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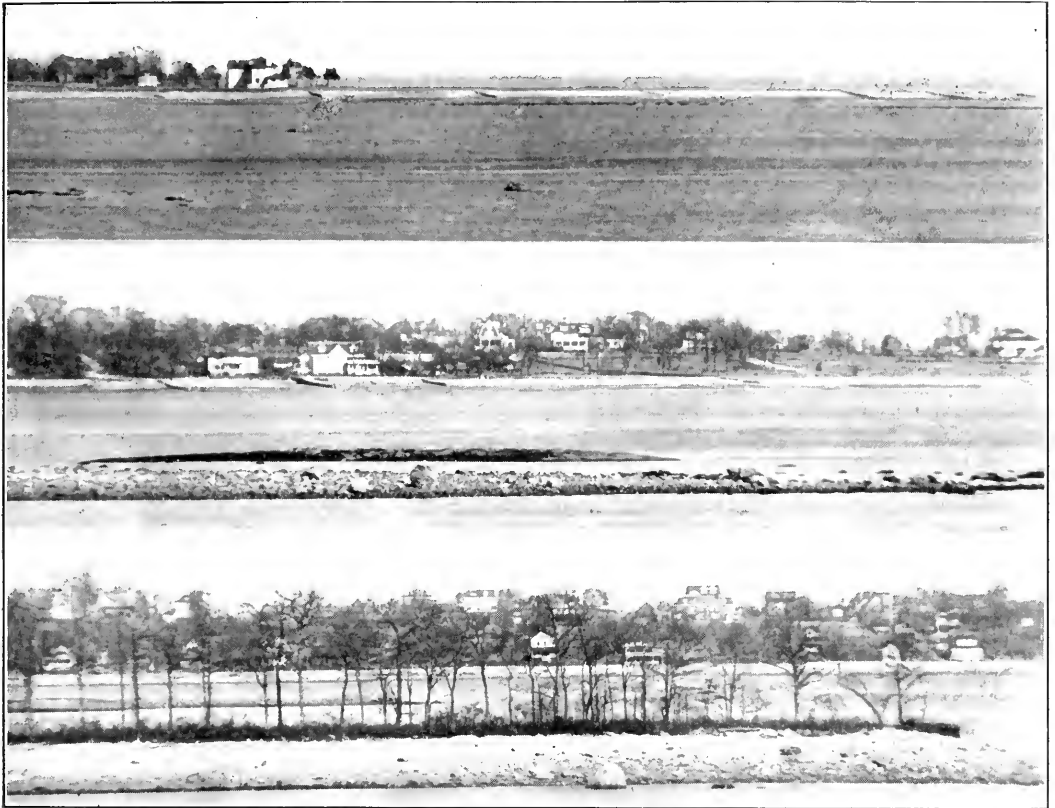
SOUND BEACH . . . CONNECTICUT

A Quadrupled Family.

Two brothers, the proprietors of Kall's Laundry at Sound Beach, married sisters. Such conjugal relations, though rare, are not unique. But this family does better, since two older brothers of these Kalls also married sisters. Therefore, if double doubling is quadrupling this may well be called the quadrupled family.

Pulling Over Shippan Point.

Sound Beach is on Long Island Sound, as I have before insisted that my correspondents shall keep in mind. Locally, Sound Beach is regarded as one of the best places of residence along the coast. I believe everybody who has ever lived here will agree with this. Shippan Point is nearly as good, and as Shippan Point extends farther into the Sound, it has a slight advantage over Sound Beach. But the two are neighbors. Only a few miles of water are between them, but when viewed with a little optical aid they come close together in friendly relations. I tried this with a telephoto lens as I stood on the Sound side of



THREE VISTAS OF SHIPPAN POINT
Tele-photographed from Sound Beach!

the porch at Mr. Sawyer's new house in Sound Beach. The results of the telephotography are shown in the accompanying illustrations. The upper part is the extreme end of Shippan Point, the middle is about half way

down the Point, and the lower illustration shows where the Point broadens out to the mainland. I think that this will give a new notion about the nearness of Shippan Point to Sound Beach, and of its picturesque beauty.

COME AND MAKE YOUR HOME WITH US

Sound Beach has long been known as an especially cool and healthy summer resort. It is essentially a sand bar jutting out into the Long Island Sound, with water practically on three sides, intercepting the prevailing southwest winds in the summer. Greenwich Cove, upon which **SHORELANDS** is situated, is an exceptionally safe anchorage for boats.

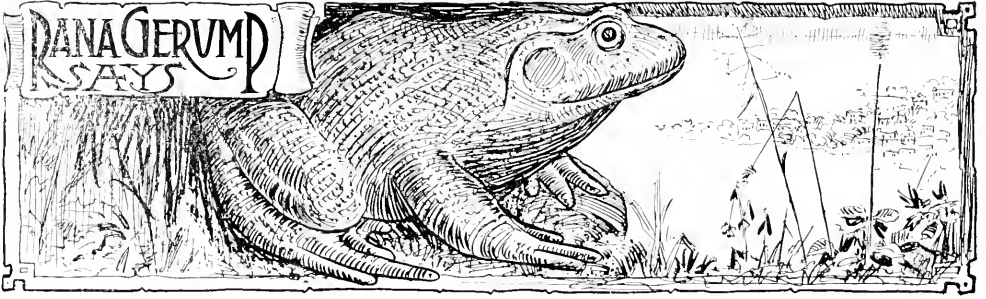
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Our "Contributing Editor" Jumps Forward.

I am here. By those who knew me best I am familiarly called "Gerump the bullfrog." Those who speak of me with proper respect call me *Rana Catesbiana*. I have been engaged as Contributing Editor of this magazine. With many a strenuous jump I come from explorations in the marshes of Mianus, to scan the actions of the people along the Connecticut shore.

The managing editor had heard of me as a philosopher and as a keen-eyed observer of the doings of men, and of my fame in finding out the reason why. So he engaged me to locate myself on this platform, from which I may say the things he may not have the time nor the inclination to say. If perchance I shall at times disagree with him, is it then to be marvelled at that I shall probably also disagree with you? If I am not so wise as an owl, make due allowance to my credit, pray thee, since I have no claws nor sharpened beak with which to tear your possessions, and to say sharp things that shall pierce your heart. I am but Gerump, an observing, meditative frog, and not a bird of wisdom.

I have observed that in the affairs of Stamford and vicinity, provision has been made for lancing the inflamed boils, for advocating in arguments, or for blazoning a bulletin of things done.

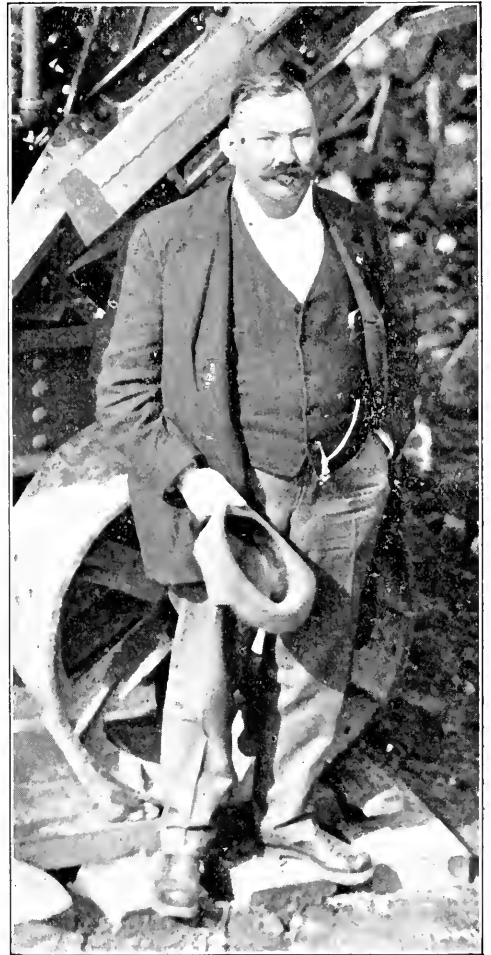
My field must then be always that of the optimist with a cheerful Gerump of encouragement and approval.

I shall try to be a Cheerful Contributor, helpful to you as well as to the editor.

Gerump!

The Joy of Doing Things.

In an extended notice by "The Stamford Advocate" of Contractor Arthur and his new steam shovel, the fol-



CONTRACTOR W. H. ARTHUR

lowing statements particularly attracted my attention. They are quoted from Mr. Arthur's remarks to a reporter for the paper:

"The Advocate used to say, when I



"LET US STAND BY THE STEAM SHOVEL AND DIG."

was Superintendent of Public Works, that work was my recreation, and I guess it is. A fellow can have a good deal more fun with a steam shovel than with an automobile, if his taste runs that way."

Here is the right spirit—the joy of doing things because they are worth while in themselves. Here is plenty of philosophy to save all mankind from many of their troubles. At the very best the time for social recreation must be short, but all of us can, if we will, make the regular routine duties of life our joy and recreation. I believe that things are worth while in themselves, and that our interests should not always be relegated to something else. Life is worth living for this world, whether there is another one or not. That was what Thoreau had in mind when, on his deathbed, he spoke those matchless words, "One world at a time." So we might say one hour at a time, one thing at a time, this is really worth while, it cannot be lived over again, it cannot be done again. It sounds well and inspiring when one reads it in verse, that life is worth living for itself, but here is a man, Contractor Wm. H. Arthur, whose philosophy should be heralded to the ends of the earth for the good of others. Poetry

and philosophy after all must in value come home to ordinary prosaic things, yes, even to the steam shovel. Life is not a curse, nor should work be a burden—each should be a perpetual joy, and if it be your mission in life to dig into a bank of obstacles, remember Contractor Arthur's philosophy. A steam shovel that stays right there and plods on, faithfully digging into the bank, going ahead though slowly, but surely, may be so utilized that it shall bring as much joy as an automobile that is everlastingly whizzing to "something else."

The philosophers at their books, the poets singing their rhythmic verse, the preachers in their pulpits, never uttered words of more thorough practicability to human needs than those, "Work is my recreation." We have heard of a man who did not appreciate that kind of philosophy. He thought that two years of hard work in the joy of doing, should bring enough money to enable him to enjoy another kind of recreation, and to find other good things in something else.

Let us stand by the steam shovel and dig.

Throw open your house and your heart to the sunshine.

A Cat that Sits Up and Takes Notice.

Here is the photograph of a cat which Mr. H. C. Stevens has sent to us. This interesting cat takes care



SHE SITS UP

of the rats and the mice at the store of the Eagle Confectionery Company, Stamford, Connecticut, where she has attracted much attention on account of her peculiar and characteristic habit of demurely sitting upright. Sometimes she will sit for a long time and gaze at



AND TAKES NOTICE

the boxes on the shelves, as she is shown in another photograph that Mr. Stevens has kindly sent to us.

A Robin with A White Neckband.

Stamford, Connecticut.

To the Editor:

On the morning of April 10th, I observed in the grounds of St. John's Rectory, a robin with an unusual marking. Around his neck was a perfect band of white feathers, about three quarters of an inch wide at the back of his head, and gradually narrowing to the front. The only other peculiar feature was that the top of his head was slightly darker than usual.

On the following day the same bird was seen by several other people; he therefore could not have been an optical illusion!

Is not this a very unusual freak of nature?

JULIA M. ADDISON.

It is, indeed, remarkable and of great interest as a study in albinism. Entirely white robins have been frequently seen, or robins with a few white feathers, but I have never before heard of one with such a neckband.—E. F. B.

Bird Studies in Popular Advertisement.

It is encouraging to note that interest in birds, as well as in other parts of nature, has so greatly increased with recent years, that enterprising business houses are using nature studies in their advertising. We are in receipt of a set of dainty little cards each with an illustration of a bird on one side and a description on the other. These pretty little cards, published by the Sen-Sen Chiclet Company, Twenty-fourth and Ralston Streets, Philadelphia, Pennsylvania, cannot fail to do good work in promoting a knowledge and a love of the birds. We congratulate the Chiclet Company upon this beautiful and original method of advertising.

Greatest Apple Eating on Record.

How many apples were eaten by Adam and Eve? We know that Eve 81, and that Adam 812, total 893. But Adam 8,142 please his wife, and Eve 81242 please Adam, total 89,384. Then again Eve 814240y herself, and Adam also 8124240y himself, total, 8,938,840.

—*Fun.*

All Of Nature.

If nature-study is to do its work for the coming generation and bring about that perfect sympathy with the whole great out-of-doors and establish spiritual as well as bodily sanity, it must stand for all of nature and not for detached bits of it which may be utilized in this or that other study or enterprise. The child forgets himself when he is doing the best nature-study, which should give him sympathy and understanding with all birds and not merely with the ones which work for him; and for all trees whether they make good timber or not; and for all insects whether they help or hinder him or remain neutral; and for the skies and the eternal stars as well as for the soil beneath his feet.

It is only in the larger sense and in the widest bounds that the companionship with nature may be established, and this ideal is, after all, what makes nature-study worth while.—Mrs. Anna Botsford Comstock, in "The Nature-Study Review."

What Mrs. Comstock says is timely but it is only half good. We not only need all nature, but we need it for all people. Why in all that is good and true, beautiful and beneficial should we limit an interest in nature to "the child?" Perhaps the most deplorable conviction in the popular human mind to-day is that good old Mother Nature is all right for the children to study or to admire, but that men and women must look for something different. Can it be possible that any human being, when he reaches the age of twenty-one has grown out of touch with the earth or with the heavens above? Do not abandon old Mother Nature and wander away from her loving interests, to search for the almighty dollar to spend for golf, for flying machines, for frivolities. As long as we live let us all remain children in her sight.

Go roam in the land of-out-of-doors,
'Twill banish that tired look of yours.

Nature study is an asset you can have without money and without price, yet its results will be priceless to you.

The sun is the very best of M. D's, yet his services are free to all!

Let your pleasures overflow
On the heads of those below:
They'll return to you again,
Purified by other's pain.

He Proved his Fish Story.

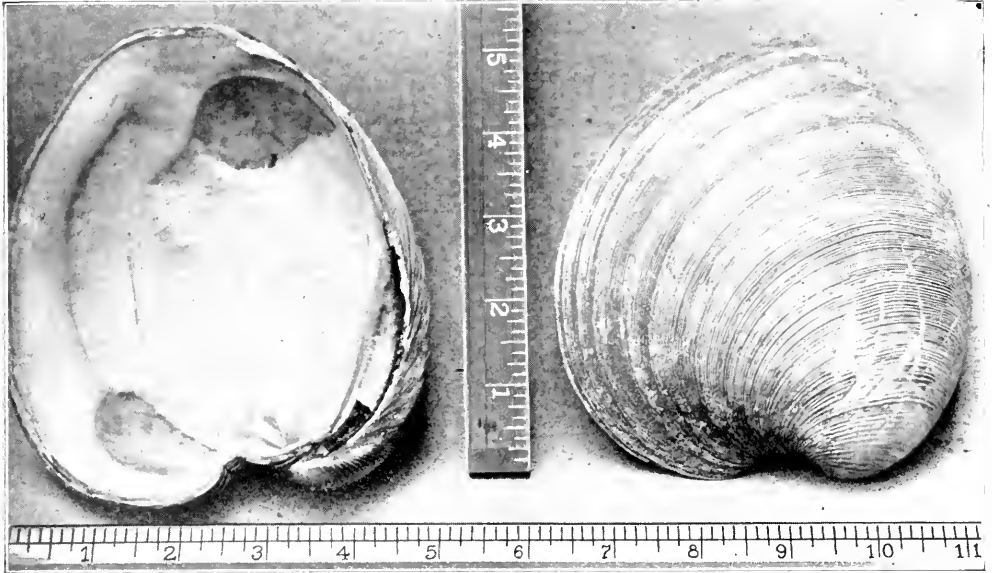
Many Stamford fishermen have told big stories about their catching of big fish, but Mr. E. B. Hoyt, who tells a big story, brings a photograph of his big fish to protect him from possible



MR. E. B. HOYT KNOWS HOW TO CATCH THE BIG ONES!

assault, verbal or other kind. He recently caught two hundred pounds of groupers at Sarasota, an island in the Gulf of Mexico, off the west coast of Florida. Some of these huge fish are shown in the accompanying photograph.

Are you getting distraught with these trials
of yours?
Let me whisper a word to you:—Move out
of doors.



OUR TOWN CLERK MAKES A "RECORD" ON BIG CLAM SHELLS.

Some Huge Clam Shells.

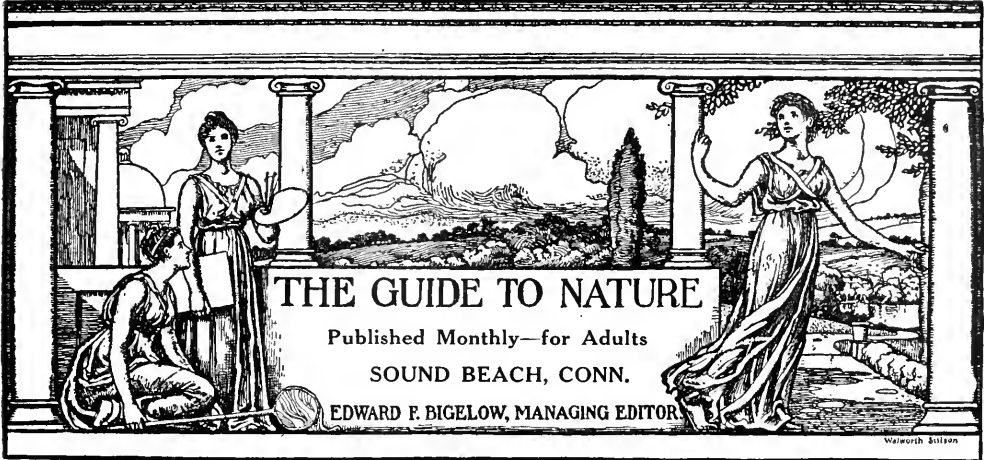
Mr. William Waterbury, Town Clerk of Stamford for many years, recently became impressed with the idea that what he needed was a little more of nearness to nature and of devotion to her. For many months he has been a regular reader of *THE GUIDE TO NATURE*, and we are not surprised that he should feel that the proper way to overcome the stress and strain of recording deeds and issuing licenses is to go and commune with Mother Nature. This he did on the west coast of Florida, where he found some specimens of nature's work in the form of round clams that not only fed the inner man, but gave that man an appreciation of some of the marvels of nature. The accompanying illustration shows the size of these clam shells, which Mr. Waterbury has been exhibiting to admiring friends in the true naturalistic spirit, which always is to see something for one's self and then to show it or to tell it to others.

Co-Workers in Nature Just Across the Sound.

The twenty-third annual session of the Biological Laboratory of the Brooklyn Institute of Arts and Sciences will be held at Cold Spring Harbor, Long Island, New York, during the summer of 1912. Regular class

work begins June 26 and continues for six weeks. Courses are offered in field zoology by Drs. Walter, Davenport and Kornhauser; in bird study by Mrs. Walter and others; in comparative anatomy in charge of Professor H. S. Pratt, Haverford College; cryptogamic botany in charge of professor H. H. York, of Brown University; training course for field workers in eugenics in charge of Mr. H. H. Laughlin, of the Eugenics Record Office with lectures by Dr. C. B. Davenport. Facilities are offered for investigators. Further details are given in the announcement of the laboratory which may be obtained by addressing the director, Cold Spring Harbor, Long Island, N. Y.

What, pray, is LIFE? I will tell you: Tireless twenties, thrilling thirties, fiery forties, fearless fifties, serious sixties, sober seventies, six feet of sod—God! But do not remember the alliteration to the forgetting of the LIFE! The great clock of the ages ticks days, not seconds; and it can be heard, not with the natural ear, but with the ear of ambition and courage and conscience. Hear it, hear it, hear it! Today the fire burns brightly in the grate, tomorrow the ashes will be gray.—Arthur H. Harrop, A. M., Ph. D., University of Denver, Denver, Colorado.



Volume V

MAY 1912

Number 1

YES, THIS BEGINS OUR FIFTH YEAR

The Naturalist and Beauty.

The naturalist differs from those who are not naturalists in that he accepts beauty at its intrinsic worth whether the objects that exemplify such beauty be plentiful or rare. Let me illustrate by a concrete example.

I recently visited one of the largest jewelry and art stores of New York City, a well-known establishment on Fifth Avenue. I had with me some young people. At my request the clerk let me hold in my hand a string of pearls with a diamond for a centerpiece. The price was \$60,000. I inquired why any one should pay \$60,000 for that small amount of material. The clerk said in surprise, "Because it is so beautiful. People will pay enormous sums for ornaments. Pearls and diamonds are more beautiful than anything else in the world."

"No," I said, "in my opinion they will not pay \$60,000 for the beauty, but for the satisfaction of having something that no one else has. In the markets of the world the price of such things has been gradually forced up because wealth has increased, and the supply has become limited either naturally or by the trade. The beauty only in this ornament is not worth \$60,-

000, which is its price. As mere beauty it is not worth six cents."

The clerk indignantly reprimanded me for forgetting in whose store I was. "These, sir," he added emphatically, "are the genuine article. You may go 'down town' and buy close imitations at a price somewhere near your six cents, but these are genuine and are worth \$60,000 because they are so beautiful."

Then I explained to the young people and I explain to you that what I had in mind was not a question as to the so-called genuineness, though one may question whether the artificial pearls and diamonds are not practically worth as much on the score of beauty. If the imitation is so perfect that only comparatively few experts can distinguish the false from the true, the beauty of the one must be practically as great as that of the other.

But what I intended to do was to impress upon the young people the fact that we too frequently see beauty through the eyes of dollars, or rarity, or exclusiveness, or selfishness, or whatever else you may care to call it. To prove that point I submit this argument. Suppose we could make diamonds and pearls as plentiful as the

sand of the seashore, so that in a variety of places we might shovel them up by the cart load. Then who would pay even the six cents for them though they had not lost one particle of their beauty. I think that it will be admitted, when one stops to consider it, that it is not the beauty of the objects but the spirit of selfishness felt in possessing material of which there is not sufficient to supply everybody.

The naturalist admires pearls and diamonds and believes them to be beautiful specimens from the mineralogical world, but he takes them at their true value so far as their intrinsic beauty is concerned, and if he finds other things, even the wings of a beetle, that are to him equally beautiful, he admires them as much as he admires the costly kinds. A naturalist accepts beauty at its real worth and finds as much satisfaction in gazing upon beautiful objects that are supplied in profusion for the benefit of all human beings, as he feels for others that are less abundant. Fortunate are we that the things of the world that are really the most beautiful are the most plentiful, but unfortunate in the extreme are we if amid such riches we forget to appreciate.

What's the Use of It?

Much has been said and written on the value of pure science, and the interrelation between it and applied science. There are enthusiasts, to whom practical application savors of desecration; somewhat more numerous are those extremists who see in "practical" results the only justification for the pursuit of pure science. It is true that these men usually lack the philosophical faculty which would force them to make their own position clear to themselves by examining the concepts lying at its foundation. What, after all, is practical? Is it not, in the last analysis, that which brings pleasure or alleviates pain?

To a certain type of mind, art brings pleasure, and pure science the most intense satisfaction. Unless such pleasures are bought at an undue cost to the community, art and pure science,

then, carry their own justification. Added to this is the fact that they furnish the highest and most refined type of recreation to the appreciative, though not perhaps actively productive class, suffusing, like some unperceived but powerful undercurrent, higher ideals among their devotees. It would seem, therefore, that the advocates of pure science for science's sake have a strong case to plead, while the ground on which the "practical" extremist stands hardly passes the muster of close logical analysis.

Probably the majority of broad-minded, thinking men wisely take a median position. They, perhaps, do not side quite with the enthusiast for pure science, neither do they approve of an attitude of discouragement toward all scientific work for which they foresee no immediate practical application. They point out how the seemingly most abstruse scientific investigations have again and again grown to unexpected and most important useful application.

On the other hand, it has been urged that the pure scientist is apt to be a prophet after the event, who merely analyzes the scientific principles on which depends the working of the device constructed with intuitive wisdom by the practical man.

It cannot be denied that instances are plentiful in which practice has thus outstripped scientific theory; but this only shows that the relation between pure and applied science is of a mutual character—each stimulates and fertilizes the other. Nor is such analysis of an accomplished fact a fruitless addition to our knowledge.—*Scientific American*.

At some time we are going to have a chance, if we attune ourselves to the desire, to see more and more of these beauties of the Infinite. I cannot believe that they are around us and that all we shall ever know will be the few glimpses from this one short life.—*Dr. W. S. Beckman, Dayton, Ohio*.

Go to Mother Nature for relief, for rest, for balm, for peace.

Thoreau, the Lichenist.

BY REGINALD HIEBER HOWE, JR., CONCORD,
MASS.

Few who are familiar with the Journals of Henry David Thoreau can have failed to notice that he was a student of lichens. Those realize, who read him, that every side of Nature had its engrossing appeal, and to all he gave a share of his attention and love.

Naturalists, no matter of how broad a cast, rarely heed lichens beyond the most casual acquaintanceship. It therefore seems to me quite unusual that Thoreau should have paid them as much attention as he did—remarkable, indeed, if he had not had the ferret eyes of a trained naturalist, plus the painter's love for infinitesimal shades of color. I have gleaned from Thoreau's Journals his observations of lichens which though they show only a slight knowledge of species, and no technical grasp whatsoever, yet prove a keen appreciation of their place in Nature. There are records of the three types, foliose, fruticose and crustose; and the filamentous forms were not to him mosses, nor did the stiped species pass as minute fungi.

