his usual good health.

Mr. Childs was in his sixty-fifth year and had been a florist in Long Island since the age of seventeen. He was widely known through his interest in horticulture and also through his general interest in nature study. He was an all-round naturalist and a royal good fellow. His death brought sorrow to many.

We of The Agassiz Association extend to members of the family our heartfelt sympathy.

Death of Dr. Rudolph Menger.

We are pained to announce the death of Dr. Rudolph Menger of San Antonio, Texas. The information sent to us does not give the exact date of the death. He was an occasional contributor to THE GUIDE TO NATURE and well-known to the Members of The Agassiz Association as an earnest and devoted naturalist. He was the author of articles in many publications and of a book, "Texas Nature Observations and Reminiscences," dealing with insects and quadrupeds of the state. We extend sympathy to relatives and the members of the family..

Evanescent April.

April now is here,
Sweetest time o' year:
Sparkling with her showers.
Fragrant with her flowers,
Vocal with her birds,
(Too rapturous for words!)
Golden with her sunshine,

Silver with her moon,
Cool in early morning,
Summer-like ere noon;
Fairyland at night,
Paradise by day,
She has one fault alone,—
She will not with us stay!

—Emma Peirce.

FULFILMENT.

When I have passed and shall be known no more
Among the living, then let my spirit blend
To unison with the forests I have loved.
Let my voice lost in the sighing of the winds
Through fragrant pines. Let my fleeting soul
That in its life adored all beauty, bloom
Eternally in the forms of swaying flowers.
Let the surging ocean speak my heart's desires,
Its hopes unfilled, aspirations unexpressed.
Let my form be brother to the cold insensate rock
And the soil that nourishes some later life.
Let no one mourn or say, "He is no more,"
Let them seek instead the Nature I have loved.
And hearing the voices of the wild, free winds—
Seeing the faces of the countless flowers—
And the heaving ocean's vast and grey expanse,
Let them say, "Lo! he lives once more
In the soul of all that he so loved in life."

HAROLD GORDON HAWKINS.

Provincetown, Mass.

Ephemeral Uplift Organizations.

In a recent issue of "The Daily Advocate," Stamford, Connecticut, under the department heading, "Stamford in Old Days," was an item from which we quote the following:

"The Civic Federation of Stamford, one of those ephemeral uplift organizations of which Stamford has had several dozen, was organized February 12, 1906. Its object stated in its constitution was to 'mass the moral sentiment of the community.'"

In every community there are "ephemeral uplift organizations." Sound Beach and Greenwich and, in fact, the entire nation has its full share. Nature and science have also had a wide experience in ephemeral uplift organizations. Ephemeral has been the career of innumerable magazines devoted to nature study and the general uplift of humanity and the improvement of the schools of the nation.

From one point of view it is well to try all sorts of things to prove that which is true but the trouble is that most of these local civic organizations, general uplift affairs, are not to prove that something new is true but to create official positions perhaps in hope of providing salaries as the outcome of some general drive for this thing and that. We note that the daily paper from which we quote has had frequent editorials on that subject and is evidently voicing the general opinion that these upstart, ephemeral organizations should be less plentiful.

No one should become so conservative or old-fashioned as to be unwilling to try a new thing. In no field of endeavor has there been in recent years such a growth of new organizations as in behalf of boys and girls. Many, many such attempts have been made since the remarkable successes of the costumed organizations, Scouts for boys and Scouts for girls, Camp Fire Girls, etc., but one wonders what such long tried and true organizations as the Y. M. C. A. think of these affairs.

Among those that have proved their worth by the test of experience is that grand old ideal, The Agassiz Association, formed forty-six years ago. In these forty-six years there have been but two presidents and neither of them has drawn a cent of salary for presidential or executive work. Where in all this country will you find that equalled?

The present editor of The Guide to Nature has edited the official magazine of The AA for thirty-one years, the name some fourteen years ago being changed to The Guide to Nature from the old, dearly beloved magazine, "The Observer." But practically the continuity of The AA has been unbroken for only four years less than half a century, and its magazine for only two years less than the third of a century. During that time this organization, erected on a solid foundation and with praiseworthy fundamental principles, has had occasion to look down benignantly if pitifully on upstart, amateurish attempts, some of them dragging along for several months and some for a few years.

The evident moral of this is: Stick to local and general organizations that have proved their worth and be chary of trying everything new that comes along. A queer fact and an astonishing commentary on human nature is that an upstart, new association can obtain better financial support than can those old, well tried organizations that have proved their worth. It is a good rule not to be too venturesome but to cling to the things of confessed, self-evident and proved merit.

The news about Betelgeuse must have jolted some of the movie stars considerably.—New York World.

PUBLISHER'S NOTICES

'Tis not in mortals to COMMAND success, but we'll do more, we'll DESERVE IT.—Addison.

Dish Washing a Delight.