The first great truth he argued was the effect of moisture on the algal symbiont; "A lichen day" he therefore established as follows among those of his calendar: "December 18, 1859. Rain. It rains but little this afternoon, though there is no sign of fair weather. It is a lichen day. The pitch pines are very inspiring to behold. Their green is as much enlivened and freshened as that of the lichens. It suggests a sort of sunlight on them, though not even a patch of clear sky is to be seen today. As dry and olive or slate-colored lichens are of a fresh and living green, so the already green pine needles have acquired a far livelier tint, as if they enjoyed this moisture as much as the lichens do. They seem to be lit up more than when the sun falls on them. Their trunks and those of trees generally being wet, are very black, and the bright lichens on them are so much the more remarkable."

March 12, 1853, "a moist, overcast, melting day" he termed "a rare lichen

day" as was his wont, and for February 7, 1859, we find this entry which should make the lichenologist's ears burn with pride at his vocation, or the most dissipated of nature lovers happy over his titanic, moral avocation. "Going along the Nut Meadow on Jimmy Miles's road, when I see the sulphur lichens on the rails, brightening with the moisture, I feel like studying them again as a relisher and tonic, to make life go down and digest well, as we use pepper and vinegar and salads. They are a sort of winter green which we gather and assimilate with our eyes. That's the true use of the study of lichens. I expect thus the lichenist will have the keenest relish for Nature in her every day mood and dress. He will have the appetite of the worm that never dies, of the grub. To study lichens is to get a taste of the earth and health, to go gnawing the rails and rocks. This product of the bark is the essence of all tonics. The lichenist extracts nutriment from the very crust of the earth. A taste for this study is an evidence of titanic health, a rare earthiness. It makes not so much blood as soil of life. It fits a man to deal with the barrenest and rockiest experience. A little moisture, a fog, or rain, or melted snow makes his wilderness to bloom like the rose. As some strong animal appetites, not satisfied with starch and muscle and fat, are fain to eat that which eats and digests the contents of the crop, the stomach and entrails themselves, so the lichenist loves the trip of the rock, that which eats and digests the rocks. He eats the eater. Eat—all may be his name. A lichenist fattens where others starve. His provender never fails. . . . There is no such cellyrium or salve for sore eyes as these brightening lichens on a moist day. Go bathe and screen your eyes with them in the softened light of the woods."

Thoreau evidently felt that his wide study of Nature would be a detriment to the average scientific man, for he wrote: "Man cannot afford to be a naturalist, to look at Nature directly, but only with the side of his eye. He must look through and beyond her.

To look at her is as fatal as to look at the head of Medusa. It turns the man of science to stone. I feel that I am dissipated by so many observations. I should be the magnet in the midst of all this dust and filings." Thus he showed that to study lichens seemed to him the most complete dissipation of a naturalist's interest. "I knock the

his knowledge was meager—but that he knew the varied morphological types, included in the classification, is perfectly clear. This entry in his Spring Journal shows his recognition of a fruticose, filamentous species, quite the commonest of his Concord region. "It is a rare lichen day. The usnea [*Usnea florida* (L.) Web.] with its large



ROCK TRIPE.
(*Umbilicaria*.)



DOG LICHEN.
(*Peltigera*.)

back of my hand against a rock," he continues, "and as I smooth back the skin I find myself prepared to study lichens there. I look upon man but as a fungus. I have almost a slight, dry headache as the result of all this observation. How to observe is how to behave. Oh, for a little Lethe. To crown all, lichens which are so thin are most commonly, not most truly seen. They are, indeed, *dryly* described." We must smile here at Thoreau's premonition of the work of Edward Tuckerman—the duller of all botanical manuals.

Of lichen species, as we have said,

fruit is very rich on the maples in the swamp, luxuriating in this moist, overcast, melting day, but it is impossible to get it home in good condition."

The *Cladonias* evidently attracted his attention most frequently for I find many allusions to them. There was no season of the year that the little *Cladonia cristatella* Tuck; a species later to be named by Tuckerman, did not attract his eye. "How swift," he writes, "Nature is to repair the damage that man does! When he has cut down a tree, and left only a white-topped and bleeding stump, she comes at once to the rescue with her chemistry, and covers it decently with a first coat of gray,

and in course of time she adds a thick coat of green-cup [*Cladonia fimbriata* or *pyridata?*] and bright coxcomb lichens, and it becomes an object of new interest to the lover of nature!"

Occasionally he indicates an observation of an allied species, which we would attempt in vain to name correctly in this generation of hair-splitting taxonomies. But that he knew the Reindeer "moss" is evidenced by three entries, only one of which I will here set down. "It is a little affecting to walk over the hills now, looking at the reindeer lichens here and there amid the snow, and remember that ere long we shall find violets also in their midst." Thoreau did not err with the common lot—they were reindeer lichens to him, not reindeer mosses.

I find only two entries that refer to the great foliose *Parmelias*, and there, so far I am able to judge, all to one species, *Parmelia caperata* (L.) Ach. He perhaps used this large common species as the representative of many similar forms, recognized by his eye as distinct, but hardly important enough for a Journal's noting. Of these he writes: "There is a low mist in the woods. It is a good day to study lichens. The view is so confined, it compels your attention to near objects, and the white background reveals the disks of the lichens distinctly. They appear more loose, flowing, expanded, flattened out, the colors brighter for the damp. The round, greenish-yellow lichens on the white pines loom through the mist (or are seen dimly) like shields whose devices you would fain read."

Of the other foliose genera he mentions two of the most prominent: *Sticta* and *Umbilicaria*. His observation of the *Sticta pulmonaria* (L.) Ach. is interestingly interrogative as is shown by the following quotation. Though the plant is not confined to the oaks, being equally fond of yellow birch boles, yet I believe it always shuns the conifers. "It is a lichen day, with a little moist snow falling. The great green lungwortlichen show now on the oaks (strange that there should be none on the pines close by), and the

fresh, bright chestnut fruit of other kinds [i. e., *Sticta amplissima* (Scop.) Mass], glistening with moisture, brings life and immortality to light."

In one of his Journal entries of the other foliose genus, *Umbilicaria*, Thoreau mentions for the second time accurately a lichen species—referring to one of the earliest of Tuckerman's works as his source of information. Here the economic side of the study seems to have interested him to such a degree that he actually made himself an arctic beverage. "Boiled a handful of rock tripe (*Umbilicaria Muhlenbergii*) (which Tuckerman says "was the favorite rock tripe in Franklin's journey") for more than an hour. It produced a black puff, looking somewhat like boiled tea-leaves, and was insipid, like rice or starch. The dark water in which it was boiled had a bitter taste, and was slightly gelatinous. The puff was not positively disagreeable to the palate." Faint praises, indeed, for the favorite of *Umbilicarian* nectars.

Thoreau's knowledge of the crustose lichens would naturally be the least extensive owing to their minute character, their less conspicuous coloring, and their general unattractiveness. Though here, except for spelling, he gives the correct Latin name to the most attractive of crustose forms. "The bank is tinged with a most delicate pink or bright flesh color where the *beomyces rosaceus* [*Bocomyces roseus* (L.) Pers.] grows." Again he writes of the same lichen: "Further still, . . . as I was showing to T.[appau] under a bank the single flesh-colored or pink apothecium of a *Beomyces* which was not covered by snow, I saw the print of C.'s foot by its side, and knew that his eyes had rested on it that afternoon. It was about the size of a pin's head. Saw also where he had examined the lichens on the rails." . . . This last sounds the true naturalist—though it sounds also like a Cooper allegory.

Another mention of a probable crustose form is found where he says: "The very débris of the cliffs . . . are covered with geographic lichens. No surface is permitted to be bare long.

. . . Was not he who creates lichens the abettor of Cadmus when he invented letters? Types almost arrange themselves into words and sentences, as dust arranges itself under the magnet. Print! it is a close-hugging lichen that forms on a favorable surface, which paper offers. The linen gets itself wrought into paper that the song

i. e., what others call it, and therefore could not conveniently speak of it, it has suggested less to me, and I have made less use of it. I now first feel as if I had got hold of it." Have we not here the true naturalist's instinct revealed? To know Nature—though not necessarily to appreciate it—we must be able to name her many chil-



BOEMYCES ROSEUS (L.) PERS.



LUNGWORT.
(*Sticta pulmonaria* (L.) Ach.

of the shirt may be printed on it. Who placed us with eyes between a microscopic and a telescopic world?" It would seem that he here refers to *Buellia geographica* Tuck.

The last note that I take from his Journal is one in which he mentions his town neighbor, a lichenist of reputation, the clergyman botanist of Chelmsford. "Mrs. Ripley told me this p. m. that [John Lewis] Russell had decided that that green (and sometimes yellow) dust on the underside of stones in walls was a decaying state of *Lepraria chlorina*, a lichen; the yellow another species of *Lepraria*. (This plant is not now classed as a true lichen.) I have long known this dust, but as I did not know the name of it,

dren. In so far as Thoreau named few lichens we cannot call him a lichenist, yet as they made up a real part of his world of Nature, and as he understood their place and functions, we may say at least he was a student of lichenology.

"The American Bee Journal," for many years published at Chicago, Illinois, has changed its location to Hamilton, Illinois, and will be edited by Mr. C. P. Dadant, one of the best-known and most extensive bee keepers of the country. We cordially recommend "The American Bee Journal" to our readers that are interested in honey-bees. The Journal is always instructive and enterprising.

The Education Which We Receive From Nature.

BY MRS. EDITH W. MITCHELL, LECTURER
FAIRFIELD COUNTY (CONN.),
PAMONA GRANGE.

Contemplation of the majesty and power of nature cultivates that chief of Christian virtues, humility. Who can gaze upon some lofty mountain as it towers away into the heavens with such wondrous majesty; who can listen to the thunders of a Niagara as it leaps down into the depths with a mighty roar and sends up its blinding cloud of spray; who can gaze upon the starry worlds above us which for centuries have been whirling on through space at a lightning rapidity, and not feel with the wise man of old, when he exclaims, "man is but vanity." Even the lords of creation can but feel humbled before the marvelous works of creation's God.

By contact with nature we come to love the simple every-day things of life. We are brought into harmony with our immediate surroundings and are made content with the lot in life to which we have been called, however humble it may be. For the greatest feast which this world has to offer to the eye or the ear of man is spread out lavishly before us and is ours to use and to enjoy "without money and without price." We live in an age of unrest and discontent. We demand continual change and variety of amusement and recreation to keep us sane and happy. We must each have a hobby to ride, if it is nothing more novel or out of the ordinary than an automobile or an aeroplane. Don't misunderstand me to belittle the value of a hobby. We all need one. But let me recommend one which shall bring us in touch with nature, a friendship with the birds, a botanical collection, a study of minerals or a flower garden. Such pleasures never grow blasé and benefit our health and ennoble our life into the bargain.

Need I mention the wonderful training and developing of the powers of the mind and the senses which any phase of nature study (it seems like a misnomer to call it study), may bring

about? Talk with a wide-awake country boy who wanders at will over hill and dale and you will marvel at his power of observation, at the acuteness of his senses, at the depth of his reasoning, and the amount of information he has picked up. Surely we may say of nature that "to know her is a liberal education." All the great minds of the world have been lovers of nature and have found their joy and their inspiration in communion with her.

Research in Place of Directorship.

Dr. William Trelease, for twenty-two years the Director of Shaw's Garden, otherwise known as the Missouri Botanical Garden, at St. Louis, has resigned his position, and intends in the future to devote his time more largely to scientific research work with less interruption from administrative duties. Dr. Trelease is well-known and is a skilled botanist of good executive ability, and has held the position for almost a quarter of a century with credit to himself and to the garden. By his excellent ability and faithful work he has brought the garden to a high standard of efficiency.

The garden was established in 1889, upon the death of Mr. Shaw by whose will there was left a large sum of money to carry on the work, so broadly conceived as to include beautiful gardening, instructive labeling of plants, education in gardening and botany, and investigation in pure and applied botany and in allied sciences.

What has nature study to do with this agricultural renaissance? Very much. It was the foundation of it. Nature study's greatest exponent, the man who upset the old order of teaching natural sciences, was Louis Agassiz. The men who were his students learned to use their eyes, to observe accurately, to assemble facts, and to draw proper conclusions. All this quite independent of books. The "laboratory method" of studying natural science was established in our colleges by Agassiz and his disciples.—*Tenth Anniversary Number of "Country Life in America," April 15th, 1912.*

Howard Henderson Cleaves, Nature Student.

BY WM. T. DAVIS, NEW BRIGHTON, STATEN ISLAND, NEW YORK.

We lately attended an auction of the effects of a poor old naturalist and



FLASH LIGHT OF THE CHILDREN AT A FRIDAY AFTERNOON LECTURE, IN THE ASSEMBLY HALL OF THE STATEN ISLAND MUSEUM.

among the things offered for sale was the study skin of a male egret in full plumage. It caught the eye of a woman, apparently a milliner, and that dilapidated bird brought a higher price than some of the other skins of more value. On the way home she was observed showing her purchase to a friend, spreading out the bird's plumes on her hand and no doubt explaining what she was going to do with her bargain. By this time it is probably part of the headgear of a woman of the fantastical class in her efforts to attract all possible attention.

And why was the milliner so anxious to get the egret collected so many years ago? Simply because of the recent laws and the public sentiment still growing that brought the laws into being, that prohibit the slaughter and sale of these egrets. It is one of the encouraging signs of the times that the law makers saw more use and beauty in the living birds than in the dead ones, and so notified the fantas-



AN UNCOMMON PHOTOGRAPH OF A "COMMON TERN."

Taken at Gardiner's Island, New York.

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BELTED KINGFISHER FLYING FROM NEST.

Exposure of 1/1,000 of a second.

Copyrighted, 1910, by Doubleday, Page & Company.

ticals to that effect. But this state of affairs was not brought about without much argument, which is still going on, for a little lapse on the part of the educators and the slaughter might commence anew, and some truly beautiful birds be lost to the world forever.

One of those who are helping on the interest in our birds, through his illustrated talks to children, is Mr. Howard Henderson Cleaves of the Public Museum at St. George, Staten Island. Mr. Cleaves was born in Illinois about twenty-five years ago of New England parents, and early took an interest in photography. Being of an inventive and enquiring turn of mind the camera offered the way to much experiment. There was the ever pleasing lure of the fields and woods where little harmless tricks could be played on unsuspecting wild creatures, whereby their portraits might be secured, often, be it confessed, in anything but studio-like postures.

At one time Mr. Cleaves placed an artificial goldfish of heroic size just beneath the surface of the water of a Staten Island pond about which an osprey was wont to circle. After

much patient waiting, the bird finally dropped on the fish, the string was pulled amid much excitement and the picture secured. Most any one can



OSPREY RETURNING TO A TALL BEACH NEST.

Gardiner's Island, New York.

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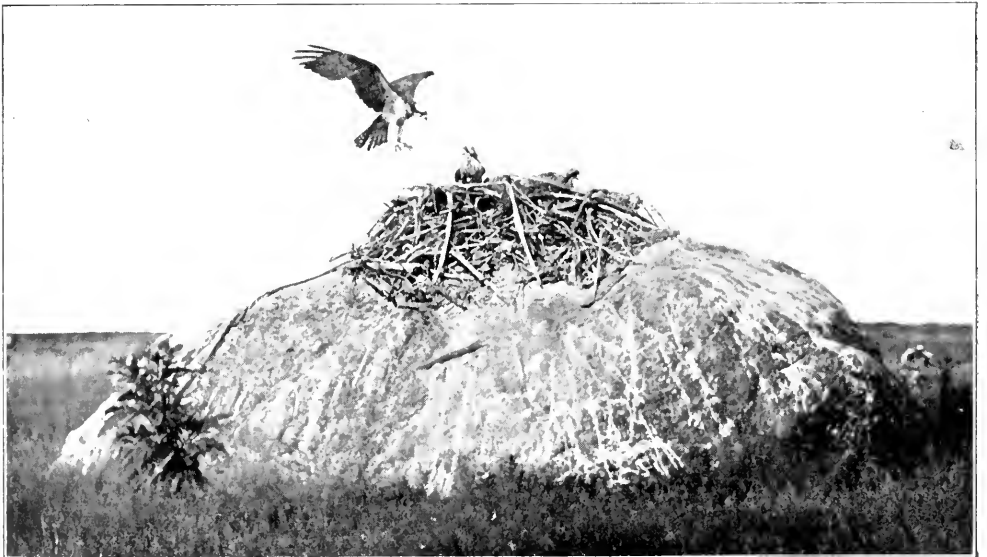
AN OSPREY RETURNING TO ITS LOW MARSH NEST TO CARE FOR HER TWO NEWLY HATCHED YOUNGSTERS.

Gardiner's Island, New York, 1910.

witness an osprey plunge for a fish, and most any one can also shoot at the bird, but it needs such ingenuity and patience as Mr. Cleaves brought to the matter to get its picture. He has also photographed a number of the shore birds that frequent the ponds and adjacent seashore near his home at Princes Bay. Many of these have amusing ways and trot along the shore line following some definite turn about a piece of driftwood or boulder, and it has been necessary

to carefully study each particular idiosyncrasy in order to secure the coveted pictures.

Mr. Cleaves is a good observer, as shown in his numerous articles published in "Country Life in America," the "Proceedings of the Staten Island Association of Arts and Sciences" and elsewhere, and as he has but started on the way, there seems to be a bright and useful future for his camera, his pen and his lectures in behalf of his feathered favorites.



A PICTURESQUE "INLAND ROCK NEST" OF A PAIR OF OSPREYS.

Gardiner's Island, New York, 1910.

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THE HEAVENS FOR JUNE

The Heavens in June.

BY PROF. ERIC DOOLITTLE OF THE UNIVERSITY OF PENNSYLVANIA.

During this, the first of our summer months, the early evening heavens will be found filled with objects of interest. First to attract our attention will probably be Arcturus, that very

far less bright than the great Arcturus above them. These are the white stars Spica and Regulus, and the red star Antares, the last being the most brilliant star of the wonderful summer group of the Scorpion, which is so conspicuous in the southern sky throughout the month of August.

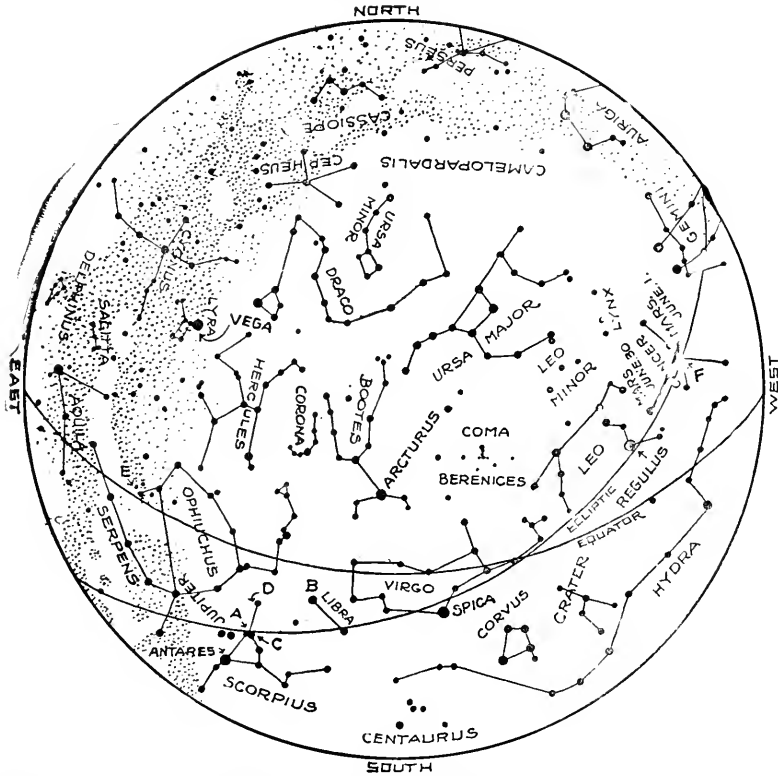


Figure 1. The Constellations at 9 P. M., June 1. (If facing south hold the map upright. If facing west, hold "West" below; if facing east hold "East" below. If facing north hold the map inverted.)

old and inconceivably brilliant sun, which now shines out exactly south of the zenith. And next we notice three bright stars which stretch entirely across the southern sky at nearly equal distances from one another, all of which are very brilliant objects, though

In the northeast we see the beautiful Northern Cross whose greatest length now lies almost along the ground; above this is the blue Vega, while below it, exactly in the East Point, there are rising the three brightest stars of the beautiful group

known as the Eagle. All of these stars sank from our evening sky last December, but throughout the entire summer and fall they will remain with us, becoming very striking groups when with the advancing seasons they mount higher in the heavens.

But the most striking and interesting object of all is doubtless the beautiful Jupiter which has now well entered the evening sky and pours out its steady, golden radiance in the southeast. Even without a telescope this is a beautiful object, for it is by far the brightest heavenly body now in the sky, and its deep golden color can easily be recognized, especially if the observer compares it with the white or blue stars Spica, Vega and Regulus. It is now retrograding, or moving westward among the stars, and during the month will pass to the west of Antares. This slow, westward movement will continue until August 3 by which time it will have almost reached

the heavens is a most interesting one. The bright Antares itself, one of the most interesting of the stars, is mentioned in the very earliest records

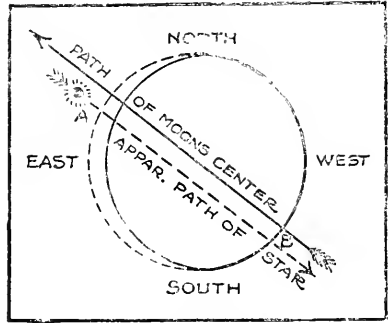


Figure 2. Passage of the moon over the bright star Antares, on June 29.

which we possess. To the Persians of 3000 B. C. it was one of the four Royal Stars, while in Egyptian astronomy, seven centuries earlier, it is a goddess heralding sunrise at the time of the au-

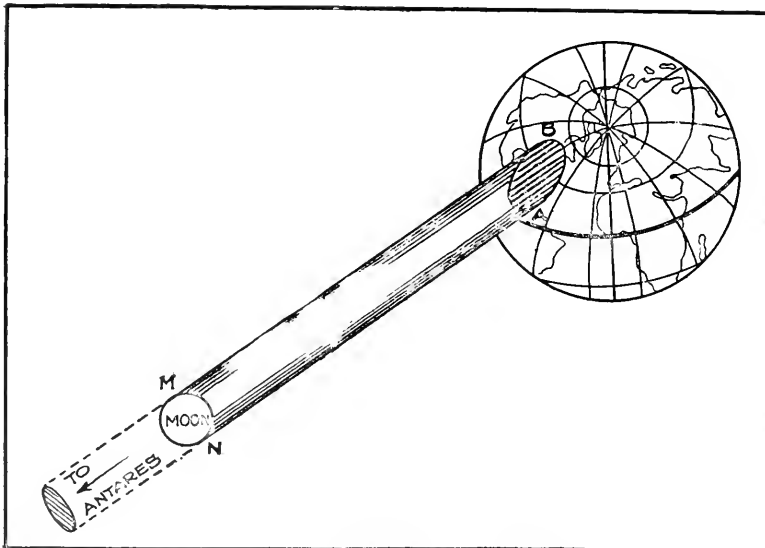


Figure 3. The occultation of Antares. Within the cylinder M, N, a, b, the star is invisible.

the stars at A. Figure 1; it will then turn eastward and again take up its twelve-year journey around the Celestial Sphere.

THE JUNE STARS.

This whole southeastern region of

tunnel equinox, for, 56 centuries ago, the autumnal equinox was near this star. The oldest of the Grecian temples—beside many later ones—are orientated to Antares.

Antares, which is believed to be a

very old sun, has a faint, emerald-green companion very near it, and this is probably revolving about the larger star. Eighteen hundred years ago this star was fainter than the star at B, Figure 1. It is now pouring out four times as much light as it did then; but whether its period of greatest brightness has yet been reached we do not know.

The stars A, C and D are all interesting double-sun systems, the first and last being easily seen with a small telescope. The star at B is remarkable for its greenish color. Finally, much farther east, in the constellation Ophiuchus, there is a little double star at E which is of very great interest, be-

point A on the east edge of the moon (Figure 2) at 16 minutes after 11 o'clock (Eastern standard time) and reappearing at the point B at 30 minutes past midnight. Antares will thus remain hidden for 1 hour and 14 minutes, as seen from Washington.

The reader should not fail to observe this most interesting phenomenon. The observation will be much more satisfactory if made with a small telescope or a pair of opera glasses; but even with the naked eye the sudden disappearance of the bright star as the moon passes over it will be very striking. As the moon is three days from full, and as its eastern edge is consequently in darkness, the star will be

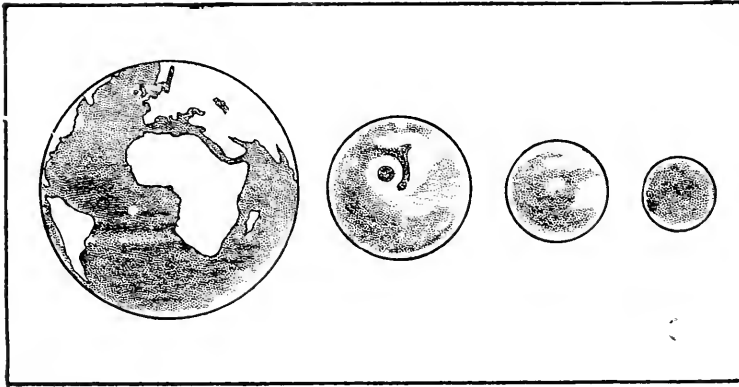


Figure 4. Showing the comparative sizes of the earth, Mars, Mercury and the Moon.

cause the two suns in their motion about one another seem to be disturbed by the pull of an unseen body. It may be remembered that the massive attendants of Sirius and Procyon were discovered in this way many years before they were ever seen in the telescope. The body in the stellar system at E may be entirely dark, or it may be too faint to be visible in any of the instruments which we possess at present. It has been many times searched for without success.

THE OCCULTATION OF ANTARES.

An event of great interest this month is the passage of the moon between us and the bright star Antares. This will occur on June 26, the star disappearing, as viewed from Washington, at the

seen to disappear an appreciable distance away from the bright edge of the moon itself—that is, it will be hidden before the moon has apparently quite reached it. The observer will notice that it will disappear instantaneously, a thing that would not be possible if there were any air on our satellite, for in that case the disappearance would be a gradual fading away.

Unfortunately, it is not possible to state for each observer the exact time when the occultation will be seen by him, for this differs very greatly for different parts of the earth. That this must be so is evident from Figure 3, where the cylinder of light enveloping the moon is that made by the light of the star itself, and clearly to anyone inside of this cylinder the star will be

wholly invisible. As the moon is far below the earth's equator on June 26, the area ab, which the cylinder cuts from the earth is a very elongated one. If it is remembered that not only is the moon in motion but that the earth is also turning rapidly, it is evident that a quite long computation must be made to determine the exact instant when any point of the earth will enter or leave the shaded area.

The best plan in observing the occultation will be for the observer to notice the relative positions of the moon and the star several times during the evening. He will notice that the former is moving steadily eastward an amount equal to its own diameter in each hour, and when it has approached the star quite closely the uninterrupted watching can begin. The bodies will then be high in the heavens, in excellent position for the observation.

THE PLANETS IN JUNE.

Mercury, which reached its greatest western elongation on May 13, passes to the east of the sun on June 17, but as it will not reach its greatest eastern elongation until July 25, it will not be visible this month.

Venus is also too near the sun to be seen; by the end of the month it is almost in line with the sun, though it will not pass to the west of that body and enter the evening sky until July 5.

Mars is still conspicuous in the west, its rapid eastward motion during this month carrying it entirely across Cancer and into the Constellation Leo. On June 9 it will pass exactly north of the star at F. Figur 1, and by observing the two bodies in a small telescope the eastward motion may be clearly detected in the course of only a few hours. It is of interest to notice that the earliest observation of Jupiter of which we have any record is connected with this star. It is stated that on September 4, B. C. 240, the planet was seen from Egypt to occult this star, but as the observation was a naked eye one, the supposed occultation was probably only a very near approach.

Mars is still rapidly drawing away from the earth; its distance from us

is increased from 194 to 212 millions of miles during the month. Since when nearest it is but 36 millions of miles distant, it is now in extremely unfavorable position for observation. In a small telescope it appears as a reddish disc, but very slightly more than one-half full.

Jupiter, the most brilliant and interesting object now in the sky, will be at once recognized as it shines well up from the ground in the southeast, in the eastern border of the constellation of the Scorpion.

Saturn is slowly withdrawing from the rays of the sun in the morning sky, and may be detected rising a little north on the east point about an hour before sunrise.

Uranus and Neptune are not in favorable position for observation during the month.

On June 21, at 2 hours 17 minutes P. M., (Eastern standard time), the sun reaches the Summer Solstice, or highest point of its path in the heavens, and this is therefore the longest day of the present year.

A Surprise.

The Rev. E. J. Hardy, in his book "The Unvarying East," tells a delightful story. A young lady about to visit the Holy Land called on an old lady friend. She mentioned that she soon hoped to see Jerusalem, Bethlehem, Galilee and many of the other places mentioned in the Bible.

The old lady put down her work, removed her spectacles and exclaimed in great surprise, "Well, now, I knew that all these places were in the Bible, but I never thought of them being on the earth."—*Exchange*.

We can equal that story. We meet plenty of people who talk about God's Works, and yet seem to think of them as existing only in the Bible, or as poetical subjects to sing about. These people apparently fail to realize that God's Works are here now, in the frog pond, by the roadside, and in the field.



A GROUP OF APHIDS OR "MILK COWS" ON THE STEM OF A PLANT.

Experimenting With the Intelligence of Ants and Wasps.

BY PAUL GRISWOLD HOWES, THE MAPLE-WOOD MUSEUM, STAMFORD, CONN.

Authors Note: Among the many students and observers of insect life, we naturally find many varied opinions upon the causes of insect actions. Of course such questions can be determined only after long study; experiment and careful observing of the home lives of these creatures. Never the less, every little bit adds to the general knowledge of the subject and it is hoped that the cases sighted in this article, which it must be remembered, are individual cases that I have found in a great number of experiments, will be of aid to those already interested in this fascinating study.

Some believe that the behavior of insects is exclusively instinctive, others that they are governed or controlled by response to light, heat, gravity, etc., while still others hold that it is instinct tempered with and modified by reason. On this side stands the writer, together with many well known scientists; therefore I have been bold enough to use the word Intelligence, in the title of my article. The illustrations are from life by the author.

Among the numerous volumes which have been written upon insect life, we seldom find one in which the ants are not credited as being the most marvelous of all insects. The actions of these creatures and the deeds which they accomplish would furnish sufficient material to fill many a work of portly size, and indeed much has been written upon the subject.

Marvelous is the manner in which they feed and care for their young and wonderful the loyalty of the subjects to their queen and their city, for all ants live in communities. The storing of proper food for the winter and the capturing of Aphids or "Milk cattle," from which the ants extract a sweet, nourishing liquid are other interesting



"FOR ALL THE WORLD LIKE A MINIATURE VOLCANO IN A SETTING OF GIANT TREES."

examples, all of which tend to make one wonder why these industrious inhabitants of our world have not been credited with intelligence before. These Aphids of which I have just spoken, are the young of certain small insects commonly known as plant lice. They are sap-draining creatures and are often found upon the stems and leaves of various plants, shrubs and trees, sometimes in great numbers. The ants take great care of these little "Cattle" and may often be seen extracting the sweet fluid from their bodies by gently squeezing their sides! Not only do they use them through the summer, but when the cold weather arrives, the ants carry their Aphids into their underground nests, where they place them upon the roots of plants, thus securing a supply of nectar through the winter!

Yet these very insects who, perhaps, by their marvelous actions, have held our rapt attention, or caused us to exclaim in astonishment, may display, but a moment later, such an unpardonable lack of resource that we are at loss to understand and our belief in intelligence may be somewhat shaken. But perhaps not permanently, for it is true that among nearly every large colony of these insects, one will find an occasional example wherein an individual seems really to leave the

beaten track of instinct in which its forefathers have travelled unwittingly for hundreds and hundreds of years.

Yonder near the forest's edge, a neglected, grass-grown wood path winds its silent way into the sombre, shaded depths of the virgin growth. In the center of the path stands a mound of dry, brown earth, protected from the elements by the thick, dark foliage above. The mound is nearly three feet in diameter and stands some eighteen inches in height; for all the world like a miniature volcano in a setting of giant trees. Indeed even the lava seems to be there, pouring downward in an ever changing stream, as if impatient to destroy some tiny city at the mountains base. But this is not the eruption of a fairy Vesuvius, which we are witnessing, nor is it even an unusual sight, but simply a great thriving insect city wherein live some forty-thousand mound ants, whose never ceasing labors cause their whole metropolis to writhe, like streams of moulten lava!

Let us go closer to the mound, that we may try an experiment upon a single member of this great colony of insects who is laboriously endeavoring to drag the remains of a field cricket, many times its own size, to the insect city, some twenty feet distant.

In the same circumstances, a man would have soon given up the task, for every twig, every leaf and every stone in the path, played a part in hindering the progress of the hard working insect. But the ant would not abandon such a dainty morsel of food, even had it been three times as heavy, and indeed she might have soon reached her destination had I not cautiously clasped the cricket by one of its antennæ or feelers with a pair of slender forceps. The ant was greatly astonished at finding her burden immovable, but she soon commenced to investigate and finally, after some minutes, came upon the closed end of my forceps. Vainly she tried to free the insect from the grip of steel, and finding herself unequal to the task, she soon made off in the direction of the mound. Now when perhaps fifteen inches away, the ant suddenly turned, as if by some idea or impulse which must be obeyed. Going straight to the antennæ which was still held by the forceps, chewed it free with her powerful jaws and once more made off, this time in possession of her well earned burden!

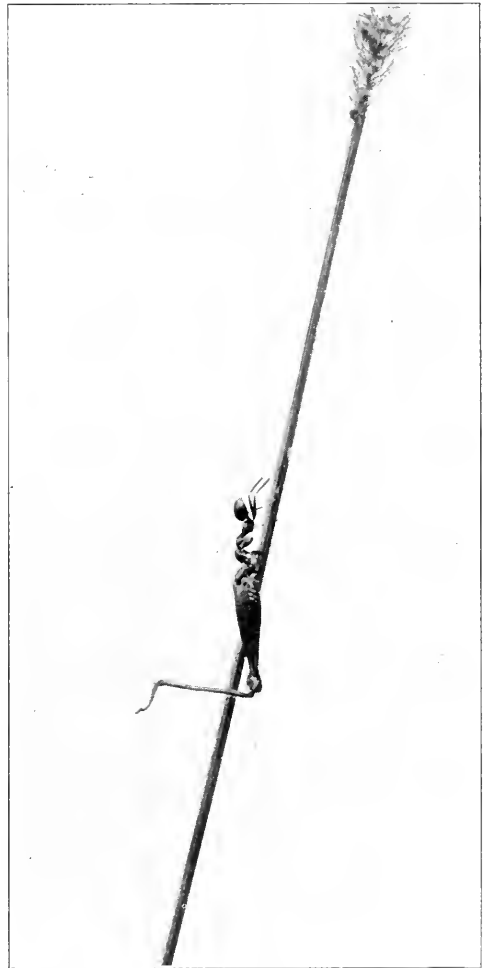
Of course it is possible that upon her return, the ant came by accident, directly to that part of the cricket which was being held in the forceps. But it must be remembered never the less, that this time the ant freed her prize by chewing through the crickets feeler, an action which had not, apparently, occurred to her, when the journey was first arrested. Although this fact is not a very remarkable one, it is true that the ant was efficient in adapting herself to the circumstances, which were quite unusual. In such cases instinct is supposed to be deficient.

Now let us watch another ant, an inhabitant of the same mound, who is also struggling homeward, bearing the remains of some dry and lifeless insect.

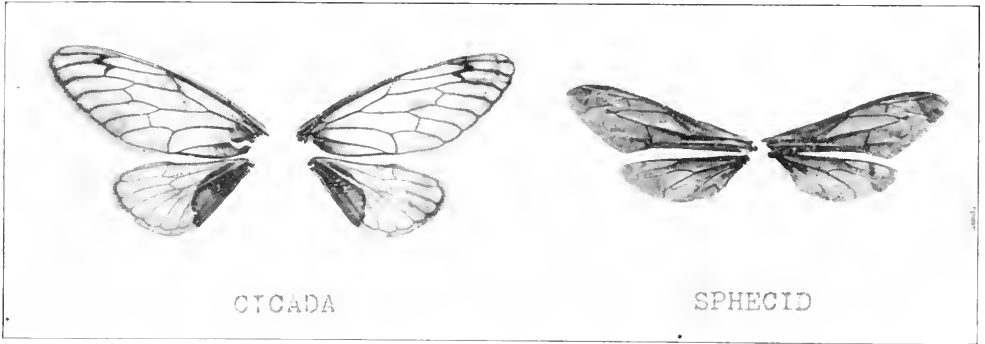
After towing her burden backwards for perhaps twelve inches, the insect came upon a tall blade of grass, fully a foot in height, which was growing directly in her path. Here I expected to see the ant circumscribe the base of the stem, but what stupidity! Instead of executing this simple ma-

noeuve, she climbed first to the top and finally down again upon the opposite side of the blade, probably with the idea that she had covered with ease a considerable portion of the homeward journey!

These two ants which we have followed with their burdens, were undoubtedly children of the same queen yet while one was quite competent under the extraordinary conditions, the other lacked even sufficient power of perception to have prevented herself from accomplishing a useless feat. But who can tell? Perhaps had they been each in the others place, the wise ant



A MOUND ANT CARRYING ITS BURDEN TO THE TOP OF A GRASS STEM INSTEAD OF CIRCUMSCRIBING THE BASE.



COMPARATIVE WING EXPANSE OF THE CICADA AND SPHECID, ILLUSTRATING THE GREATER SIZE OF THE WASP'S BURDEN.

would have been the stupid one and and the stupid ant the wise one!

A remarkable insect, capable of adaptation under adverse conditions is the Sphecid; the largest and most powerful of our native wasps. This insect digs a deep burrow in sandy soil, at the end of which two elongated chambers or cells are constructed. In each of these, the insect places a single cicada or "Loenst" that has previously been paralyzed, but not killed, by the wasps terrific sting. Now she lays an egg upon the breast of each of the unfortunate cicadas. When this has been done the burrow is sealed with earth and the young wasps feed upon the paralyzed insects until they reach what is known as the pupal state. In

this form they spend the winter, issuing as perfect insects in the following spring.

It is true that the cicada is larger and heavier, even than the powerful Sphecid, and it will readily occur to the reader, that to carry such an ungainly burden through the air, would be an extremely difficult undertaking. But here nature has assisted the insect in accomplishing her function by supplying a pair of powerful upturned hooks or tongs, one of which is situated upon the under side of each of the wasps back legs. These the Sphecid simply fastens in the cicadas sides and thus it is securely held during the overland journey to the burrow.

During the latter part of August, the writer captured one of these insects, together with a cicada which it had recently paralyzed. The carrying hooks were then carefully removed from the Sphecid's legs and after several hours, the insect was replaced beside the same cicada which it had been carrying when captured. This was within a few feet of the burrow. Now a remarkable thing happened. The wasp paid not the slightest attention to the cicada, but flew rapidly away among the trees. This I had expected, but to my great surprise she returned to the burrow within an hour, carrying another victim apparently in her first and second pairs of legs! The cicada was suspended, "Tail" down in a line perpendicular to the wasps body; the two insects forming the letter T while in the air.



THE CARRYING TONGS ON THE SPHECID'S LEGS.

This is a most remarkable case and points clearly toward intelligence, for the Sphecid left the instinctive rut so minutely travelled by her ancestors and instantly adapted herself to the most extrinsic circumstances imaginable.

Equally interesting are the results of two experiments upon different species of the same group of insects which were recently observed at close range by the writer. These experiments are well worthy of note, from the fact that a vast contrast in adaptability was discovered between two insect species, so entirely identical in their anatomical structure and so closely related in their classification that they should have been equal to each other, even under the unusual circumstances in which they were placed. Yet in one of these experiments it was shown that a certain species possessed the power of instantly distinguishing between right and wrong, while in the other, the second species, belonging to the same family, made plain its inability to leave the beaten path of innate propensity.

As I have said, the insects in question were both species of wasps; one the paper wasp and the other the common blue mud-dauber. Although they are alike in structure and function, their habits are quite at variance, as we shall presently see.

The paper wasps are a social species; that is, they live in a colony, with a common den, which, in this case consists of a group of paper tubes or cells, suspended by a central stem from the under sides of overhanging stones or more often from old beams and timbers in barns or sheds. The paper for the nest is manufactured by the wasps from wood pulp which is scraped from unpainted lumber and then mixed with a glutinous substance which the insects possess. A large nest will contain in the neighborhood of five hundred cells, but the great majority are complete when one hundred have been constructed. In each of these cells an egg is laid by the queen, and the young are fed by the other members of the colony until their period of help-

lessness is at an end. Their food consists of chewed up worms, spiders and other insects, mixed with a certain amount of nectar, and is undoubtedly quite nourishing and delicious. Thus it will be seen that the paper wasps are of a domestic turn of mind and quite different in habits from their mud-dauber cousin, who is a restless, nervous creature of a solitary nature.

This insect constructs from five to fifteen cells of rich grey mud which, upon hardening becomes quite substantial. The nest is placed in situa-



A NORMAL NEST OF THE MUD-DAUBER WITH CELLS OPENED TO SHOW CONTENTS.

The top one contains the young of the wasp, the center one the spiders with which it is provisioned, and the bottom cell is one from which the insect has issued.

tions similar to those which the paper making species select. Like the Sphecid wasp, the mud-dauber fills each cell with paralyzed insects, which, in this case consist of small spiders. Then after laying a single egg in each, she seals up the opening with mud and leaves the young wasps to shift for themselves.

For the first experiment, a mud-dauber's nest was selected which was discovered under the overhanging roof of an old wood shed. The affair consisted of ten cells, all but one of which had been sealed by the wasp, who, by the way, quickly appeared upon the scene, carrying two small, reddish spiders and fully prepared to avenge all public wrongs. The burdened insect flew directly to the nest and after carefully inspecting her cargo, to make

sure that it was in perfect condition and quite proper to serve as food for her offspring, she entered the remaining empty cell. To store these spiders to her satisfaction, required quite some time, but when once they had been suitably placed, our industrious insect lost no time in hurrying away to gather in more victims. This manoeuvre was



THE MUD-DAUBER'S NEST SHOWING THE EMPTY CELL WITH THE ENTRANCE SEALED.

repeated on an average of every seven minutes, but upon her tenth return to the nest, she carried a small pellet of mud instead of the usual spiders. This was carefully placed upon the open end of the cell and after flattening it somewhat with her head and fore feet, flew off for more.

At this point I intervened in behalf of my experiment, and as a consequence thereof, the sealed portion of the entrance and the spiders were entirely removed from the cell. Within a very few minutes the wasp returned, bearing its second load of material, and this, as upon her previous visit, she cemented to the opening of the cell. Now the wasp thrust her head through the half closed entrance and after apparently inspecting the empty interior, again flew away, as I believed at the time, in search of a new supply of spiders to replace those which had been removed. But this was not the case, as we shall presently see. I now left the immediate locality of the nest

fearing that perhaps my continual presence would alarm the subject of my experiment. In an hour I returned only to find that the wasp had ignored the fact that the cell had been emptied, and had completely resealed it without replacing the spiders or her egg!

In this case the insect clearly demonstrated her inability to perceive, even such a radical alteration as had taken place in the cell during her absence. She had simply proceeded to accomplish a certain, regular course of inborn events, and owing to the fact that it did not occur to her to alter any one of these, even under the circumstances which had been caused, it is plain that there existed no mental activity, but simply innate muscular actions of a reflective or unconscious nature. But now let us turn to the subject of my last experiment, which, it will be remembered, was the closely related, paper-making cousin of the mud-dauber

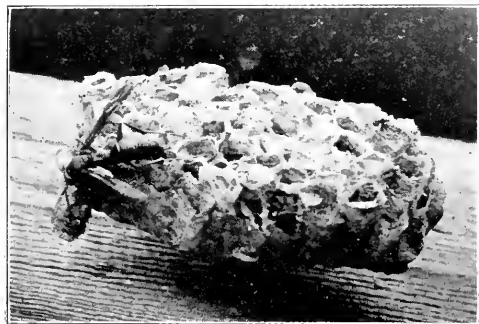
As I have stated before, the paper wasps do not seal up their cells, nor do they even store them with nourishing food for the young. Owing to this state of affairs, it would, of course, be impossible to effect a similar alteration upon their nest as upon that of the mud-dauber. But the purpose of my experiments was not simply to place the two species in identical circumstances, but to discover, if when placed under extraordinary conditions, either would display in their actions, any evidences of mental activity; or in fact, anything which might give us better reason for believing that insects are sometimes governed by a power above mere instinct.

At the time of this experiment, the paper wasps were adding several new cells to the nest, which had grown too small for the rapidly increasing colony. These new cells were nearly finished; all but one, and of this perhaps a third had been constructed by the tireless insects. As I reached the nest, a wasp was seen working upon the unfinished cell, but she soon flew away in search of a new supply of pulp. When she had gone far enough to insure my feelings against that unpleasant sensation caused by her sting, the other members

of the colony were quickly put aside and the cell was then suddenly finished by human hand, assisted by a small tube of greyish courtplaster.

In a few minutes the wasp returned and flew directly to the cell which I had so kindly completed for her. But she apparently considered my work as being far from the required standard; indeed she must have thought me downright fresh, for soon my carefully made cell of court-plaster was cut away from the nest and viciously ejected by the wasp, who was now in a temper to be quite fully respected.

On the following day I returned to the nest with another cell, but this time I had moulded it of Papier mache, hence it was identical in size, color and texture, with those which the wasps construct themselves. Once more the wasps were put out of the way, and while the one who had been allowed her freedom upon the previous day was again collecting pulp at a respectful distance, I cut away the cell which was now nearly finished, and fastened the Papier mache one in its place. Upon



THE PAPER WASP REMOVING THE PAPIER-MACHE CELL CONSTRUCTED BY THE AUTHOR.

her return to the nest, the wasp displayed the same disgust at my inability to construct a cell, as upon the occasion of my original effort. Consequently the object of my labors met a fate similar to that which the first cell was subjected to!

How quickly this insect recognized the uselessness of these man-made cells, for indeed I had left them open at both ends. Yet her very near relative, the mud-dauber, was blind to the

fact that her nest cell had been rifled and her egg removed, which is an affair of much greater importance. But why these differences in intelligence, if such we may term it, even among insects of the same flesh and blood? That is what we do not know; it is a question for which we have yet to find an answer. But however that may be, it is evident from the results of the experiments which I have just described, that in cases unlikely to be provided for by instinct, insects will occasionally adopt means whereby their objects may be effected. And if it be true, as we now believe, that all instincts arose through successive generations preserving habits which happened to be of benefit, then insects must gain knowledge from experience, which would be impossible were they not gifted with a certain amount of reason or intelligence.

When Fact and Theory Met.

Senator Frye of Maine was a very diligent and skilful fisherman, and his favorite game was the square-tailed trout. On one occasion, says the *New York Globe*, the late professor Agassiz, who was his friend, challenged the Senator's boast that he had caught a seven-pound trout.

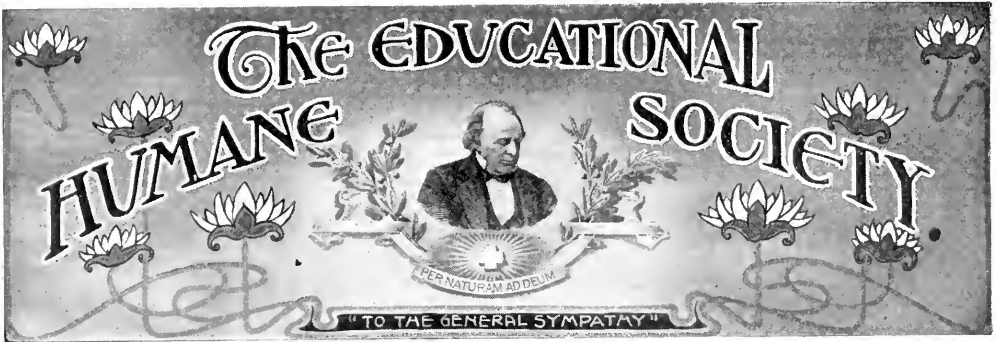
"Square-tailed trout do not ever reach that weight!" declared the scientist, positively.

Mr. Frye did not engage in unprofitable argument on the point at issue, but the very next summer the naturalist received from Rangeley a large box, within which, packed in ice, reposed a beautiful square-tailed trout which weighed precisely eight pounds.

Professor Agassiz's response was prompt and to the point. He wrote:

"The theory of a lifetime has been kicked to pieces by a fact."—*Youth's Companion*.

You may not be able to cross the ocean this Summer in quest of adventure: but you can cross your threshold into the land of out-of-doors, where you will be sure of finding much that is new and strange and interesting.



A Chapter of the Agassiz Association. (Incorporated 1892 and 1910.) The Law of Love, Not the Love of Law

The Problem of the Cat. A Great Destroyer of Useful birds. Preventive Measures.

BY HERBERT K. JOB, STATE ORNITHOLOGIST, WEST HAVEN, CONN.

On a wild tract of land in Connecticut used as a game preserve, remote from any town or village, during the first year and a half of its recent operation the keeper in charge killed forty roving cats, and during the next year two dozen more. Many of these were evidently homeless, having relapsed into the condition of wild animals. Others were house-cats, accustomed to roam, mostly by night, miles from their homes. All were preying on birds and wild game. This is no exceptional case, but typical of what goes on everywhere.

People often wonder why our song and insectivorous birds which are protected by law do not increase. The real wonder is that they have not long since been exterminated, with an army of hunting felines, especially in the vicinity of towns, roaming everywhere in the breeding season, searching for nests and young birds. If the nest is on the ground or anywhere that a cat can climb, the case is almost hopeless. Even if out of reach, the young when learning to fly are almost sure to flutter down and get caught. If one will look around near home, he will often find empty nests which have been robbed of eggs or young.

The cat is a born hunter, and nearly all of them hunt for wild game, even though their owners do not suspect it. It is a very moderate estimate to as-

sume that each cat, on the average, slays one bird a week, say fifty each year. Think of the countless thousands of useful birds thus killed in the United States every year!