Sometimes when the pendulum swings in modern invention, it swings a long, long way. Dish washing is proverbially the most monotonous drudgery of the household, and the inventor annihilating that drudgery has done great service. The inventor of the Mermaid Dish Washing Machine, however, has done more than swing the pendulum to the perpendicular; he has sent it over into the field of delight, for after all delight is simply the joy of satisfaction and there is satisfaction in seeing the ordinary things done superbly well.

This statement is made by the editor of this magazine as the outcome of delight in seeing the old monotonous drudgery of the kitchen turn into the satisfaction of a necessary thing, a mightily necessary thing, done well and skillfully. He attended a presentation in a New York theatre of Drinkwater's "Lincoln," and was deeply impressed by the statement so dramatically assigned to Lincoln when he saw slavery, "If ever I get a chance at that thing I shall hit it hard." But, he thought, slavery is not limited to the black people of the past. To a certain extent all of us are slaves in the treadmill of life, but one step after another in this treadmill has been banished. Memory does not need to run back many years to recall the drudgery of perpetually snuffing the candle. Then came the still more disagreeable drudgery of cleaning the kerosene lamp. But Edison smashed the slavery of the lights—he hit it hard.

The greatest of all the household slaveries is that of dish washing. It is even greater than that of clothes washing for it is everlastingly with us three times or more a day, the same old thing over and over.

The editor after thorough investigation at a variety of electrical stores and at several restaurants and hotels in New York City came to the conclusion that the Mermaid is the best dish washing machine in the market. But even that is not enough. One might have the finest radio apparatus in the land and not be able to send a message. It takes Yankee gumption and skill to use any machine advantageously. Without these even with the Mermaid the pendulum might hang on the side of unsatisfactoriness though it is a well made machine and has a good start in a high power motor. We have not space to describe all the little kinks that have made it a joy, but it is sufficient to state that after considerable experimenting it is now really fun to run the Mermaid.

The dishes of a household of four may be washed and well washed and thoroughly rinsed in six minutes, and that allows a minute for letting out the washing water. There is the gist of the whole thing, in a statement not made by the manufacturers or by the agents but by one who has found the way to use this machine with the highest degree of celerity and efficiency.

Incidentally it may be added that mechanically the Mermaid is unquestionably the best made of any of moderate price. It is for sale by the Connecticut Light and Power Company, Greenwich, Connecticut.

A Study in Adaptation.

"Daddy," began a small boy on a visit to the zoo, "why is it that giraffes have such long necks?"

"In order that they may feed from the tops of trees," promptly replied daddy.

"But why," continued the youngster, mercilessly, "are the trees so high?"

Again daddy rose to the emergency. "In order," he concluded, "that the giraffes may be able to eat."

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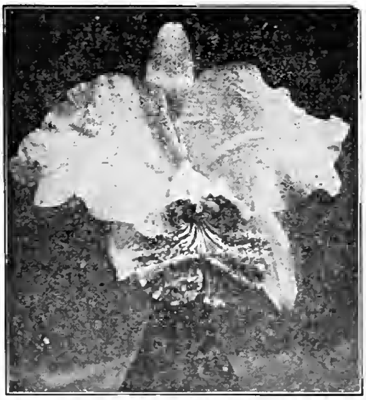

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LITERARY

THE NATURE OF ANIMAL LIGHT. By E. Newton Harvey, Ph. D. Philadelphia: J. B. Lippincott Company.

The author has limited his attention to the physical characteristics of luminous animals and to the chemical processes underlying the production of light. From the popular point of view it is interesting to note his statement.

"Apparently there is no rhyme or reason in the distribution of luminescence throughout the plant or animal kingdom. It is as if the various groups had been written on a blackboard and a handful of sand cast over the names. Where each grain of sand strikes, a luminous species appears."

He also cites some incidents so remarkable that if in a less scientific book from a less trustworthy author they might suggest the so-called nature faking. For example, he speaks of a glowing frog that had become luminous by eating fireflies. He says: "I remember once while collecting luminous beetles in Cuba, I was astounded to find a frog which was luminous. Expecting this animal to be of great interest, I examined it further only to find that the frog had just finished a hearty meal of fireflies, whose light was shining through the belly with considerable intensity."

The reviewer will try to match him. He once had an article on fireflies and received the proof from the printer in the evening's mail. He caught a large number of fireflies, put them in a bottle and read the proof by their light, making the statement in an addition to the proof.

Next. If you can beat it.

Joyful Wash Day!

BY CHARLES D. ROMIG, AUDENRIED, PENNSYLVANIA.

The dread of wash day may yet become a pleasure when we consider the great variety of new devices on the market for doing that kind of work. Not every one can afford a washing machine but many persons have automobiles, and rough roads create a certain variety of eccentric and erratic motions that would be useful in doing the family wash, provided you soak the clothes in a good, tight wash boiler or two, using good washing powder properly placed, and filling the boiler about three-fourths full of clothes and water. Put this aboard the automobile on any day in the week and start off.