In most parts of Europe birds are said to be much more abundant than with us, though they are shot and trapped much more freely. A well-known naturalist who has travelled much in those countries considers this due in considerable measure to the comparative absence of cats. It seems to him a local peculiarity of the American people to tolerate in their homes numbers of these half-wild animals, a queer, abnormal fad. In Europe the possession of cats is said to be regulated by law.

A common barbarity is the practice of abandoning cats by people changing their residence, leaving them to suffer and to prey upon society. In pity I have taken in these homeless starving creatures and fed them. At one shore resort in Connecticut I have been told that there are from fifty to one hundred homeless cats, abandoned by summer cottagers, eking out a wretched existence around the piers.

With us the cat has no standing in law, and is not recognized as property. No one can obtain redress if his cats are poisoned or shot. Yet even this permission to kill does not abate the nuisance. Alike from the standpoint of kindness to animals, of the owner of the cat, and of the lover of birds, is it not high time that this matter should be regulated by law,—how many and what sort of cats one may

keep, how they must be treated and restrained? Any one who is sufficiently responsible to be permitted by society to keep a cat ought to have public spirit enough to be glad to pay a small license fee for the privilege. This could be attended to by the same officials in charge of dog licenses. A fund would thus be provided for the maintenance of the work and for the protection and attracting of wild birds, to help save our foliage, fruit, gardens and crops.

Hitherto this matter has been laughed out of court, but the problem has now ceased to be a joke. The many powerful organizations of sportsmen are beginning to realize that quail, grouse and woodcock cannot be expected to raise many young amid this growing host of maurauding felines. If they and humane people generally will actively take up this matter, we can soon get wise legislation, capable of enforcement.

Meanwhile birds are now beginning to nest, and will be under way with family cares nearly all summer, but particularly in June. It is surely a duty to society of everyone owning cats to dispose of all but one, or at most two, and to keep petted pussy under restraint, feeding it properly, keeping it shut up at night, and not allowing it to roam at large. If we keep a cat we should be kind to it, but also be broad enough to be considerate of our neighbors and of the broods of helpless little birds.

A Comment to Mr. Job's Cat Suggestions.

Black Short Haired Cattery,
Oradell, N. J.

May 9, 1912.

To the Editor:

Your letter with enclosure on "The Problem of the Cat" was duly received, and the article mentioned more than interests me.

That people should be allowed to keep indiscriminately as pets male and female cats and kittens to which they give the minimum amount of care, and which they abandon without compunction the moment it seems convenient,

is a crying shame, and undoubtedly measures should be taken, and that promptly, to put an end to such a state of affairs. As a matter of fact, the only cat suitable for a pet is the UNSEXED MALE, and this fact should be made the basis of operations. Cats should be taxed as dogs are taxed, and moreover the keeping of breeding cats should be controlled by law, so that they may be kept exclusively in the hands of breeders—in other words, of responsible parties.

But here I would like to say a few words in behalf of the CAT. We are taught (and I believe truly), that no race of animals ever suffers extinction, or even irreparable loss through the normal agency of its natural enemies. But no animal is fitted to cope with Man, and he alone is responsible for the most terrible losses in the animal world. One boy with a gun, or intent on robbing bird's nests; one man trying to reconstruct his nervous system by means of a wholesale slaughter of the innocents; not to mention one of the scores of milliners who make their living by catering to the vanity of countless "humane" as well as inhumane women, will do, or rather, do, more harm than any one tribe of animals, however numerous, could do to another, or any adverse weather conditions could effect.

I have lived in France for many years, both in city and country, and have raised and owned cats there without any government restrictions; I also know many English breeders who let their cats roam at large without hindrance from the government, yet, as Mr. Job suggests the song birds are far more plentiful there than here—which would seem to prove that after all the cats are not the main source of the trouble.

Allowing, however, that there may be too many cats here, the cause of the trouble is the lack of care of the breeding cats, and the inhuman manner in which cats and kittens are turned adrift when it is no longer convenient or agreeable for their owners to provide for them. They multiply rapidly in the open, and they must live—in the country on the birds and other wild

game; in the city on the refuse of the garbage cans, and there they become a serious menace to public health.

Nevertheless, the cat has his uses—he is, together with the Terrier dog an excellent prevention of rats, mice, and other vermin; for the same reason that he is supposed to be a menace to the song bird, he is a wholesome check upon the ravages of the English sparrow, (which, by the way, nothing ever seems to exterminate); he is a confiding and affectionate friend to human kind, providing he meets with the slightest encouragement or kind treatment, just as a dog or a horse is; and at his best he is a creature of surpassing grace and beauty.

The cat has always, and does now, suffer more than any other domestic animal from the prejudice of some, and from the strange combination of hysterical affection and cruel indifference of others who profess to be his friend. A proper affection for a cat as a pet is no more abnormal than the same sort of affection for a horse or a dog; in fact all such affections are wholesome and elevating to all concerned. In short the cat need not be exterminated or

lose his liberty; but the Owner!—Oh, yes, the Owner should by all means learn the lesson of his responsibility!

Very truly yours,
JANE R. CATHCART.

“Back to nature” is the cry,
Would you know the reason why?
Because it is our birthright true,
A heritage for all, not few.

An Albino Woodchuck.

Albinism appears occasionally in various forms of animal life, but one of the rarest examples is that of the albino woodchuck. Here is a photograph of such a woodchuck captured in Virginia during the summer of 1910. It was forwarded to Mr. Edward S. Schmid, of Washington, on the twelfth day of August of that year. Mr Schmid lent the animal to Dr. R. W. Shufeldt of Washington, and he succeeded in making several excellent negatives of the animal. A print of the best one of these is herewith reproduced. The woodchuck was a complete albino with pink eyes.



AN ALBINO WOODCHUCK.

THE CAMERA



Photographic Contests.

Bonaparte, Iowa.

To the Editor:

I want to tell you how well I like to read the articles in your magazine. Why do not you start an amateur photographer's contest on nature subjects in your camera department? I am a sort of an enthusiast in that branch, also I would like to have a try-out. I enjoy each number immensely, and watch its coming.

Respectfully,

R. E. WILSON.

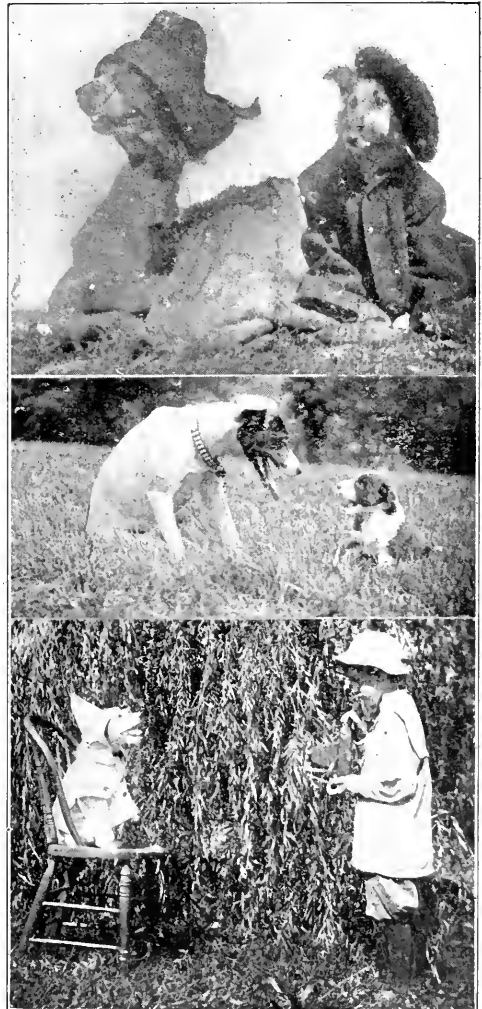
We regard the entire magazine as a photographic exhibition wherein the best works of amateurs and professionals are displayed to win the best of prizes—personal and public approval and satisfaction, and joy of doing things well.—Ed.

Photographing Dogs.

BY MRS. HUGH P. BRINTON, WEST CHESTER, PENNSYLVANIA.

I have made a study of taking dogs' pictures and find that it is not so easy as it seems. The artist needs much patience and must be fond of dogs and possess their confidence. Taking such pictures is much like taking children's photographs. Don't let the subjects get tired and cross before you are ready to begin. I focus my camera and get everything ready, use the full opening, fast plate (Imperial Portrait is what I am using) and take one-twenty-fifth second exposure on a clear day. Then I call the dogs, give them a piece of cracker, get them where I want them, and snap them quickly before they are tired. Sometimes I get them at play, and then I am the one that gets tired, as the only way is to follow them around till they pause for a moment,

and then take them quickly. I never photograph them when they are playing for that needs a very fast lens and shutter to avoid the appearance of movement, as you have to be very close—about ten feet. Puppies I put



SOME GOOD PHOTOGRAPHIC POSES OF DOGS.



FIRST CLASS IN DOG PHOTOGRAPHY.

on a box, high enough to keep them from getting off, otherwise you will become entirely discouraged. Dogs are lots of fun to photograph if you really like dogs, but not otherwise.

Unusual forms of Hepatica.

Manlius, New York.

To the Editor:

I am enclosing photographs of unusual hepaticas which came to my notice this spring. One having the large whorl of sepals was found by my sister. The sepals were purple brown at first, but, upon exposure to sunlight for a few hours, became a clear, deep green. Both the sepals and petals were doubled in number, and apparently but one flower was produced this season.

The one having two flowers on a single stem was otherwise perfectly

normal. I found it a mile from the location of the other specimen.

The possibility of such finds lends interest to the commonest form of plants, and to our every expedition afield.

H. E. RANSIER.

Would you have a panacea
For all life's woes and ills?
Go straight to Mother Nature,
'Tis better, far, than pills.

I have learned more practical use for my camera and lens, since the short acquaintance with *THE GUIDE TO NATURE* and its editor's most able advice therein, than I ever did from a quite sumptuous looking shelf of books I have on that subject.—*Leslie L. Long, Llano, Texas.*



THE UNUSUAL FORMS OF HEPATICAS.



APPLE BLOSSOMS

By Emma Peirce, Sugar Hill, New Hampshire.

The orchard, robed like bride, in white,
And lauded highly for the sight,
Flushed deep with pleasure at its praise,
And blushes still on sweet spring days.





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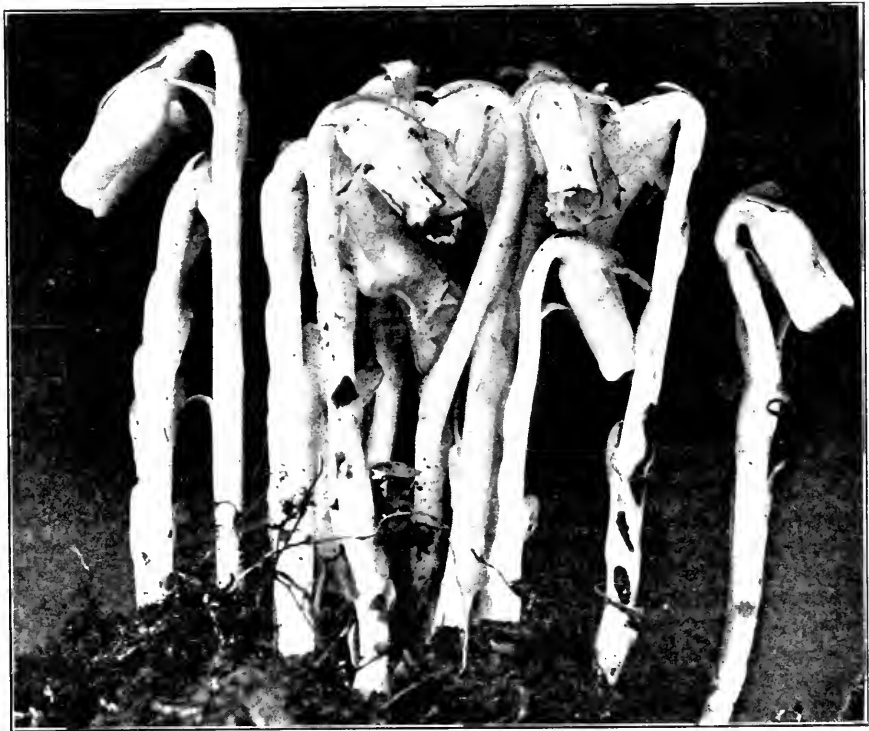
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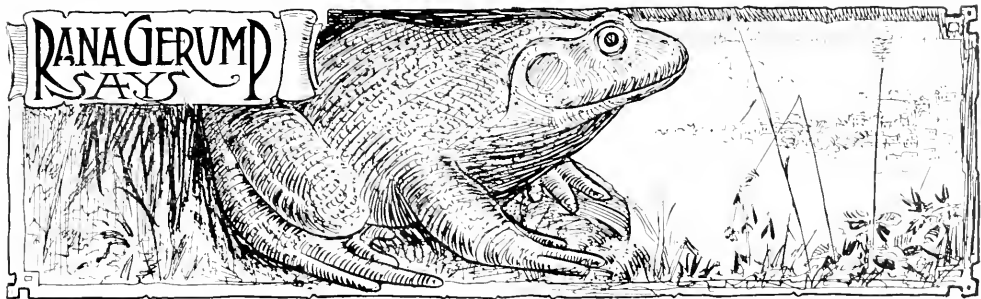
We may here mention our connection with the World's Columbian Exposition, the Brooklyn Park Department, the Arnold Arboretum, Boston, and many private parks in and around Greenwich.

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Stamford is to have a "Safe and Sane Fourth" this year.

Demand Ocular Demonstration.

I recently took a company of boys on a nature tour through Laddin's Rock Farm. On our way there I told them the legend of Laddin; how it was supposed that his cabin was burned, and his wife and daughter were killed by the tomahawk in his presence, and that he, in desperation, mounted his

horse and galloped off the precipice to his death. The boys listened attentively to the story and, when I arrived at the climax, one little fellow, seven years of age, who had been my most attentive listener, exclaimed enthusiastically, "Oh let's go there first, and see if we can find any of the blood!"

The above photographs were taken by Clifford Hampton, Western, Nebraska.

Trying to Leaven the Whole Lump.

I think it is Dr. Charles C. Abbott of Trenton, New Jersey, who states that there is one naturalist to every ten thousand people, and who believes that they are scattered over the country so as to keep nature's interests alive. Nowadays the proportion of naturalists

among people who are non-naturalists is much larger. In every community many persons are to be found who are interested in some phase of nature. Probably in Stamford and vicinity, we have many hundreds actively working to promote an interest in plants, trees, birds and various other forms of out-



L. C. ROOT AND JOHN C. UHRLAUB WITH A PROSPEROUS COLONY OF BEES.



AT MR. UHRLAUB'S APLARY.
An open hive of bees full to overflowing.

door life. Even good work with chickens, if done in the right spirit of interest in the chickens themselves as well as in the dollars produced, is good ornithology.

Most of the interest in insects, of course, is with our insect enemies, for example, the good work that the Frost and Bartlett Company is doing in trying to prevent insects from devastating trees and various other plants. But we have with us a pioneer in the promoting and furthering of the activities of one delightful form of insect. This is Mr. L. C. Root, of Stamford, Connecticut, with his honeybees. There was a time not many years ago, when Mr. Root was almost alone in the local field for real interest in honeybees. Of course, for decades there have been farmers who have kept a few colonies in old claptrap box-hives, giving them but little more attention than to shake them down to the ground in May, and along in November to put the hive on a hole in the ground with sulphur in it.

But with Mr. Root's coming to Fairfield County a new era began. Here is

a man who not only loves milk and honey, but the cows and the bees, and he has taught us to give them the care that would naturally be the result of such love. Furthermore, he wanted to inspire everybody with appreciation of milk and honey and of their producers. I am inclined to think that bees are a little nearer to his heart than the cows. He undoubtedly lays more stress upon the product of the cow than on the cows themselves. But with the honeybee it is different. He evidently likes the bees for themselves, regardless of their products. He has been active in interesting many people in honeybees and the editor of this magazine is proud to call himself a convert to bee culture and a pupil of Mr. Root's in their study. There is hardly a beekeeper in this part of Fairfield County that does not owe something directly or indirectly to Mr. Root.

Among his most recent pupils are the following:

John C. Uhrlaub,
Wm. B. Pierce,
Robert M. Gillespie,

Mrs. Harold Close,
 Mrs. Albert Buckhout,
 Conrad Lund,
 Fred Berg,
 Mrs. Herbert S. Ogden,
 Wm. Munford Baker,
 Wm. P. Davis,
 Miss Elizabeth W. Goodwin,
 Mrs. Charles M. Slater.

Mr. Root is also doing good work in popularizing the study of bees throughout the world by means of his book, "Quinby's New Bee-Keeping or The Mysteries of Bee-Keeping Explained." The late Mrs. Root was Quinby's daughter, and Mr. Root was in personal touch with him in all his wonderful apicultural accomplishments. In this book is embodied all of Mr. Quinby's ideas, with careful revision and additions by Mr. Root. The work has been so largely rewritten by Mr. Root, that he might in justice claim to be its author, but with rare modesty, and in a spirit of reverence to the memory of one who devoted his life to the advancement and the popularizing of bee-culture, he preferred to retain the title of "Quinby's New Bee-Keeping."

A Red Squirrel Attacked by Robins.

Mr. John Phillips, our well-known shoe dealer, who resides on Forest Street, Stamford, Connecticut, just opposite the High School, reports that he has seen a large number of robins chasing and even attacking a red squirrel that had evidently been robbing birds' nests. Mr. Phillips is very much interested in the study of birds, and rightly regards the red squirrel as one of their worst enemies. One naturalist says that the red squirrel has all the spirit of a weasel when the little rascal has his mind set on young birds in their nests.

Mr. Weed of The Diamond Ice Company, Stamford, Connecticut, reports that he saw, as he expresses it, "countless thousands" of winged ants come from the ground and take flight. At the mating time ants are winged. We shall be glad to have telephone reports of any observations of such swarms of winged ants.

"Flytraps are Old-Fashioned."

Readers of THE GUIDE TO NATURE are familiar with the editor's personal interest in the great work carried on by Professor Clifton E. Hodge, of Worcester, Massachusetts, as explained and illustrated in the article on page 403 and 404 of the April, 1912, issue. Filled with enthusiasm to see a somewhat similar work carried out locally, I called at several stores in the last part of May to obtain a quantity of flytraps. At two of the stores I was told, "There is no call for fly-traps nowadays." At one other store the clerk laughed and said, "Why, don't you know that flytraps are old-fashioned nowadays. Nobody uses them." At another store, the largest and finest in which one would expect to find flytraps, I was told in the first week in June, for the second time, that, "We have just ordered a few; they will be here probably in a week or two." Here we are in the middle of June and not a flytrap obtainable. Why? Probably, not because the stores are at fault, but because the public is indifferent to these filth-carrying insects.

In several places in Sound Beach, Stamford and Greenwich I have observed large piles of horse manure, yet each of these communities relies for much of its prosperity upon summer visitors and boarders. Stamford especially prides itself upon being "busy and beautiful." The streets are clean, it is true, and well cared for, but the beauty should extend to back yards and especially to the stable yards, because there are generated millions of flies whose chief business in life seems to be to travel over the teacups, or the cake, or the nursing bottle, and yet will you believe it, the supply of flytraps will arrive in the last part of June at one store, and at the others the clerks will laugh at you, and say that flytraps are old-fashioned? Perhaps it is because the people prefer to put sticky fly paper in their homes after offering every attraction for the flies to enter, hoping that when the dirty insects have done all the injury they possibly can, and have distributed as much filth and as many typhoid-fever germs as possible, they will finally and accidentally land on the paper, pro-

vided somebody does not sit down on it first.

Even Rana Gerump knows that greater and more extended effort should be made to get rid of flies than of mosquitoes, and shall a frog be wiser than mankind?

A Cat Assists a Lame Chicken.

Here is a remarkable observation vouched for by Mr. James J. Horan and his daughter, Mrs. Weed. A few months ago a young kitten was discovered in the chicken coop. No one knows how the kitten got there, but evidence in the matter suggests that the kitten did not idly crawl into the coop, but desired the chickens' company. This seems to be the explanation, because developments show that the kitten has an affection for chickens, and not the mere gustatory liking that most cats have. As the kitten became older it stayed with the chickens in the nests, and here is the surprising part of the observation. Among the chickens was a lame one, apparently with either a broken leg or with rheumatism in the joint. The leg was almost useless, and the bird when sitting on the ground had great difficulty in getting up. But the kitten would go to the chicken, put her nose under the wing on the side of the lame leg and literally lift the fowl to its feet, assisting it to stand on the one good leg until it obtained its balance and could hop away. Nearly every time the chicken stopped and sat down, the cat would repeat this remarkable performance.

I know of but one observation similar to this, and that is vouched for by trustworthy observers at a stable in a little town in Pennsylvania. A cat that had become infirm through age, had for a companion a dog that every morning and every night took that cat in his mouth and carried her to the house to be fed and then carried her back in the same manner to a resting place on the hay. While Mr. Horan's observation is remarkable and noteworthy, it is not without parallel.

Yesterday is an achievement, today is an opportunity, tomorrow may be a victory!

Happiness is contagious; share your own with whomever you chance to meet.

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By Fannie E. Blakely.

The Singers.

Who sings in "Nymphalia"
When singers are few?
Dear little Hyla,
We're grateful to you!

Rain falls in torrents,
The wind roars on high,
Low clouds go racing
Across the gray sky;

But, dear little froggy,
We know by thy note
That somebody's glad
When "Nymphalia's" afloat.

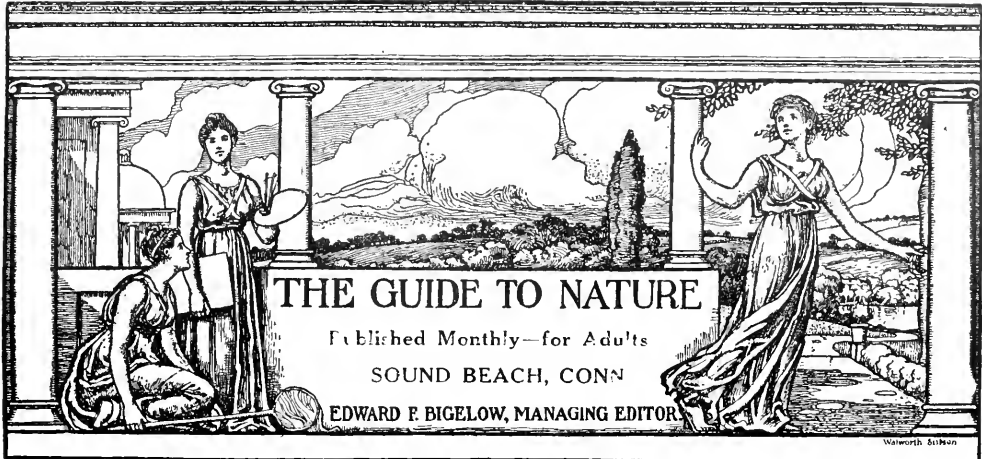
The Decorations.

Pretty brown cat-tails
In bright green and dun,
With feet in the water
And heads in the sun,

Standing on guard
O'er the swamp's mystery—
Pretty brown cat-tails,
Pray lend us the key!

"This Worship of Facts and Things!"

Some folk think that we are veritable heathen for this worship of facts and things, but we have Jesus as our leader. When they pointed him to the temple he answered with disdain, that those stones would soon be thrown down, so completely that not one would be piled on another. Look, rather, he said, at the lilies in the field or at the wheat that grows, and let those that have ears to hear, hear and those who have eyes, let them see. Let those that have hearts understand, now as then. If Jesus were alive today they would call his discourse science, and elect him president of Wisconsin or Cornell, while the churches were debating his orthodoxy.—E. P. Powell in "In the Woods at Eighty," in "The Independent."



Volume V

JUNE 1912

Number 2

Where is the Ignorance?

"Harper's Bazar," which prints the illustration with its legend (on the next page), has, upon my request, kindly lent the cut to *THE GUIDE TO NATURE*. A naturalist friend, who called my attention to this, suggested that I might be able to give a "rousing editorial" on the ignorance of nature manifested by city people when they go into the country. He claims, "The boy's facial expression shows that he is laughing at them for not knowing poison ivy and toadstools. Their facial expression shows that they have heard of the effects of poison ivy, and are pained to learn that they are gathering it, and pained in prospect, too, at the thought of their blistered skin. The boy is laughing at their ignorance, not at their admiration of things that, to him, are the commonest of the common."

I must confess that before I received the letter detailing this point of view, and after I had studied the illustration and read the legend, my sympathies and interests went entirely in the opposite direction. Here is my version.

Two enthusiastic people have come from the city to love commonplace nature with uncommon interest, and the boy, like too many people with whom familiarity has brought contempt, sees in their actions nothing but the manifestation of a harmless sort of lunacy. I do not know which meaning the editor of the "Bazar" intended to convey. The picture may be con-

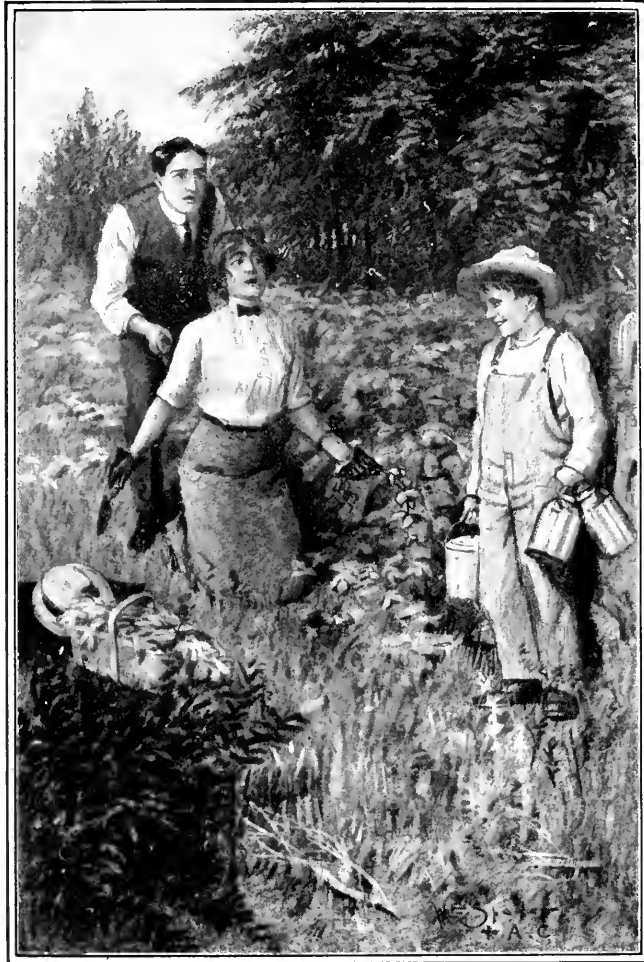
strued in either way. On the one hand, there is a great deal of "fool farming" on the part of city people, who come into the country, and are rightly the objects of ridicule by the country people who note their unusual methods. If the city man has read books and goes at the work in the theoretical book farming spirit, he becomes an object of ridicule, though he may do the work vastly better than the country people. If, in his ignorance, he does foolish things, he is again the butt of ridicule, but I doubt whether ignorance ever receives so much condemnation from country people, as does the exhibition of superior knowledge. Any man who attempts to do anything in a different and better way becomes a target for ridicule. It is dangerous to think new thoughts. If on the other hand, the city people are really ignorant then they receive from the country people pity and sympathy, and help. But I am inclined to insist that my first impression of this illustration is correct, and that this man and his wife are really in love with the commonplace things of nature, to which the boy has always been accustomed, and I can quite readily imagine him saying, "Aren't they the biggest fool people you ever saw to be interested in just vines and snake brakes and all them sort of things?" He has been so accustomed to the objects without knowing their interests, or having their beauty implanted in his heart, that he

looks upon these city people as fools. "What fools these mortals be"—to the one who does not understand the inner meaning of the apparent foolishness.

In illustration of this, an incident from actual life comes vividly to my mind. A backwoods farmer had been appointed school committeeman. He engaged an enthusiastic city girl, fresh from the normal school, with all her

customed to city life, to pavements and straight streets, that the fullness of the year at the beginning of September came to her with all the charm and novelty of a new world. The stolid farmer could not understand it.

When he arrived at home and while the teacher was in her room, his wife inquired, "Well, Waldo, what do you think of her?" Then he burst into ex-



From "Harper's Bazar."
Copyright, 1912, by Harper & Brothers.

THE BOY: Ye're like all the rest of the city folks that moves out here. Never satisfied till ye replant a lot o' toadstools an' p'ison ivy.

enthusiasm and ideals not yet calloused by the routine and the drudgery that come to any one in any line of work. The farmer drove to the station to meet this enthusiastic young lady. She had all the complacency of a child, and went into ecstasies at the charms of the country road, the flowers, the birds, the sky. She had been so ac-

pression, "I tell ye, Sarah, I don't know what to think of her. She is the strangest piece I ever saw. She did nothing but say, 'Ah, Oh my, and Isn't that beautiful,' and over nothing but a passel 'o brakes by the roadside."

I am inclined to think that this boy is like Waldo. It may be that the man and his wife are bringing in toadstools

and poison ivy, but what if they are—that is merely a mistake. The thing that puzzles him is not that they have made a mistake in identification, even if they have, but that they should be interested at all in any "such things." To him, the only uses of nature are to develop squirrels that he may shoot, or fish that he may jerk out of the pond. The only beauty of the cow is in her productions, and the only use of the pasture is a place in which she may eat grass. The only use of planting anything is to raise something that you can put into your stomach, and the ideal that toadstools, or poison ivy, or allied things have any esthetic value, stamps all city people, in his estimation, as "just like all the rest of the city folks"—a lot of lunatics. If I go into any section of the country with which I am not familiar, to ascertain all the variety of birds or butterflies that are in that vicinity, or the different varieties of ferns and mosses, I feel sure that I should never consult a native. I would hunt up some "city folks," who had moved there with an affectionate and intellectual interest in nature. Country people have good, sound, practical knowledge of the things that help them to earn a living. They know the trees so far as lumber and firewood are concerned. They know the weeds of the garden by their common names. They know the crows and the hawks, and possibly a few other birds that are either enemies or assistants in the struggle for existence. But go to any country boy, or a farmer or his wife, and inquire what warblers are found in the vicinity, and what is their date of arrival and departure, what birds stop in their migrations northward, what ferns are found in that vicinity, and see how much definite information you will get. Ask the country boy how many varieties of snakes or frogs there are, and if the farmer and his wife and the boy are not the exceptionally "queer ones"—that is, those interested in "such things"—you will not get much definite information. But go to some city people, and you will find that they have definite notebooks of their observations. They have the latest nature study books and are regular subscribers to *THE GUIDE TO NATURE*. Of

course, there are exceptions to all generalities. There are many country people who are good observers. I once knew a hard-working farmer who could tell the scientific name of every moss found on his farm, but he is an exception. There are undoubtedly city folks that are "just like all the rest that move out here"—that is, they bring indifference to the real beauties and interests of the country, merely taking with them a little section of the city and transplanting it into the woods but they never break through the shell to get into the woods themselves. But these also are somewhat exceptional.

I believe, therefore, that the boy in this illustration represents the "don't know" point of routine of his daily life, and what is worse, he does not want to know, but believes it sort of sissyism or laughable lunacy to be interested in "such things." I believe also that the woman on her knees and the man assisting her, may represent ignorance of some particular plant, or even a mistake, but they do represent a love of nature and a thorough desire to know more about her. Give them time and a few books and a year's subscription to *THE GUIDE TO NATURE* and I have hope for them.

For the boy, well, even on older faces I have seen the smile that won't come off, when they look at an enthusiastic lover of nature.

"A city man and woman are in a country barnyard with the farmer's daughter. The city woman: 'Yes, a pleasant place, but how do you employ your evenings?' Girl: 'Oh, we go to bed with the chickens.' Woman: 'Good gracious! How unsanitary.'"

Nature-study is a pursuit which calls all our faculties into action: it makes us observe, remember, reason, and think; it takes us out of stuffy rooms into the open air; it makes us walk, wade, row, and even swim; it develops inventive genius, gives us eyes to see interesting things everywhere; it appeals to the sense of beauty, form, and colour, and, above all, makes us reverent by leading us to look up from Nature to Nature's God.—*Reverend Charles A. Hall, in "The Open Book of Nature."*



THE HEAVENS IN JULY

The Heavens in July.

BY PROF. ERIC DOOLITTLE OF THE UNIVERSITY OF PENNSYLVANIA.

The whole heavens are now filled with the typical summer groups of stars. Exactly overhead there stretches out the great Hercules; in the north the Dragon has reached its highest position in the sky; the Northern Cross,

Bootes on the north and the Scorpion on the south are the two intermingled groups of the Serpent and the Serpent-holder, which, though they are marked by no very bright stars, contain innumerable objects of interest, and which at no time are in better position for tracing out than at present. If the observer will face toward the south,

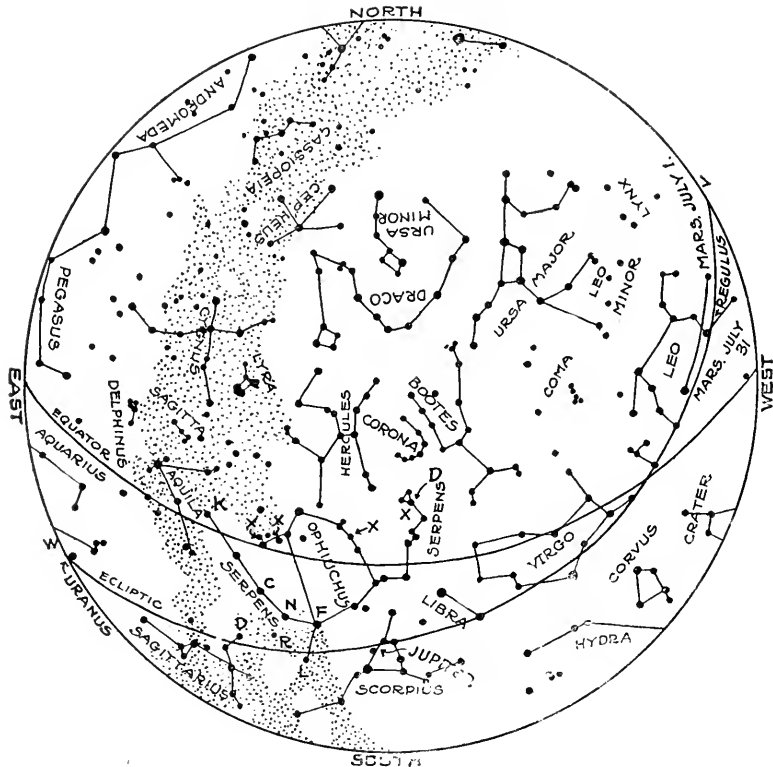


Figure 1.—The Constellations at 9 P. M., July 1.

(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.)

the Eagle and the Archer are well up in the eastern heavens, while exactly south there shine out the stars of the bright Scorpion, which is the most striking summer group of all.

THE JULY STARS.

Filling the whole region of the sky between Hercules, the Crown and

he will have no difficulty in finding a rather striking group of five little stars a short distance to the left of Arcturus and directly below the Crown, and these five stars (of which three are shown at D, Figure 1), form the head of the Serpent. From here a quite definite winding line of stars

leads downward nearly to the Balances, and then, turning eastward, passes the whole length of Scorpio to the star at N, Figure 1, after which the Serpent's body extends northward along almost the exact center of the Milky Way until the tip of the tail is finally reached at the bright star, K, in the constellation of the Eagle.

The stars at A, B, F and C are regarded as belonging, not to the Serpent, but to the Serpent-holder, Ophiuchus, and this great constellation includes nearly all of the remaining stars in this region of the sky between Scorpio and Hercules. The star at C is easily seen with the naked eye to be a pair of stars, and these mark the right hand of Ophiuchus, the left hand grasping the Serpent at the pair of stars A and B.

These two star groups are among the oldest of the constellations. No less than four of the brightest new stars of historic times, appeared in Ophiuchus, one of which, known as the celebrated Kepler's Star, shone out near the star at L, Figure 1. All of the stars marked X are double stars, though some of them may only be seen double with a moderately large telescope. But this region is particularly remarkable for the large number of star clusters which it contains. One of these will be found at H, a little below and to the right of the star M; a still larger one is at R, nearly midway between the stars N and O, and there are a great many others, most of which require a large telescope for their observation. But so seen, they are remarkable and wonderful objects. Each is composed of hundreds or thousands of stars, gathered together into an approximately spherical ball, though whether each particle of the cloud is a sun so great as our own we do not yet know.

Besides these two important constellations, there are many other interesting groups which can best be studied at this time of year. Turning to the east, the strange little figure known as the Dolphin, or Job's Coffin, will be seen about one-third of the way to the zenith, while above this is a line of six little stars forming the Arrow, which is speeding eastward from Hercules to slay the Eagle of Jove. Turning north-

ward we see the great Dragon swinging high above the Pole, a constellation which in early times was even longer than now and enclosed both of the Bears in its folds. The head of the Dragon is a conspicuous and easily found figure; this, with the nearby star at T, Figure 1, was called by the early Arabians the Five Dromedaries. It may be added that the head of the Serpent at D, Figure 1, is from its figure sometimes called Saint Andrew's Cross.

THE PLANETS IN JULY.

The planet Mercury reaches its greatest distance east of the sun on July 25, and for a few evenings before and after this date may be seen shining low in the twilight glow, a little north of the west point of the horizon, for about an hour after sunset.

Venus passes from the west to the east of the sun on July 5 at 9 P. M., but although by the end of the month it will have moved so far into our evening sky that it will not set until one-half hour after sunset, it will not even by that time have drawn so far from the sun's rays that it can be well observed. This planet is now beyond the sun, at its extreme distance from the earth.

Mars is moving so very rapidly eastward that during the month it passes entirely across the constellation of Leo; it is moving eastward almost as rapidly as the sun itself and therefore it remains continually visible in our evening sky. It will not be finally overtaken by the sun and so become a morning star until next November 4. The planet is now, however, very far away from us and in very unfavorable position for observation. It, in fact, now shines only as a star of the second magnitude; that is, is but very little brighter than the North Star and very far inferior to the nearby star Regulus, which a few months ago it far exceeded in brilliance.

But the most striking object in the evening heavens is undoubtedly the great planet Jupiter, which shines out brilliantly in the south, almost in the center of the constellation of the Scorpion. This world, which has proceeded so little in its development that it is still a great ball of heated vapors nearly 90,000 miles through, is seen

even in a small telescope to be covered with the most beautiful markings and bandings. By watching these we can see how very rapidly the world is turning, for a marking rises at one edge, is carried completely around the planet and disappears at the other in a little

move onto the planet's disc at 10 hr. 56 min., not emerging from it until 1 hr. 36 min. the next morning. Similarly, on July 2, 9 and 18, interesting occultations or transits may be observed.

Saturn is now in the morning sky,

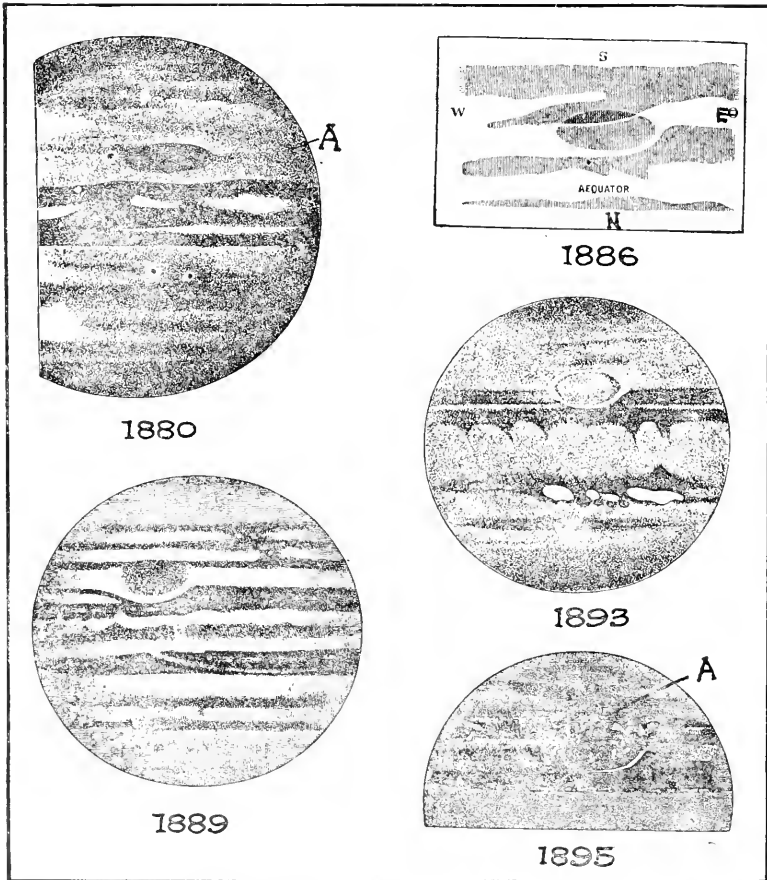


Figure 2.—Detailed drawings of the Planet Jupiter, showing the appearance of the Great Red Spot in different years. This remarkable feature first appeared on the planet in 1878 and has not even yet entirely faded away. It was 30,000 miles long and 7,000 miles wide. In the square figure masses of vapor overlying it are readily seen. The black spots marked A are the shadows of Jupiter's moons cast on the ball of the planet.

less than five hours. The four bright moons, as they continually move around the heated ball, sometimes passing behind the disc and sometimes in front of it, and sometimes entering or leaving the planet's shadow and so being darkened, are ever most interesting objects of study. For example, on July 16, at 9 hr. 37 min. 1 s. P. M. (Eastern Standard Time), the third moon will disappear in eclipse, emerging again from the shadow at 11 hr. 42 min. 8s. On the same evening the second moon will

and it each morning will be seen rising earlier and mounting higher in the heavens by the time of sunrise, but it will be many months before we will see it in our evening sky. On July 1 it rises two and one-half hours before sunrise, which time is lengthened to four and one-half hours by the end of the month. The planet is now in the constellation Taurus, just west of the Hyades; it will remain in nearly this same position throughout the year, so that when by next autumn the changing seasons have brought this beauti-

ful group of stars into our evening sky, the constellation of Taurus will present a region of unusual interest.

Uranus is just on the borders of our map, but is still very low down in the southeast.

Neptune is passed by the sun on July 16 at 6 A. M., so that it is wholly invisible to us throughout the month.

THE MOTION OF THE MOON.

The reader who observed the beautiful occultation of Antares on the 26th of last month was doubtless struck by the extremely low position of the nearly full moon in the sky. It is at this time of the year that the full moon is always very low in the heavens, because our satellite when full always lies in the opposite region of the heavens from the sun, so that as the sun is then highest in the heavens, the moon is necessarily lowest.

But the moon does not follow exactly the same path among the stars as that pursued by the sun; the latter

is the path VUM, Figure 1, and at present the moon's path lies nearly five degrees below this line in the region of Antares and the star at L. Consequently, although the full moons of June and July are always very low in the sky, those which occur this year are even much lower than usual.

In its monthly journey around the heavens the moon will again pass over Antares on the morning of July 24, but unfortunately this will occur at about 5 o'clock A. M., after the moon has set to all observers in the United States. And on July 10 the nearly new moon will pass over the Pleiades, hiding its principal star, Alcyone, and a great number of the other stars of the cluster from our view. This is always an interesting and long anticipated astronomical event, but this occultation will also unfortunately not be visible to us, for it will occur in the early evening when the moon has set, but while the sun is still shining in the sky.

Flowers of the States.

In most instances, the state floral emblems have been adopted by the vote of the pupils of the public schools of their respective states. This compilation is the result of many inquiries from our readers.

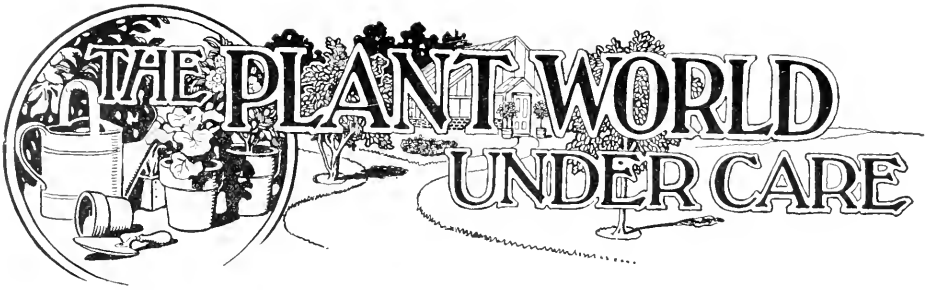
Alabama	Goldenrod.
Arizona	Suwarro.
Arkansas	Apple blossoms.
California	California poppy.
Colorado	Columbine.
Connecticut	Mountain laurel.
Delaware	Peach blossoms.
Florida	Japan Camellia.
Georgia	Cherokee rose.
Idaho	Syringa.
Illinois	Rose.
Indiana	Corn.
Iowa	Wild rose.
Kansas	Sunflower.
Louisiana	Magnolia.
Maine	Pine cone.
Michigan	Apple blossom.
Minnesota	Moccasin flower.
Mississippi	Magnolia.
Missouri	Goldenrod.
Montana	Bitter-root.
Nebraska	Goldenrod.
New Jersey	Sugar Maple.
Nevada	Sage Brush.
New York	Moss rose.
New Mexico	Crimson Rambler rose.
North Carolina	Chrysanthemum.

North Dakota	Goldenrod.
Ohio	Buckeye.
Oklahoma	Mistletoe.
Oregon	Oregon grape.
Rhode Island	Violet.
South Carolina	Carolina palmetto.
South Dakota	Pasque Flora.
Texas	Blue Bonnet.
Utah	Sago Lily.
Vermont	Red Clover.
Washington	Rhododendron.
Wisconsin	Violet.

The national flower has never, as yet, been decided upon by universal acclamation. But it is quite safe to believe that it will be the columbine, for good and sufficient reasons. In a popular sense, the name columbine is not far removed from Columbia, the Goddess of Liberty and "the gem of the ocean" when standing for freedom and justice.

Columbine is derived from the Latin *columba*, meaning a dove, and is emblematic of peace. Another account says it is from *aquila*, an eagle, which, by the way, is the crest symbolic of America, as represented by the bald eagle.

The red spurs of the flower are said to resemble the red stripes of "old glory," and the red, white, and blue varieties indicate the national colors.—*Suburban Life*.



An Orchid Sells for About \$10,000.

On page 150 of THE GUIDE TO NATURE for August, 1910, we published a full page or nearly a full page illustration of a white orchid of the type known as the large *Cattleya gigas*. Here is another photograph of the same orchid showing the flower from a different point of view. At the time when I took the photograph previously published, the attendant in the greenhouse said, "We probably will get a pretty good sum for this. I should not be surprised if some rich man would give us \$300 or \$400, perhaps \$500 for it." As this orchid's only merit is that it is different from the others of the same family in being pure white, instead of a beautiful, variegated purple, I

thought that there could not be much reasonable probability of any man's paying \$500 only for the sake of having an oddity in color. Upon my recent visit to the greenhouse to take the accompanying photographs, I learned with much surprise, when I inquired what had become of that white orchid, that it had been sold several months ago for about \$10,000. I at once requested Mr. Lager to tell me more in detail in regard to the finding and disposing of that orchid. In reply he has written the following letter:

"In regard to *Cattleya gigas alba*, let me say that this is the rarest orchid, and in fact the rarest of all plants of the present day. We flowered this *Cattleya* in 1910, and exhibited it at the



THE ORCHID THAT SOLD FOR ABOUT TEN THOUSAND DOLLARS.

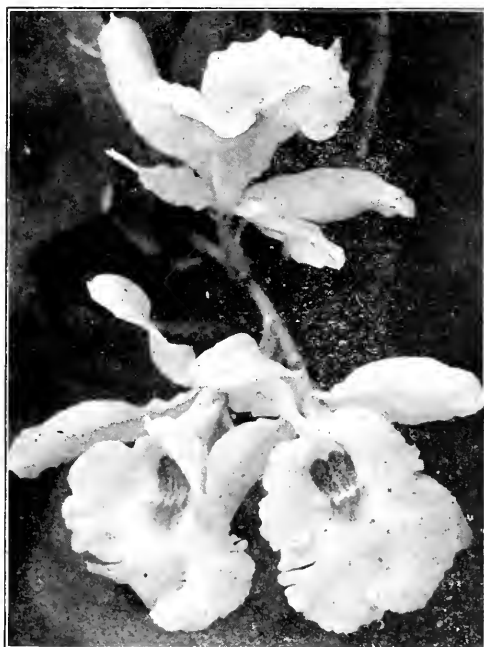


A GROUP OF *CATLEYA MOSSIAE* AND *C. GIGAS*.

The former comes from Venezuela, the latter from Colombia. They are both exceedingly beautiful, lavender in color, with purple lips, and are easily grown in any greenhouse in a temperature of from 60° to 65°. Where the glass is lightly shaded, both enjoy plenty of water while the new shoots are forming; but when they are resting, the quantity of water should be reduced. The moisture in the atmosphere however should be maintained at all times.

great orchid show in Boston, where we were rewarded by a gold medal. The plant was entirely a chance find, and came here late in 1909 in a lot of other specimens of *Cattleya gigas*. The way in which we happened to keep this rare find is also remarkable, as it was only by accident that the plant was not sold for a dollar or two. The only reason was that, after most of its companions had been disposed of, this one, with some others that were not in good condition when first imported, were left as remnants and were spread on a wire netting. Finally we potted them. Imagine our pleasant surprise when the next spring (1910) this plant cropped up with pure white flowers—the only white flower ever found in *C. gigas*.

"The plant was sold by us in 1911 in London, England, at the highest figure ever realized for an orchid. So pleased with their acquisition were the British horticulturists that the British horticultural press commented on the



TRICHOPILEA HENNESU.

A very pretty species from Colombia, with pure white flowers.

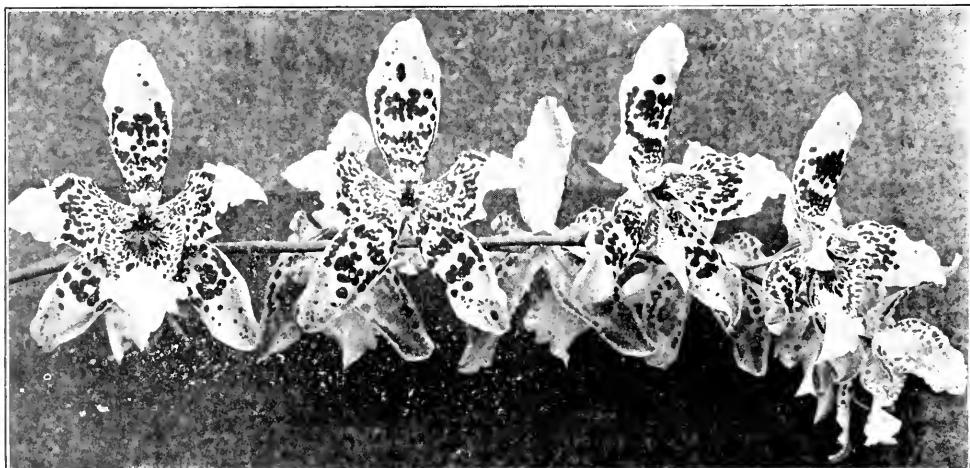


VANDA SYLVATICA.