A drive of one hour should be ample but longer will do no harm. The farmer and his wife can drive to town together on wash day. The city man and wife can drive to the country, family included, leaving the washerwoman to help entertain callers while the owners are out.

When it comes to wringing, drying and ironing, just get mad and go for it. There will be a way out of that also in time. The success of this plan depends on the boiler being slop-proof or tight and a right quantity of clothes, water, soap, etc.! !

What will the negative show?

There's density and definition; detail in high lights and shadows; correctness of perspective; color value—consider all these. For the negative can show only what the lens throws upon it. And any picture worth taking at all is worth taking as well as it can be taken. In other words, take it with one of the

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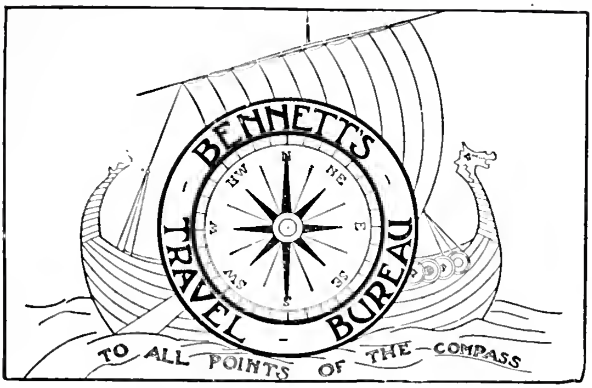

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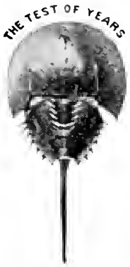

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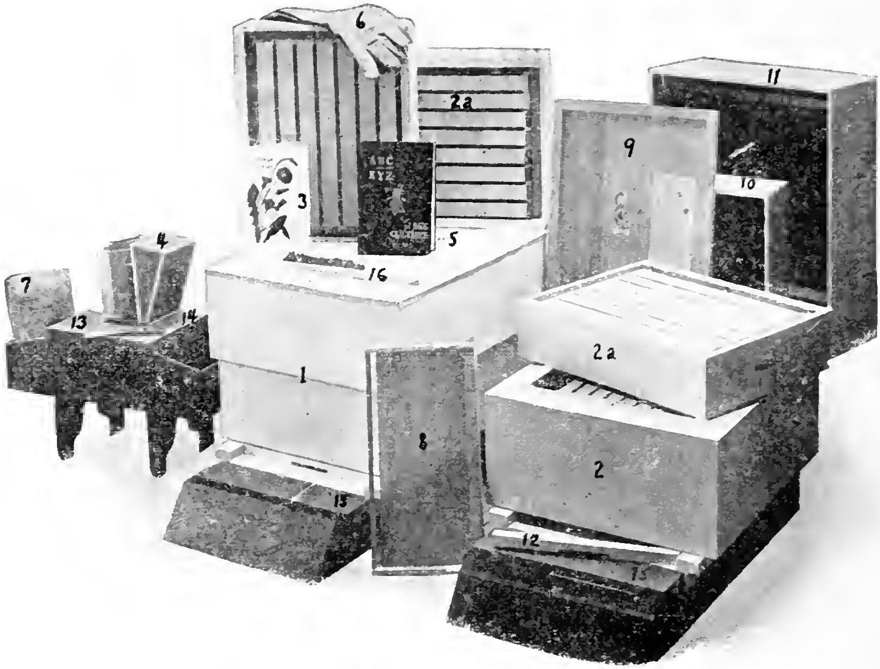

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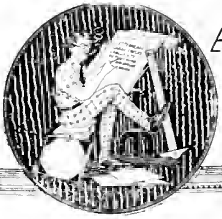

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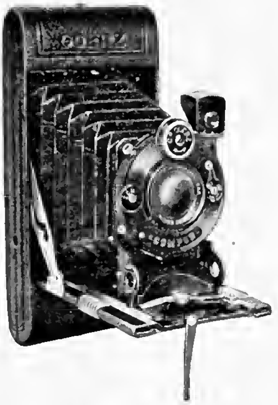

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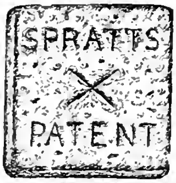

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Sirs:

With further reference to your letter of February 28th, 1921, you are advised that the Commissioner of Internal Revenue at Washington, D. C., has considered all facts as presented relative to the activities of your association and has decided that you are exempt from the filing of income tax returns under the provisions of the Revenue Act of 1918.

The Commissioner has further stated that amounts contributed to your association by individuals may be deducted in the income tax returns of said individuals to the extent provided in Section 214 (a) ('11) of the Revenue Act of 1918.

Very truly yours,
James J. Walsh,
Collector.