A native of the East Indies. Its flowers are large, fragrant and white stained with pale purple and bright red-brown. It is a plant easily grown in a shady position, in a temperature of from 60° to 65°, with abundant moisture.

plant to the effect that it was refreshing to know that while so many masterpieces of paintings and so many

rare art works found their way across to America, a plant of such rarity and beauty could be acquired by Great



ODONTOGLOSSUM ROLFEI.

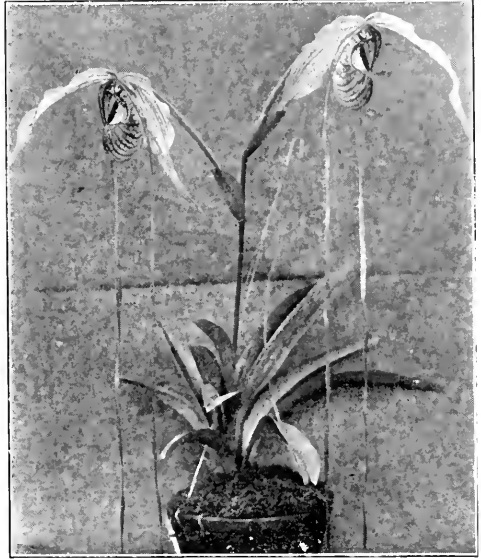
A splendid hybrid which requires a moist, cool house at all times. A temperature of from 55° to 60° suits it well.

Britain.' This is perhaps not the exact wording, but it is the meaning of what was said in the press at the time.

"We wanted to dispose of the plant in this country and thus keep it here, but we found it impossible to obtain the price. Possibly it may be bought and brought back by some enthusiastic collector."

Orchids.

Not long ago I visited a primary school in which the teacher was giving a lesson on "Jack-in-the-pulpit." She talked interestingly of the home of Jack-in-the-pulpit and of the beautiful fancy that likens the upper portion of the flower to an old-fashioned sounding-board over a pulpit, and she explained that the central portion might well be compared to the preacher. But imagine my astonishment when at the close of her lesson she stated to the young people, "So I hope you will remember our lesson of Jack-in-the-pulpit—one of our most interesting orchids. Could anything be more incorrect botanically



CYPRIPEDIUM CAUDATUM.

This is one of the most remarkable orchids in cultivation. It is of a yellowish-green color, with petals that sometimes attain a length of more than twenty-four inches, and resemble delicate ribbons suspended in the air. It is a plant almost extinct in its native habitat. Years ago it was found around Lake Chiriqui in Central America, and a patch was known in Ecuador, but it has now disappeared from these places.



A VIEW IN ONE OF THE GREENHOUSES.

The plants shown in flower are *Cattleya mossiae*, *C. gigas*, *C. mendeli*, *Laelia purpurata*, *Panda coerulca*, *Panda teres*, *Dendrobium thyrsiflorum*, *D. chrysotoxum*, *D. Venus*, and many others. It is difficult to imagine any exhibit of flowers more showy than a collection of these plants brought together from all parts of the globe, and all in bloom at the same time.



LAELIA MAJALIS.

A charming Mexican orchid of lavender color. This plant likes plenty of sunlight and a temperature of from 55° to 60°.

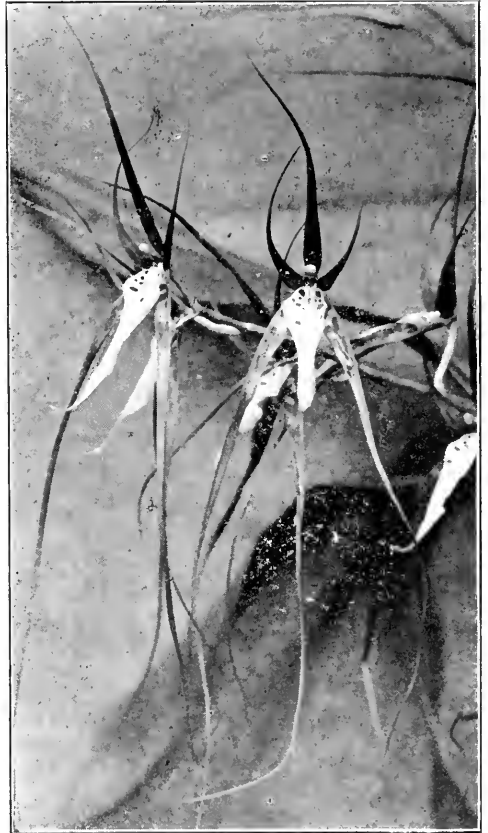
than to assign a member of the Arum family to the orchid family?

And yet when one goes to the botanics to learn what an orchid really is, the confusion seems not to be cleared up, but rather to be increased, though evidently the botanist thinks that he has made the whole thing clear in the following words:

"Herbs, distinguished by perfect zygomorphic gynandrous flowers, with 6-merous (sometimes apparently 5-merous) perianth adnate to the 1-celled ovary, with innumerable ovules on 3 parietal placentae, and with either 1 or 2 fertile stamens, the pollen cohering in masses."

When the ordinary reader, not especially versed in botanical terms, reads that description he knows a little less as to what an orchid really is than before he read it. An orchid is a decidedly irregular flower in which the parts that correspond to those of a

regular flower are exceedingly irregular and unlike the ordinary form. But it does not follow that every irregular flower, as, for example, the Jack-in-the-pulpit, is an orchid. So let us be contented with the statement that in an orchid, petals, stamens and stigmas are of a decidedly peculiar and orchidaceous form. There is, first of all, the lip which is really a transformed petal and there are a stamen and various other parts. Perhaps our most beautiful native orchid is the lady's slipper or moccasin flower or whip-poor-will's shoes, three names for one flower. Almost everybody recognizes that as an orchid because it is similar to the cultivated *Cypripedium*. And so our common fringed orchis has its close counterpart in the greenhouse varieties, but not every one thinks of our *Pogonia* or



BRAISSIA LAURENCEANA LONGISSIMA.

Very striking in its appearance. The sepals and petals are seven and eight inches long, dark orange-yellow with purple blotches. The plant comes from Northern Colombia. It will grow in a temperature of from 60° to 65° in a moist atmosphere and a shaded position.

Calopogon as an orchid while the common rattlesnake plantain and the tway-blade, coral root and adder's mouth, all seem remote from the popular idea of the expensive orchid of the greenhouse.

And speaking of orchids of the greenhouse let us tell our readers that we have never seen any more beautiful than those in the extensive greenhouses of Lager & Hurrell of Summit, New Jersey. Here seems to be the Mecca of all the wonderful South American orchids. They have their commercial value, but back of all such success is the genuine love that the proprietors have for these weird flowers of the tropics. An orchid anywhere, here in our own woods or in South America, seems to savor of something from another world. A moccasin flower seems not like a flower, but like an elfin balloon. It is, therefore, fascinating to walk through Lager & Hurrell's extensive greenhouses and see the astonishing forms into which this curious family of flowers has by nature been diversified.

A Vase for a Single Flower.

For many years a bouquet was a heterogeneous mass of all sorts of incongruous flowers, but within the last two decades or so of increased interest in nature, most people have learned that flowers are most beautiful when only one kind is in a bouquet. There was a time when we sprinkled in a little of everything everywhere, and to a certain extent that, in planting, is now the best method, since it follows nature's method.

The Roycrofters of East Aurora, New York, are inculcating another teaching, which is to admire a single flower, and for that purpose have placed in the market an attractive vase designed to hold only a single specimen, as shown in the accompanying illustration. Whether one purchases this vase or not, or whether one uses only a bottle to hold the flower, here is a good idea, because a single flower has beauty enough for a million people if all could see it. As Thoreau said, "A mouse is marvel enough to stagger sextillions of infidels." So a

single flower is surely enough to delight all the inmates of a household. Suppose there was no other of the same kind in the world, suppose we had never seen any other flower. What a marvel would we regard an unfolding rose! It would be so great an aston-



THE VASE FOR A SINGLE FLOWER.

ishment that it seems as if our senses could not endure more than one at a time.

You would have me reverent in the church, where you open to me the word of God; I would have you reverent in the fields and by the seashore, where I show you the works of God.—*Louis Agassiz.*

THE CAMERA



Superimposed Negatives.

There are many methods of putting two or more photographs together with interesting and sometimes startling effect. One of the most impressive methods is that of skillfully blocking out, in each negative as it is printed, the section of the entire photograph that is to be supplied by parts of other negatives. An effective and attractive photograph is here shown of Master

boy and the marine scene. And last, he printed the boy in position on the eagle. It requires a skilled photographer to do these printings successfully, so as to have them merge into one smooth picture.

Our less skillful amateurs can obtain the same, or nearly the same effect, by printing each negative entire, then, as might have been done in this one, the entire marine scene could be mounted and



AN EFFECTIVE RESULT OF SUPERIMPOSED NEGATIVES.

Teddy Freeman, Stamford, Connecticut, riding over the bay on an eagle. In making this picture, the photographer, Mr. G. B. Windsor, who kindly lends it to us, used three negatives. First, he printed the marine scene and blocked out of that, by opaque material so that it would not print, a stenciled pattern of the space to be occupied by the eagle and the boy. Next, he printed the eagle, blocking out the space to be occupied by the

photographs of the eagle and the boy carefully cut out and pasted in place. If the cut edges were visible, a touch with the paint brush would have corrected that. Then one negative could have been made from the three photographs and from that prints as desired. This method of pasting is not so effective as that of superimposed prints, but it has some advantage where the photographer is skilled in the use of an artist's brush, because he can then

sometimes work in things that do not show in any of the photographs. It is by this last method, or in combination with the first, that startling photographs are made in which different things are not in the same proportion, but appear greatly exaggerated as, for example, a man standing on his own hat, with the man not much taller than the hat; or a boy carrying an ear of corn as big as himself. I recall the picture of a man standing under the hoof of a horse, the horse being in rapid movement. In this case, the horse was photographed when very near to the lens, or with a lens of long focus, so as to get an enlarged hoof and leg. Then the man was photographed by a short focus lens, or at a great distance by a long focus lens.

Trick photographs such as a man sitting astride his own cigar which he is smoking, are usually made by the pasting method. None of these photographs have any nature study merit, but they do have a camera merit, so far as they show skill in the manipulation of negatives, prints and lenses.

Double Walnuts.

Chattanooga, Tennessee.

To the Editor:

I find each issue of your magazine very interesting indeed, and to add somewhat, perhaps, to the interest, I send you herewith a photograph of the double hickory nuts that grow near Chattanooga. So far as I am able to ascertain, this is the only hickory tree in existence that produces double nuts. You are at liberty to use the picture in your magazine if you choose to do so.

ROBERT S. WALKER.

There may be several hickory trees in the country having double nuts—who can tell? They are not reported,

or brought to our attention. This is the only tree of which I have heard, but doubling is a freak that occurs with so many plants that the report of another hickory with double nuts would not surprise me.—R. T. M.

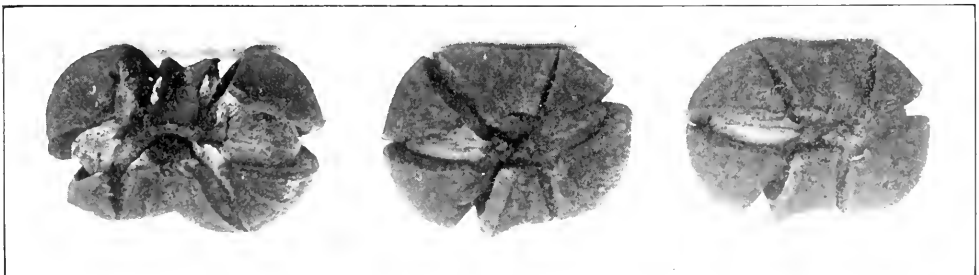
Photograph of Girl and Cat.

BY F. GRAFTON, CHESTER, WEST VIRGINIA.

I send you herewith a photograph of a girl and a cat. The cat has the habit



A GOOD POSE OF GIRL AND CATS.



THE DOUBLE WALNUTS.

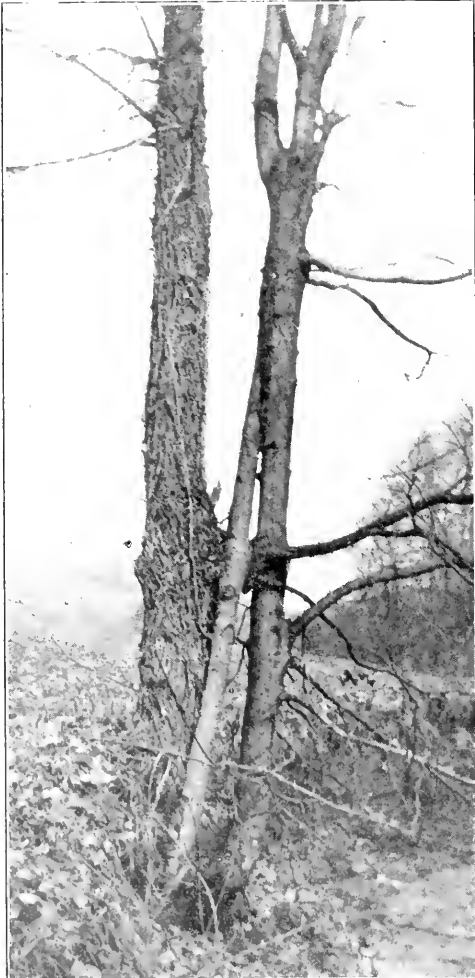
of sitting up on his hind legs when he is hungry, and will frequently retain that attitude until some one feeds him. Sometimes he will sit for four or five minutes at a time with hardly a change in position. This suggested that I take his photograph, to show this remarkable trait.

Curious Group of Trees.

Barnesville, Ohio.

To the Editor:

I am sending you a picture of a tree that may be called a natural graft. The tree to the left is a white elm. From its trunk at the base two sugar maples seem to grow. At about six feet from the ground, the two trunks of the maples and an elm branch have



THE CURIOUS GROUP OF TREES.

grown together. Five feet farther up, the two maples are completely joined, and the bark around them is perfectly smooth. Several feet farther up, the maples again separate, or the single trunk there branches

Yours truly,

EMMA E. LAUGHLIN,

*Gray Memorial Botanical Chapter of
the A.A.*

Convince nature that a thing is needed, and she will produce it.—*Elbert Hubbard.*

Yes, Just What we Want.

Lincoln, Nebraska.

To the Editor:

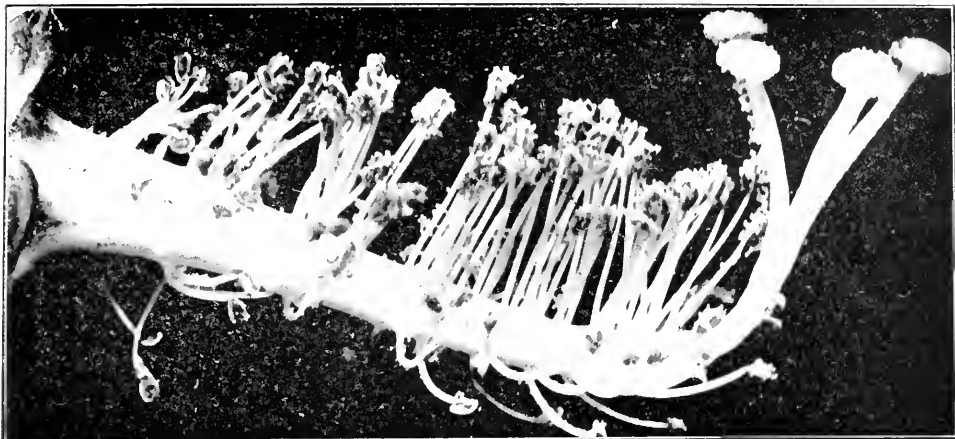
Enclosed find money order for the renewal of my subscription to THE GUIDE TO NATURE. I like the magazine very much. The pictures are especially good; many of them are works of art. But in spite of its good qualities, I believe it can be improved, and hope that you will accept my suggestions kindly and for what they are worth.

There was some excellent material in the March issue. In the camera department is an article entitled "Long Focus and Short Focus: Theoretical vs. Practical." We need more such articles that give valuable information, and not so many that are only words of appreciation of nature. I am helped to appreciate nature by being told how to deal with her rather than by being told how much some one else appreciates her.

We want to know how to use the microscope, how to prepare our specimens, how to make permanent mounts; how to care for our pet animals; how to photograph the birds; how the trees resist the cold of winter; why the maple leaves turn red in fall even before frost, and the many other things that are known only to those who have had the training of the scientific departments of our colleges and universities.

C. ELMER FREY.

This is exactly right. Will our contributors please tell things that will help "the other fellow." Don't leave it so much to the editor. Why should he do more than you?—E. F. B.



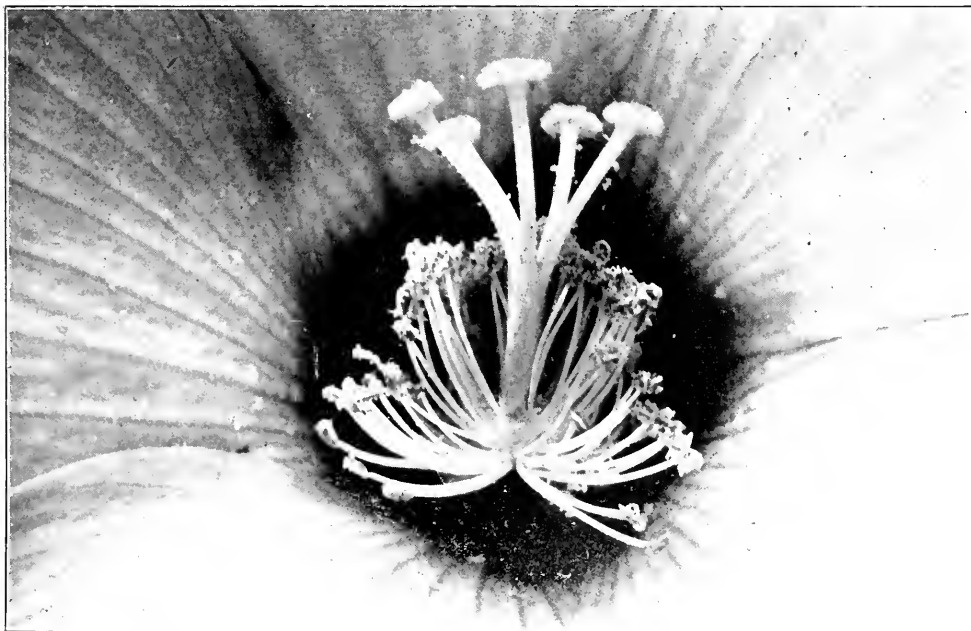
A SIDE VIEW OF STAMENS AND PISTILS OF MALLOW.

Looking into the Center of Flowers.

No marvel of intricate detail, of gorgeous coloring or of delicate iridescence can be found in greater perfection than in the stamens and pistils of flowers, especially when they are examined in a cluster as nature arranges them. Do not cut them apart, hoping then to see their beauty, but bring to bear upon them a pocket magnifier of about one inch focus or a little less. Here more than in most other places is a foundation for the

old time statement, "*Natura, maxime miranda in minimis.*" by Fabricius—Nature is most to be admired in those works which are the least.

It seems to me that the stamens and pistils are far more attractive than the corolla and sepals, and rightly they should be so on the principle that the arrangements at a party are more beautiful and more interesting than the cards of invitation because stamens and pistils, and the nectar that may be at their base, are the real attractions



A "FRONT" VIEW OF THE CENTER OF THE MALLOW.

for the insect, whose unconscious and unintentional work is to transfer pollen from one blossom to another. Take, for example, the accompanying views of the interior of the mallow's flower. Could anything more plainly express nature's design, or reveal a beauty more delicate or fairy-like? Here surely is a perfect machine, self-evidently the work of a Mechanic who deliberately designed that machine. It is unthinkable that such adaptation directly to a certain end could have been without a designing workman.

We suggest this aspect of flower photography as an interesting field for our camerists. The secret of success is to use a very short focus lens with a long bellows, to stop down the lens, and to give plenty of time in exposure. The accompanying photographs were taken with a five inch Dagor with about three feet of bellows stopped down to sixty-four, with an exposure of three and one half minutes.

A Mammoth California Pumpkin.

BY JOHN L. VON BLON, LOS ANGELES,
CALIFORNIA.

This California pumpkin is believed to surpass in size anything of the kind

ever before raised. The young lady that occupies it is sweet sixteen, and large for her years. True, she was not sixteen when the photograph was taken, for that was more than a dozen years ago, but she was a big girl to find in a pumpkin sufficient space for a comfortable rest. California pumpkins are not all so big, and not all California girls live in pumpkins, but this picture shows one of the possibilities of the Golden State. Think of the pies that "mother could make" out of one of these giants fresh from the vine. In addition to cow feed and pie material, pumpkins of this variety have been found useful for a unique purpose in a certain California town, where a strict prohibition law is in force. Several business men were observed to be active buyers of pumpkins, and it was observed that they were rolled into rear rooms and many men went to admire them. Eventually the police found the explanation. The pumpkins were filled with beer!

Go to the hills, the woods, the fields,
For the balm that Mother Nature yields.

Enthusiasms with a Load.

Perhaps some people think that such an equipment for the field must be a terrible burden, and they may say that, if Nature-study means carrying so much apparatus about on their rambles, they are not going to be bothered with it. That is the kind of people who need carrying everywhere they go. If they have to take a journey of a couple of hundred yards, they must be hauled in a street-car or a motor. Needless to say, they will never be naturalists; they are not built that way. Then, the naturalist sets out to *take* records, not to break them. He does not walk for a wager; he is never in a hurry, never impatient; and as for the load, *that* is carried by his enthusiasm. Your naturalist is a self-reliant, independent, and manly mortal; you find him out in all weathers, facing sunshine or storm; you see him drenched to the skin, yet cheerful; perspiring under a hot sun and a heavy load, yet rejoicing on his way.—*Reverend Charles A. Hall, in "The Open Book of Nature."*



"ONE OF THE POSSIBILITIES OF THE
GOLDEN STATE."

A Photographic Souvenir of the Western Plains.

BY FRED E. WHITE, BROWNTOWN, WISCONSIN.

The accompanying photograph shows the sod-shanty home of Glen Davis, a young man from Indiana, located about ten miles northwest of Butte, Nebraska, in the valley of the Niborara and about one mile from the

day when I first saw a bee-orchis (*Ophrys apifera*) in ignorant astonishment, to my first view of the grand forests of the Amazon; thence to the Malay Archipelago, where every fresh island with its marvellous novelties and beauties was an additional delight—nature has afforded me an ever-increasing rapture, and the attempt to solve some of her myriad problems an



A PHOTOGRAPHIC STUDY OF A SOD SHANTY.

river,—an illustration of claim life on western virgin lands. The roof is overgrown with a healthy crop of wild grass, weeds and Russian thistles. Mr. Davis was living here alone, with his pony, dog and cow. The photograph was taken in July, 1903.

Dr. Wallace's Enjoyment of Nature.

The general biology class of the University of Colorado sent a letter of appreciation to Dr. Alfred Russell Wallace on the occasion of his eighty-ninth birthday. He replied as follows:

My dear Young Friends:

Thank you much for your very kind greetings. I am much pleased that so many of you are readers of my books. The wonders of nature have been the delight and solace of my life. From the

ever-growing sense of mystery and awe. And now, in my wild garden and greenhouse, the endless diversities of plant life renew my enjoyments; and the ever-changing pageants of the seasons impress me more than ever in my earlier days.

I sincerely wish you all some of the delight in the mere contemplation of nature's mysteries and beauties which I have enjoyed, and still enjoy.

We are anxiously watching the reports of the improvements of the new Arcadia, which we hope and trust will only give the AA a new birth of zeal with which to further our cause of nature study.—*Naomi E. Dixon, Secretary Johnstown (Pennsylvania) Chapter of the AA.*



An Active Chapter of the Agassiz Association in Acton Vale, Quebec, Canada.

We have received the annual report of the Acton Vale A Chapter No. 15. The Chapter is one of the most faithful on our list, although it has an enrollment of only fourteen members. The President tells us that most of these live at a great distance from Acton Vale, but that they desire to hold their connection with The Agassiz Association. The detailed program for the year is too long for publication, but it presents a varied and interesting course of work and entertainment. We note that at one meeting the feature of interest was the reading of Professor Sharp's "Turtle eggs for Agassiz." The story was originally published in "The Atlantic Monthly," and was in part republished in our magazine. It is well worth reading by every member of the AA.

Addresses have been made before the Chapter on the grasshopper, the English sparrow and the Caspian Sea, and a chemist has described the way in which cast iron is changed into steel in a blast furnace. One evening was devoted to whales. It was stated that last year one firm captured, in the Pacific Ocean, one hundred and forty-six of these huge mammals. One evening was devoted to the brown tail moth. One of the most interesting sessions was that of last July, when extended consideration was given to the house fly, which has been rightly named by Dr. L. O. Howard, the typhoid fly.

In the August meeting, an extended paper was read on the albino porcupine. In November, Mr. E. R. Tanner gave an interesting account of a fishing excursion on Lake St. Francis, near Lancaster, Ontario. He captured a maskinonge measuring forty-five

inches in length, and weighing thirty-four pounds.

We note with pleasure that the President and his wife have accepted an invitation to accompany their niece and nephew on a trip to Europe this spring. The President adds this interesting statement: "During our absence, The Agassiz Association shall not be forgotten, but efforts will be made to gather items of interest for the Association."

An Interesting AA Lecture.

One evening recently the Springfield Training School Chapter of the AA and a few friends, were entertained by Professor G. B. Affleck, the leader of the Chapter, with an illustrated lecture on "The Form of Water." This lecture revealed to us the marvels and the wonderful beauty to be found in those commonplace things of nature, rain drops and dewdrops, clouds and crystals, hoarfrost and snowflakes. In these things some of nature's exquisite forms were portrayed. While others are grumbling about the condition of the weather, the optimist, with an eye that can pierce the rough cover of nature, sees only the best side of life, and is the better man for it.

This lecture was the result of many hours and days of patient, painstaking work. It meant many hours of waiting and watching for the different forms to appear, and often then the spoiling of many plates in attempts to take the pictures.

The means of nature's irrigation plan were considered. How by evaporation, diffusion, transportation and subsequent condensation, water is carried from place to place, and moisture supplied to districts often far from any flowing stream.

The first pictures showed the various forms of clouds, the stratus, the

nimbus, the cumulo-nimbus, the cumulus, the strato-cumulus, the alto-cumulus, the alto-stratus, the cirro-cumulus, the cirro-stratus and the cirrus being considered. In these one has before him no end of beauty in many forms and ever changing forms and colors.

Dew was next considered, and many pictures of grasses, plants, insects, spider's webs and other objects were shown bedecked with jewels of dew. These forms of beauty require close scrutiny for detection in the open fields. Grasshoppers, strawberry leaves, clover leaves and like objects which lie close to the earth, are favored objects on which dew may be found. The beauty of a rain storm is concentrated in the rainbow with its marvels of color.

Snowflakes were well considered and in fact occupied the major part of the lecture. The shapes that these small particles are able to assume, are a revelation of the minuteness and care with which God shapes even the smallest and most insignificant part of His great universe.

Many slides were shown of the tabular crystals or thin plates of flakes, of the columnar or prismatic flakes, and of the compound crystals which are a combination of the first two types.

These are truly among nature's masterpieces showing both beauty and variety. It gives one a deep sense of wonder and delight to see the many forms that nature may produce and have no two alike.

Hoarfrost next occupied our attention. This form of water is a crystallization of moisture in air colder than that in which dew usually forms. In common with snow, hoarfrost largely forms in two types, the columnar and the tabular.

A similar type is winter frost which we so often find drawing its marvelous pictures on the inner sides of our window panes. There are fourteen distinct types of this frost, of which twelve were shown. They assume tree-like shapes, and also stellate, rosetted, filamentous, granular and many others.

Some beautiful forms of window frost in the shape of feather plumes were shown. Last of all we turned to the ice crystals of the two types, the window and massive ice. And still we

continued to see marvels of form and beauty. In all from seventy-six to seventy-eight slides were presented.

CHAS. B. RUSSELL,
Secretary and Treasurer.

From a California Member.

AN INTERESTING REPORT ON BIRDS.
FROM MISS PHOEBE LOWRIE.

While waiting for the butterfly season to begin, I have been trying to identify bird songs. First of all, there was the thrasher with his rollicking rag time song. He was such an "early bird" that his singing time was almost over before the other birds began, but by the middle of March the canaries' sweet, coaxing calls were heard, mingling with the cackling of the flickers, and the twittering of so many kinds of sparrows that I have long considered them hopeless.

I am particularly well situated for studying bird songs, for not a hundred yards from my sleeping porch, rises a brush-covered hillside, a paradise for birds, and an oak in the middle distance seems to be a favorite place in which to render their morning hymns. So in the luxurious hour before rising, I lie and listen and try to distinguish the various choristers. About the middle of March I began to hear a sweet and delicate song, which seemed familiar although I was positive that I had never heard it before. It puzzled me daily for almost a week, and then suddenly it dawned upon me that it was a thrush. Now, there is only one thrush which breeds in this region, the russet-backed, and he is the only one that I had ever heard sing. He is not due, however, till the first of May, but even if he were to sing thus early, he could never subdue his "organ music," as it has been called, to this delicate strain. Two other thrushes, the dwarf hermit and the varied, winter here, and it remained to discover which one was singing. So when I heard the song late in the forenoon one day, I crept up with the field glass and there he was, the dwarf hermit thrush, foraging in the grass. Seeing me, he flew into a dense oak and in a moment his song came down to me from his leafy retreat. I consider it a treat to have heard him sing, as hitherto he has been such a silent bird, his winter note being only a quiet "chuck."

Another peculiar circumstance of this season is that the robins have stayed with us so long. Easterners would doubtless wonder to hear me say that up to three years ago I had never heard a robin sing, but our western robin is not the domestic fellow that his eastern cousin is. His breeding place is high up in the mountains, and he makes only the most fleeting visits to the valleys in winter, spending most of the time in the foothills. This year he has passed weeks on the ranches of the Santa Clara valley, feeding in the dooryards and even singing in the pepper trees. Three years ago he sang in the foothills, but this year he has gone a step farther and treated our valley friends to his music. It may be that he knew there was to be a late storm and so waited till the snow, which covered the surrounding mountains on April 11th, should have come and gone before leaving for his summer home.

Prolonged and Regular Seed Dispersal.

The Home of The Agassiz Association is in Arcadia, in the northern part of which is a marsh known as Nymphalia. Within Nymphalia are luxur-

iant patches of the two species of cat-tail known in this country, *Typha latifolia* and *T. Angustifolia*, or the broad leaved and the slender leaved typha. The seed bearing heads of these plants begin to ripen in early autumn and on every breezy day of the season the tiny seeds, each with its tuft of club-shaped bristles, go sailing by the AA office with remarkable regularity. We have recently had two severe storms, during which the wind blew at the rate of some eighty or ninety miles an hour. Some people maintain that it moved even faster than that. But its movement was sufficiently active to make us doubt the stability of the buildings, and fear that they would be lifted from their foundations. During these tempestuous blasts, the typha seeds went sailing by like the flakes in a driving storm of snow, and the puzzling question is, Why in such gales do not the fruiting heads lose every little seed? They do not, for the strong winds have died away, and in the succeeding, gentle, steadily blowing breezes, the seeds sail by the windows in numbers nearly as great as in those terrific blasts. What a marvel is here manifested! Nature surely has some regulation gov-



LAST YEAR'S CAT-TAILS IN NYMPHALIA.

erning the dispersal of these minute seeds, so that they shall go out regularly and in about the same quantity in a light breeze as in a hurricane, and pretty regularly from early fall until late spring. Nature seems to say, "Winds may blow the whole season through, but there are only certain times at which the ground is favorable for the reception of these little seeds, and in order not to miss those few times I will send them out in nearly equal amounts every day." If she had allowed them all to go in the raging blasts and drenching storms to be washed into the ditches that lead to the cove, and thence to the Sound, she would have lost her opportunity to renew herself in the cat-tails in other places. Only about the usual number lost their hold in those howling hurricanes, and the heavy rainfall soon beat them to the earth. I am of the opinion that in the stronger and severer winds and rain storms fewer than usual are removed. They seem to require the light, steady breezes of a drier day, when they are dry and light, and their hold to the fruiting head is less tenacious. The plant seems to have some difficulty in deciding on just what breezy days the ground is in the right condition to receive and protect her seeds, so she apparently experiments regularly and evenly and every day. When the tufted cat-tail seeds float, hour after hour, day after day, week after week, by the window where I so often sit with my work, I ponder. They are only seeds from cat-tails in a marsh, but if I could understand my own wondering thoughts about them I should be the better able not only to understand what God and man is, but I could formulate a philosophy that might help me, whatever it might do for others.

Free Nature Convention at Sound Beach.

After "The Fourth" we shall celebrate our Independence of the stress and strain of modern civilization, by rest and refreshment for body and mind in a summer sojourn with old Mother Nature.

The Agassiz Nature Convention or Summer School (it makes little difference what you call it) holds sessions

every Monday, Wednesday and Friday for four weeks, at 9:30 A. M. for girls and boys, and at 2:30 P. M. for those who have retained their youth in spite of advancing years, or who want to go to Mother Nature in the spirit of the boy or girl. Everybody pays for attendance—by giving aid to some one else. Some people call that free but it isn't. Perhaps, in the final analysis, nothing is free, perhaps every one is paid for what he does even when he thinks or says that he is giving. But at our Summer School there will be no cash tuition. Good will will be the only loyal tender.

"Examination required for admission to this school?"

Certainly. Do you want to increase your knowledge and love of nature?

"Yes."

All right. You are entered as a pupil and your place is assigned in the front row.

"But who are the teachers and what is required of the pupils?"

Only this; that every teacher be a pupil and every pupil be a teacher.

"But I want to know more of the details."

All right. You are a hopeful comrade. If you really want to know and not merely want to want to know, there isn't the slightest doubt but that you will find out. Old Mother Nature loves a good questioner, and she sets a good example.

Cordially,

EDWARD F. BIGELOW.

Arcadia: Sound Beach, Connecticut.

P. S. Yes, we have a telephone (1597-4), a post office, an express station, shade for the chauffeur, a hitching post, trolley cars now and then, passenger trains and freight trains frequently, and a good path on a country road.—"Arcadia Road" they call it. Come in any way that may suit your convenience. Walk, if you will; only come.

When opportunity knocks, be sure that it finds you ready.

There is no disguising the fact that there is no royal road to Nature knowledge: it can be acquired only by the exercise of brains and the patient labour of years.—*Reverend Charles A. Hall, in "The Open Book of Nature."*

CORRESPONDENCE

AND INFORMATION

Deer in Noroton.

New York City.

To the Editor:

On May 22nd, on coming back from the day's business in New York to my home in Noroton, and in passing by some of the larger meadows that at "Fordfield" are given up to timothy production, I saw what appeared to be two calves lying down in the deep grass of the meadow. The chauffeur was instructed to drive me back to the barn where I asked the farm superintendent his reasons for turning out in this choice hay-lot the two calves we had at our barn. He said he had not done so and did not believe that the calves were out there but would look in the barn and see. He came back with the report that they were in the boxstall. I then had him get in the machine with me and we drove through the lane to the meadow where I had seen what I supposed to be the calves. As our machine came within probably fifty yards, the farmer said, "Why, they are not calves but deer." While he spoke they arose. There was a fine young buck with a doe accompanying him. They looked at us without much apparent fear and then ambled off probably twenty yards beyond. We then alighted from the automobile, let down the bars of the field, and went into the field toward the deer, who were again gazing at us. When we came near enough, they frisked their tails gracefully, and went off at a good rate of speed to the end of the field where they jumped over a large high stone wall as though it were an inch high, disappearing in the woods on the other side.

This is the first time that deer have been seen at "Fordfield." We have a pond where the muskrats have built themselves house: the woods sound every morning with the call of the

quail: The lawn is covered with grackles drawing the worms as they come up in the morning from the sod. We have all the delights of beautiful birds and the ordinary woodland life, but the unusual event of finding deer in the meadows in so civilized a community as Noroton certainly was an event that will not soon be forgotten.

JOHN H. SHIPWAY.

Good Observations of Birds.

Apollo, Pa.

To the Editor:

The little observances made by your readers have been interesting and instructive to me. Until I read the article about the tame robin reported by Dr. Mac Nider, of Texas, I supposed that our robins went only to our southern states to winter. He tells us that they usually go to Cuba, Central America and South America. A few robins always winter with us in Pennsylvania, but when our robins migrated last fall only to return in large flocks in January, we supposed the unusually cold winter in the south drove them north again. Large numbers of them subsisted upon frozen apples in the orchards until Spring brought more appropriate food.

Among some of the observations I have made is that of two chewinks feeding. They were in a woodland field. They would hop along, pick up a piece of bark or chip, flit it to one side and snatch up the insect which had been hiding underneath. This is the first time I saw such a systematic search for food.

Another oddity in nature was witnessed by my son and myself. A large brown thrush was seen to be attacking very vigorously something in an open field. The prey seemed hard to overcome. After watching the attack for some minutes the thrush seemed to be feeding upon its victim. We ap-

proached and found it had eaten the eyes out of a queen water snake which measured nine inches. This is certainly unusual.

Wishing you success, I am,

Very truly yours,

T. J. HENRY, M. D.

Rambles With John Burroughs. By R. J. H. De Loach. Boston: Richard G. Badger. An interesting series of essays on the life and works of the great naturalist by a friend who says: "My personal contact with John Burroughs has meant a great deal to me, and these papers represent in a measure what I have enjoyed."

British Journal Photo Almanac 1912. New York: George Murphy, Inc., Sole Sales Agent, 57 East Ninth Street.

This many paged book contains much interesting matter and also some articles that are of value to photographers. It is valuable especially in giving good idea of British make of cameras.

A Window in Arcady. By Charles Francis Saunders. Illustrated from photographs by Herbert Troth. Philadelphia: The Biddle Press.

This contains many valuable suggestions to the naturalist and is beautifully illustrated. Though written somewhat in the form of a diary it is not merely of the ordinary, personal emotion but really says things helpful and instructive to others.

One Hundred Lessons in Agriculture with Practical Problems. By Aretas W. Nolan, A. M. Chicago: Row, Peterson & Company.

The author has wisely selected from the vast field of agricultural knowledge and practice such subject-matter, materials, and methods as will be available in the schools. He says: "The fields, the pastures, the groves, the orchards, and the gardens, are the real text-books,—this book is only a 'friendly guide-post.'"

The Microscope. By Simon Henry Gage. Ithaca, New York: Comstock Publishing Company.

This eleventh edition has been revised and is fully up-to-date. It is the standard complete handbook of instruction regarding the use of the microscope. It is heartily recommended to our readers.

The Star Pocket-Book. By R. Weatherhead, Naval Instructor, R. N. New York: Longmans, Green, & Company.

This is a convenient little handbook for learning the principal constellations and stars. The plates are clear and give only the principal stars to be observed and, therefore, are not confusing.

Spiders. By Cecil Warburton, M. A. New York: G. P. Putnam's Sons.

A delightful English handbook of spiders that contain many good suggestions for our American students.

Distribution and Origin of Life in America.

By Robert Francis Scharff, Ph. D., B. Sc. New York: The Macmillan Company.

While these lectures were originally delivered at the Victoria and Albert Museum in London, they are well adapted to the general reader, and contain several very interesting chapters, notably those regarding the national game preserves and the fauna and flora of various localities.

Agricultural Education in The Public Schools.

By Benjamin M. Davis. Chicago: The University of Chicago Press. 170 pages, 8vo. cloth; net \$1.00, postpaid \$1.12.

This is not, as perhaps the title implies, a text-book for education in the public schools, but is a resume of what has been done along various lines. It is a convenient check list whereby students in the normal school may have suggestions of lines of work.

The Warblers of North America. By Frank M. Chapman, with the co-operation of other ornithologists. New York: D. Appleton & Company.

It is easy to learn to know a robin or a blue jay or a crow, but the warblers are the puzzle. Aye, there is the rub. Who can solve the name of these delightful bird sprites of the woods? To their intimate acquaintance this extensive monograph is a decided aid. The warbler family is the source of more queries in identification of birds than is any other family. We cordially recommend this book to our readers.

The Migration of Birds. By T. A. Coward. New York: G. P. Putnam's Sons.

This gives a summary of the theory and speculation and actual knowledge regarding the migration of birds. It is a convenient and helpful little handbook. The chapters are regarding the cause and origin, routes, height and speed of flight, distances, perils, early ideas, suggestions and guesses, etc.

A Nature Study Guide. By W. S. Furneaux, F. R. G. S. New York: Longmans, Green, and Company.

We are glad to have this book by a well-known naturalist not only for its intrinsic merits but to show the activity of the schools of England in nature interests. The material is well arranged and contains many excellent suggestions.

The Flight of Birds. By F. W. Headley, M. B. O. U. 326 High Holborn, London: Witherby & Company.

In these days of attempts at machine flying it is a good suggestion that the author of this book has offered to come back to the only really successful flying machines—that is, the birds. He has produced a book not only of interest from the machine point of view, but from the ornithological as well.

The Arctic Prairies. By Ernest Thompson Seton. New York: Charles Scribner's Sons.

This is an interesting and well illustrated account of six months' journey by canoe. The author says:

"And I found what I went in search of, but found, also abundant and better rewards that were not in mind, even as Saul, the son of Kish, went seeking asses and found for himself a crown and a great kingdom."

Handbook of Nature-Study. By Anna Botsford Comstock, B. S. Ithaca, New York: Comstock Publishing Company.

Here is the compendium and collection of the Cornell nature study leaflets which contain a vast amount of well arranged nature study descriptions and questions together with a profuse supply of attractive and effective illustrations. It should produce extensive results in helpfulness to nature study to teachers and pupils. The price is \$3.25 and 40 cents for postage.

Manual of Experimental Botany. By Frank Owen Payne, M. Sc. New York: American Book Company.

Now here's what we have been looking for—a book to show the plant as a living, acting thing. The author quite rightly states that experiment in life actions will appeal to young people more than the study of anatomy. He says:

"Plants yield themselves very readily to experiment. Being alive, they respond to all external influences most admirably, and there is no reason why such work with plants should not prove as interesting and as useful as similar exercises with levers, lenses, vibrating pendulums, and cords."

Elementary Plant Biology. By James Edward Peabody, A. M., Head of the Department of Biology, Morris High School, Bronx, New York City, and Arthur Ellsworth Hunt, Ph. B., Head of the Department of Biology, Manual Training High School, Brooklyn, New York City. New York: The Macmillan Company.

This biology is well adapted to the boy or girl because it is based primarily on activities of functions of plants and animals rather than on mere form of structure. The presentation of the subject is good and in efficient, attractive manner.

The Open Book of Nature. By the Reverend Charles A. Hall. London: Adam and Charles Black. For sale in this country By Macmillan and Company, New York City.

This is a medley of interesting material from nature written especially for young people "to encourage the really practical pursuit of Natural History." The book contains much interesting material, but in a curious mixture of geology, birds, plants, shells, photo-micrographs, etc. A little more of classified arrangement would have added to the value and yet the order is true to nature study which does not classify as does natural science.

A Farmer's Note Book. By C. E. D. Phelps. Boston: Richard G. Badger.

This is an intimate record of a farmer's year that will appeal to all nature lovers. The author is not only a farmer but a naturalist and a philosopher. There are many gems of comment.

New England Trees in Winter. By A. F. Blakeslee and C. D. Jarvis, of Storrs Agriculture Experiment Station, Storrs, Connecticut.

This is a concise, well arranged and profusely illustrated, convenient manual of the trees as seen in winter. This is a good point of view because too much dependence is placed upon flowers and leaves in the study of trees. One who really loves trees should know them at once in their beautiful bare branches.

Outdoor Philosophy: The Meditations of a Naturalist. By Stanton Davis Kirkham. New York City: G. P. Putnam's Sons.

Mr. Kirkham's new book is a protest against life as it is lived by the majority to-day, a slavish pursuit of worthless ideals that impoverish the soul. It is less a work about Nature than about trains of thought that the receptive person pursues when in the presence of Nature; and it dwells on the contrast, which Nature evokes, between her own sublime harmony and the discord and strife and ugliness of life in the teeming centres of population. The burden of the author's philosophy, to use his own words, is "self-trust and the worth of the individual; a plea at the same time for the life of privacy in which to cultivate a more intimate relation to God and to Nature."

Photographing Flowers and Trees. By J. Horace McFarland. New York: Tennant and Ward.

This is a republication of two monographs which have been out of print for several years. They will be cordially welcomed in this one convenient volume by the many lovers of flower photography. The book is well printed on good paper, is attractive, convenient and full of valuable information. Mr. McFarland is an expert on the subject and he has told us exactly what the photographer of flowers desires to know.

Life in the Open. By Charles Frederick Holder. New York: G. P. Putnam's Sons.

This is an interesting account of impressions of outdoor life and sport in southern California. If the sport were too uppermost, this magazine would not be interested in calling the attention of our readers to the book, but Professor Holder is more than a sportsman, he is at heart a genuine naturalist. His "conception of sport does not include desperate killing, a plethoric bag or creel; the game is merely an incident in the day." To his mind a hunting day "should include a drawing for all the senses, not game alone, but the enjoyment of the flora, the variety in mountain view, the vistas of different kinds, the charming changes of colour and tone that sweep over the range as the hours pass, and the thousand and one diversions which nature always affords."

Turner's Our Common Friends and Foes. By Edwin A. Turner, Director of the Practice School, Illinois State Normal University. New York: American Book Company.

This is a collection of original stories, relating to the toad, the quail, the bumblebee, the chickadee, the ant, the cabbage butterfly, the mosquito, and the fly. The stories are pleasantly told in an easy, straightforward manner, which will attract and hold the interest of young readers.

Plant Physiology and Ecology. By Frederic Edward Clements, Ph. D., New York: Henry Holt and Company.

This book is for classes in second-year botany in college and university and is based upon the author's "Research Methods in Ecology." It combines ecology and physiology and gives a general treatment of both subjects somewhat different from that of a specialist in either line. It is a very stimulating book to any student among plants especially out of doors.

The Life and Love of the Insect. By J. Henri Fabre. Translated by Alexander Teixeira de Mattos. London: Adams and Charles Black.

Here is an attractive and lovely book on a subject most unlovely to those who are not enthusiastic entomologists. The venerable Fabre, known as the insect Homer, has shown us the attractiveness of the dung beetles. For very many people he could not have taken a more unattractive subject, but he has successfully shown us that everything in nature has loveliness and interest and beauty. What a transformed world this would be if we all could, Fabre-like, look beyond the disagreeable that may exist in everything to the beauty that always does exist. The points on which we focus our eyes and heart are the important points. Fabre does not argue that such beetles are attractive because they are merdivorous. He makes us focus attention beyond that to the interest that in these beetles is marvelous and enticing.

Ye Historie of Ye Town of Greenwich, County of Fairfield and State of Connecticut.

By Spencer P. Mead, LL. B. New York: The Knickerbocker Press.

The author has conferred a favor upon every one residing in or interested in this town. The book shows evidence of great care and skill. The publishers have also done their part in producing good mechanical workmanship. A copy should be in the home of every resident of Greenwich and of every one interested personally in this grand, old, historic town. It is an inspiration to read this book. It gives one a firm resolve to use to better advantage the everyday blessings of life. A security of our roads and fields and forests for homes or for a personal interest in nature was brought about by tremendous sacrifices on the part of our ancestors. They struggled with nature and with the Indians to provide a peaceful land for our enjoyment and our work. This story of the development of the town as told by Mr. Mead is extremely interesting.

The Religion of Nature. By E. Kay Robinson. New York: McClure, Phillips & Company.

Here is a strange method by which to get at the subject. The author asserts:

"The greatest modern obstacle to belief in a personal God, has been the spectacle of the apparent wholesale cruelty involved in the struggle for existence in brute creation."

Then with a variety of somewhat questionable arguments he concludes that, "The cruelty which we seem to discern in Nature, is an illusion, and that man alone, among animals, is conscious of pain and suffering."

It is probable that pain in the lower forms of life is not so intense as it is with us, nor remembered so long. But, while most of us will admit this, we are sure that few are ready to believe that the lower animals experience no pain, and no one, except the author of this book, will have the audacity to say that they are not the victims of cruelty, nor that the apparent cruelty is an illusion. Such assertions are directly contrary to the evidence of our senses, and while in some cases we may not believe our own eyes, in this case we may. The title of the book is good, but the method of reaching a decision is bad, and, in the opinion of the reviewer, that decision is in many respects erroneous.

The House Fly Disease Carrier. By L. O. Howard, Ph. D. New York: Frederick A. Stokes Company.

The house fly must go, because it should go. It is undoubtedly an interesting specimen for study, but it is a detriment to the welfare of mankind and should be regarded as a pernicious pest. This book is a timely and successful attack upon what Dr. Howard calls the typhoid fly, otherwise known as the house fly. The battle against the house fly has been waged for only about two years, yet remarkable progress has been made. There are many people who would be nauseated at the sight of a naturalist in the act of studying the larvae of the house fly in a pile of horse manure, and would turn away in disgust from such explorations. And they are right. Even the naturalist does not wish to obtund his sensitiveness to the disagreeable features of a lot of maggots squirming in semi-liquid manure. But is it not strange that it is chiefly the naturalist who arises in disgust, and who positively refuses to eat food to which flies have come directly from that manure heap? One of the perversities in human nature that it is difficult to understand is that those who shudder at the disagreeable things which a naturalist studies are the very ones who complacently brush away the flies, and open the window above the garbage box, or the cesspool, to "get fresh air."

The naturalist believes that the baby's nursing bottle over which innumerable flies have been travelling is as odious as the manure pile, but many mothers apparently do not realize the danger in the fly infested bottle. There are none so blind as those who will not see, and none so ignorant as those who will not learn.



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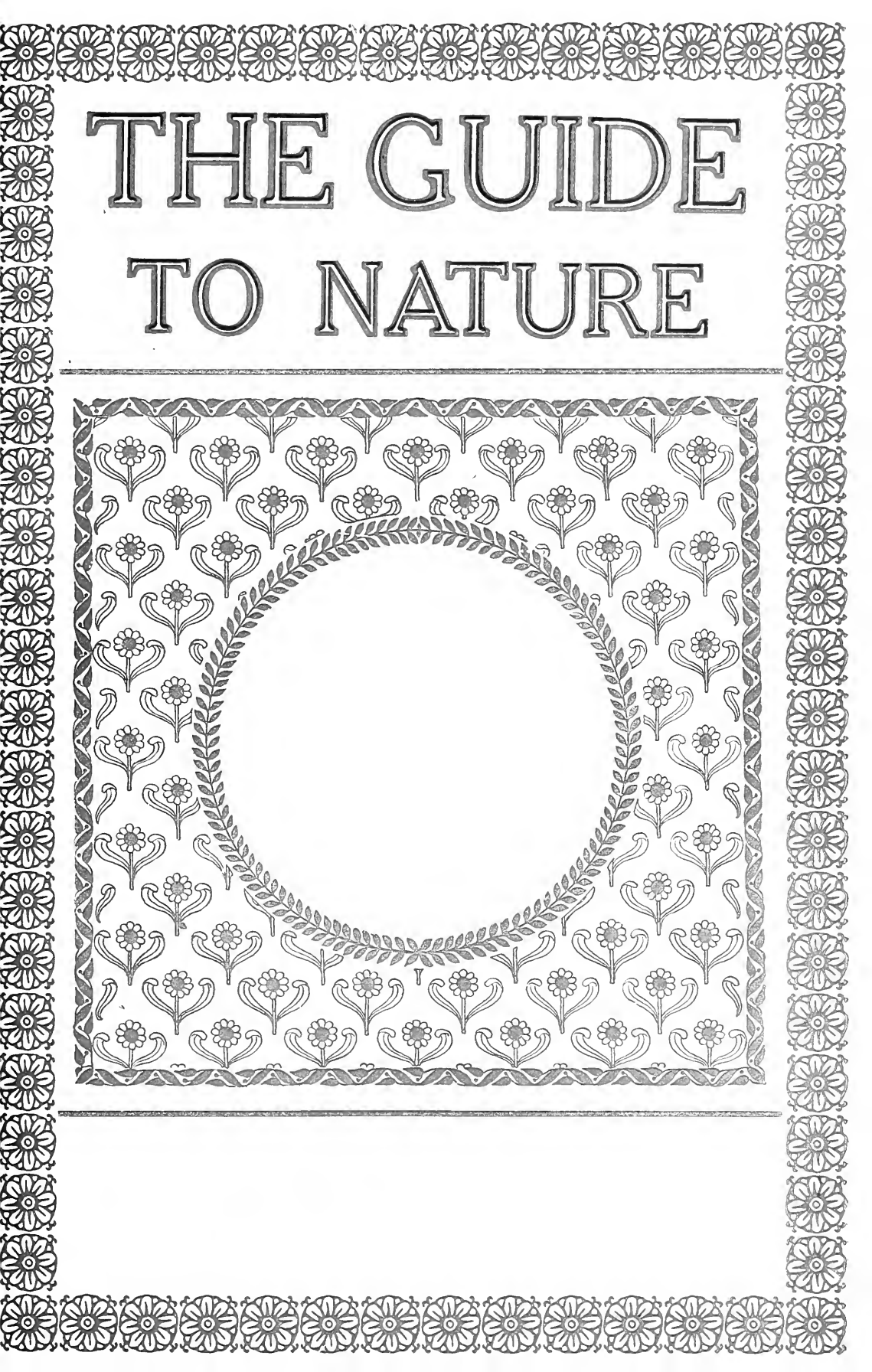
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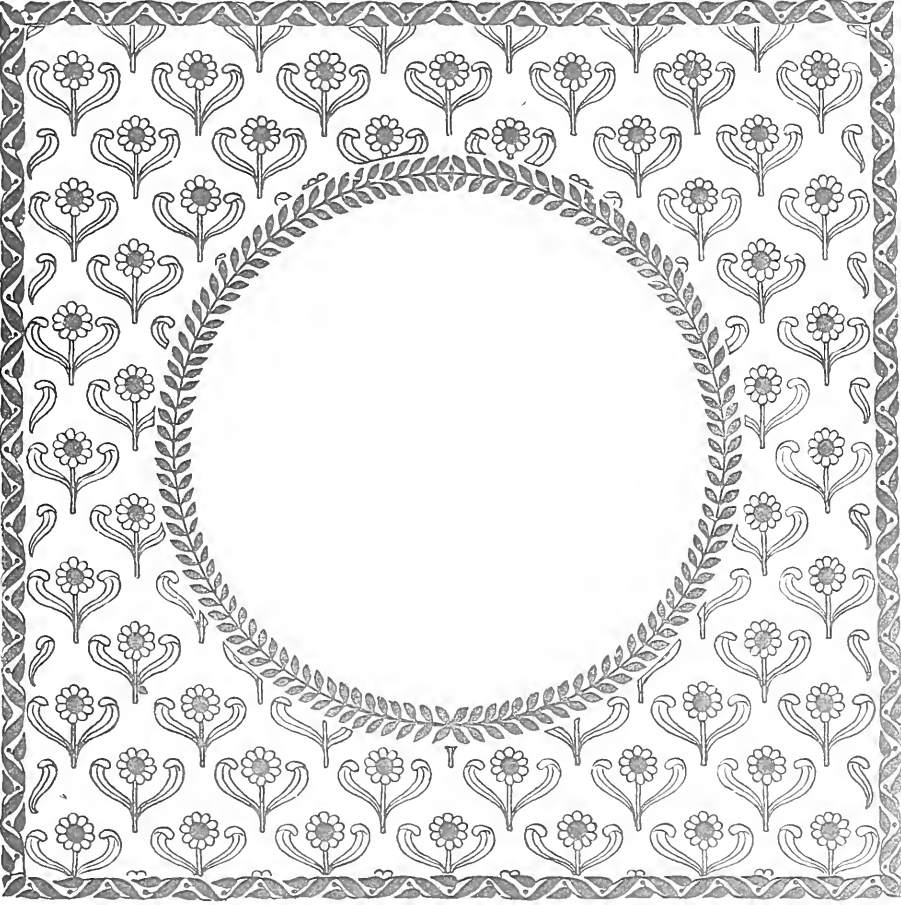
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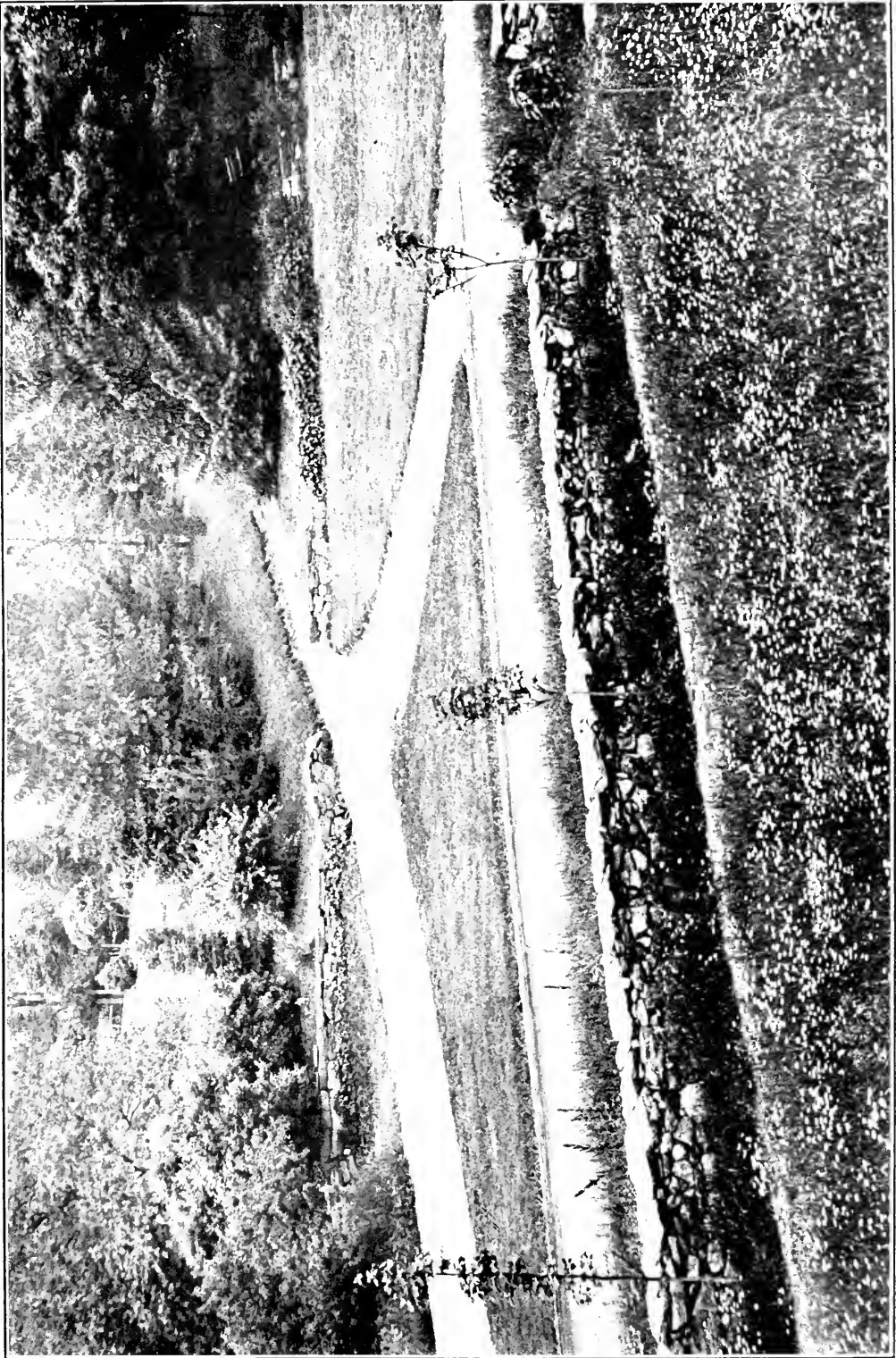
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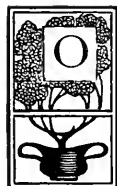
Volume V

JULY 1912

Number 3

A Village of Rest in a Valley of Peace

BY EDWARD F. BIGELOW, Arcadia: Sound Beach, Conn.



VER the hills of many difficulties and through the vales of many trials, winds and extends upward and onward, ever onward, a wide and well travelled road. Along this way pass all sorts and conditions of humanity. Some hurry by, straining every nerve; some plod slowly and wearily; a company of the young and gay, laughing and singing in their mer-

ritment, is followed by the slow march of the funeral.

The "road" is but another name for Life, and the never ending procession of travellers is humanity. And is it strange that of all this surging through a few should turn into a bypath for rest and recuperation? The wonder is that there are so few. This is pre-eminently an age of the utmost nerve strain and tension. The race is to the swift, the strong, the capable. This is yet a new country. Though we do for



EVERYTHING PLEASANT AND HOMELIKE.

Copyright 1912 by The Agassiz Association, Arcadia: Sound Beach, Conn.



A TYPE OF THE RESIDENTIAL SECTION OF "THE VILLAGE."

a time lay aside the axe and the gun, we must not forget that the tools of humanity are still in use, and require greater nerve strain than the clearing of forests and the banishing of wolves.

If nerves break down, or our faults or those of our fathers, or visited upon us, what may we expect, if not freed from their effects? That they shall be visited upon our children—yes, even to the third or fourth generation.

* * * * *

It was midday—warm, calm, peaceful. These thoughts, or reveries, or waking dreams, ran through my mind as I sat alone in a summer house on the summit of a hill white with summer daisies. The outlines of neighboring hills were tremulous in a summer haze. At the foot of my hill, just beyond a stone wall, rugged and picturesque, was the broad and well travelled highway; I watched the wayfarers; I won-

dered what were their thoughts and ambitions. And then to me it seemed that I, like Mirzah, (figuratively described, in Addison's *Spectator*) had ascended alone the high hills of Bagdat for meditation and prayer. He tells us that while "airing myself on the tops of the mountains, I fell into a profound contemplation on the vanity of human life." My meditations were not "profound" nor limited to "vanity," yet Mirzah's words came to mind, and I remembered "the valley," and what he heard, and his conclusion that "man is but a shadow and life a dream."

Mirzah dreamed when the ills of humanity were to be borne; now they may be remedied or cured. Before me was a rock of an institution—a village of rest and peace, where persons temporarily disabled from the great stress and strain of modern civilization can restore exhausted and shattered nerves.

Recently this sanitarium has celebrated its twenty-first anniversary. His alma mater, Wesleyan University at Middletown, Connecticut, at her recent eighty-seventh annual commencement conferred on Dr. Givens her highest degree, the LL.D.

But all this told of the effect, the results. I wanted to get at the heart of things, and especially to ascertain to what extent nature has been a factor in rearing and maintaining this great rock of an institution. I wanted to know the secret of the man's success. With these two purposes in view, I sought and obtained the freedom of the place, and during a period of several weeks I have, at my convenience, visited the different parts of the institution. I have gone alone and have done as I pleased. I have sometimes met the doctor briefly for a bit of general, social conversation, or a cheery "Good morning," and although he was aware that I was making a study of the institution, not one word of suggestion has he proffered. I have been free to photograph and to make notes. What I saw I am telling the reader in my

own way aided by my camera. I have talked freely with attendants, workmen and patients. All are enthusiastic as to the attractiveness of the place and the excellence of the management.

It is self-evident that Dr. Givens's success is the result of a high degree of medical skill and executive ability, combined with hard, faithful and painstaking scientific work. But these qualifications, though they are important, do not reveal the whole secret of this institution's success in curing nervous diseases. Two other factors have been equally prominent—the natural beauty of the location and the healthfulness and invigorating air.

Pope was only partly right when he said that the proper study of mankind is man. The whole truth is to add that the best part of man is the mind, and he who would best study mankind must study the mind. From devoted study of the mind of man the physician is able to analyze, diagnose and scientifically treat nervous and mental diseases with remarkable skill. Such a physician loves his work for its own sake, and delights in securing a



"THE HOMESTEAD"—A TYPE OF ISOLATED COTTAGE FOR AN INDIVIDUAL HOME.



A SAMPLE OF THE MANY ATTRACTIVE SUMMER HOUSES.

thorough knowledge of the temperament and character of every patient. He investigates mentality as closely as a watchmaker does a watch and finds out the "kink" or the excessive strain or defect and knows how to eliminate it.

Dr. Givens exemplifies the things he does; he keeps calm and free from nerve strain. He carries the biggest load with the greatest apparent ease of any man I ever saw. I have seen many a man, and some women, with less than a thousandth part of the business and responsibility that he has, who were veritable fusserbudgets, excitable themselves and exciting to all about them. To me the most astonishing thing with this man is his perfect calmness and modesty. Think of it! A man, the sole owner of a "village" honored by physicians, scientists, humanitarians and a great institution of learning, with the beauty spot of Connecticut as his personal property, yet not once appearing as anything but the quietest, calmest, most modest and retiring of men; not once has he said, "Don't forget to photograph this," or, "Be sure to make a note of that." However, I have a suspicion that I am nearing the danger line of upsetting the record for calmness, when he reads these lines and notes the freedom I am taking in these

remarks in public regarding his personal characteristics.

But over all the place are his own characteristics of peacefulness. It is restful and invigorating. I think that when I get tired and nervous and a little excited perhaps, and want to get out of the laboratory and office, I will shoulder my camera and go to Dr. Givens's. If you are a reader not in sympathy with a naturalist's pursuits, you may be disposed to laugh. Please do not. There is no joke about it. Where else should a naturalist go but where nature, beautiful and interesting, is to be found at her best? If the accompanying photographs do not show you that there is no superior natural realm, wild or cultivated, in all Connecticut, then I have used my camera in vain. I have not done justice to the subject. Then, too, the nature interests is not merely a matter of aesthetics. Here is extended opportunity for detailed study of trees shrubs and plants with its wide variety of hundreds of shrubs it may well be called an arboretum.

The greater part of this "village of rest" is on a hill within a large "valley of peace." To the east and the west of the village are vastly higher hills. The western part of the village extends down to a long and picturesque lake of Connecticut. This has been

for many years the Mecca for automobilists and camerists who would study nature. The views of distant Long Island Sound, from the larger hills and from "the village" are not excelled by any in southern Connecticut.

Aeons ago glaciers and other forces combined to locate in this valley variations of nature's best. The majestic hills, the gracefully sloping hills, the domes, the ravines, the winding roads, the wide brook and the lake afford beauty at every point of the compass, wherever the artist or camerist stands. Up this valley, even in the warmest days, there is always a cool breeze from the Sound.

I doubt whether in all the world there can be found a more comfortable and health giving location. The moist breeze from the Sound is so tempered and stimulated by this valley and its lake that it is perfectly fitted to give life and health.

Dr. Givens has had the rare good sense of knowing where to apply art and science and where to let nature work out her own problems. A most excellent example of this is in a pic-

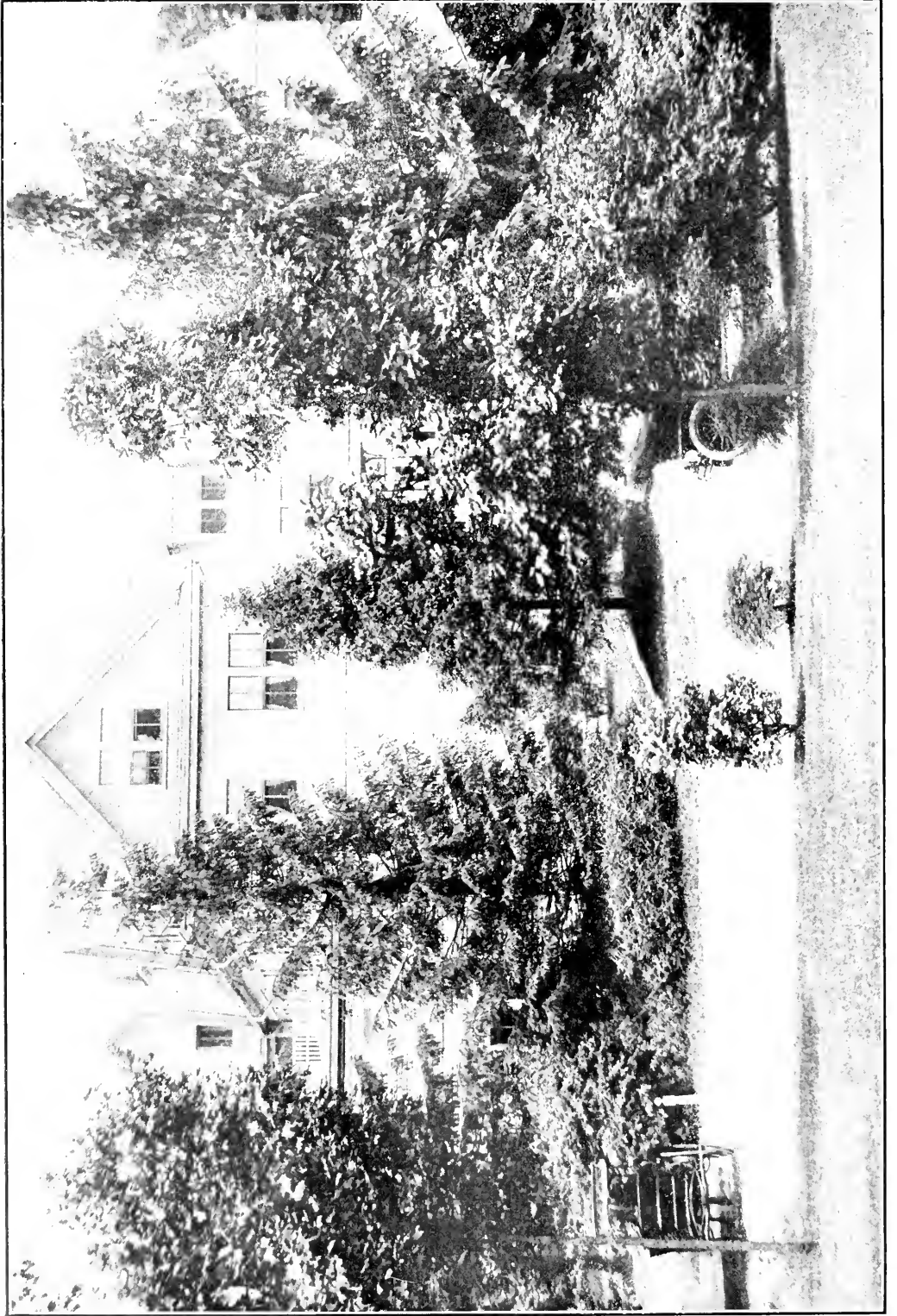
turesque "old country road" that leads from the cultivated and well cared for grounds to the lake. It prepares one's thoughts to best appreciate the natural, simple grandeur of the lake. I was especially pleased with one of the many summer houses in an extensive field of daisies. The setting is ideal, a poem of rest, just aside from the long path with a good view of the hazy hills and picturesque lake.

But there are some things, some of the best things, that plate and pencil cannot portray. And these best things are found in the greatest profusion at this village of rest and quiet and soothing influences. They are peace, serenity, calmness; they are the sweep of the horizon, the haze on the hills, the cool shade of the trees; the dome of the sky as viewed from the top of the hill white with summer daisies, it is the path of peace from the highway of life, the cordiality, the love of humanity——

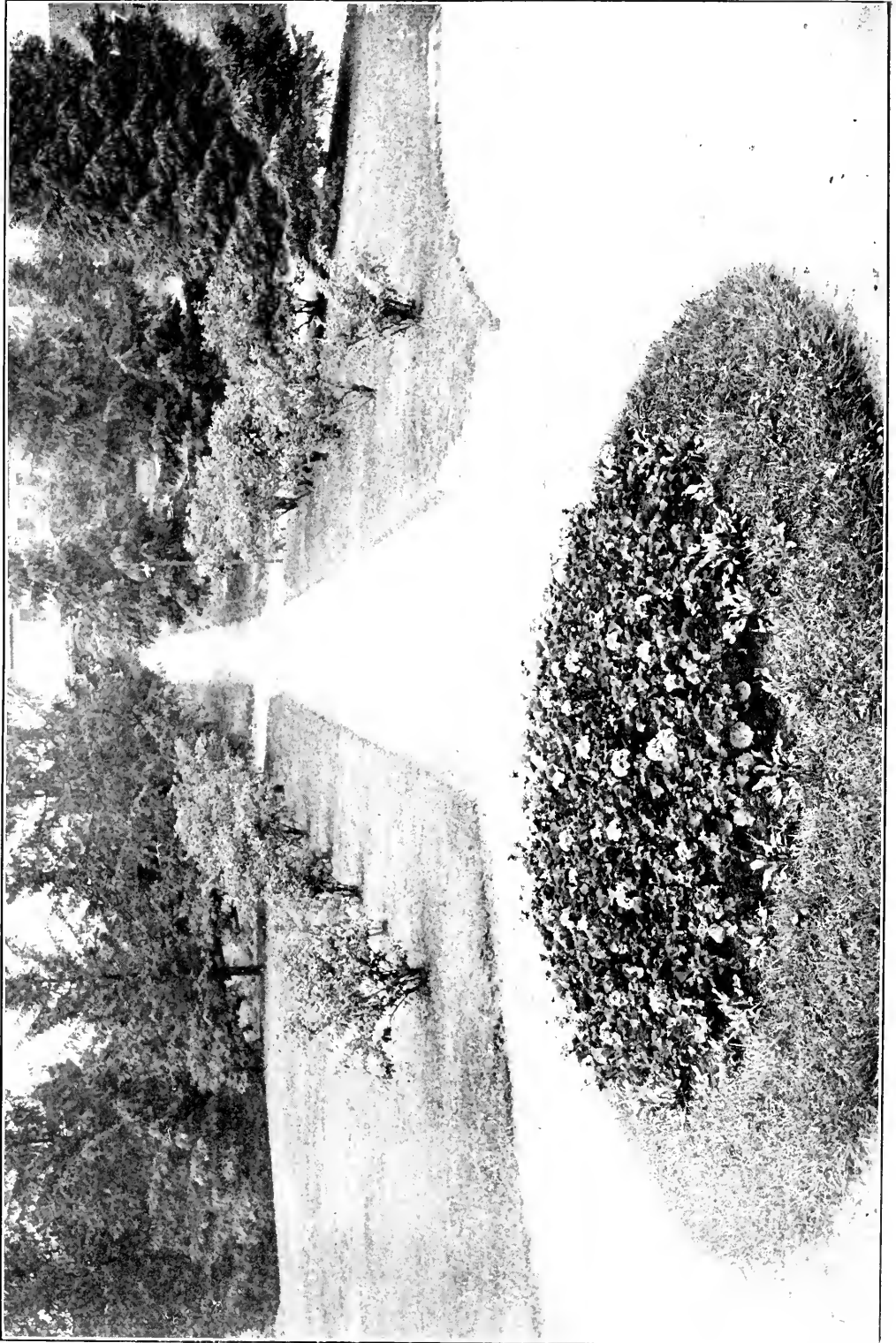
And the greatest of these is love——untiring, faithful, devoted, prolonged, hopeful, effective love, for one's calling in life.



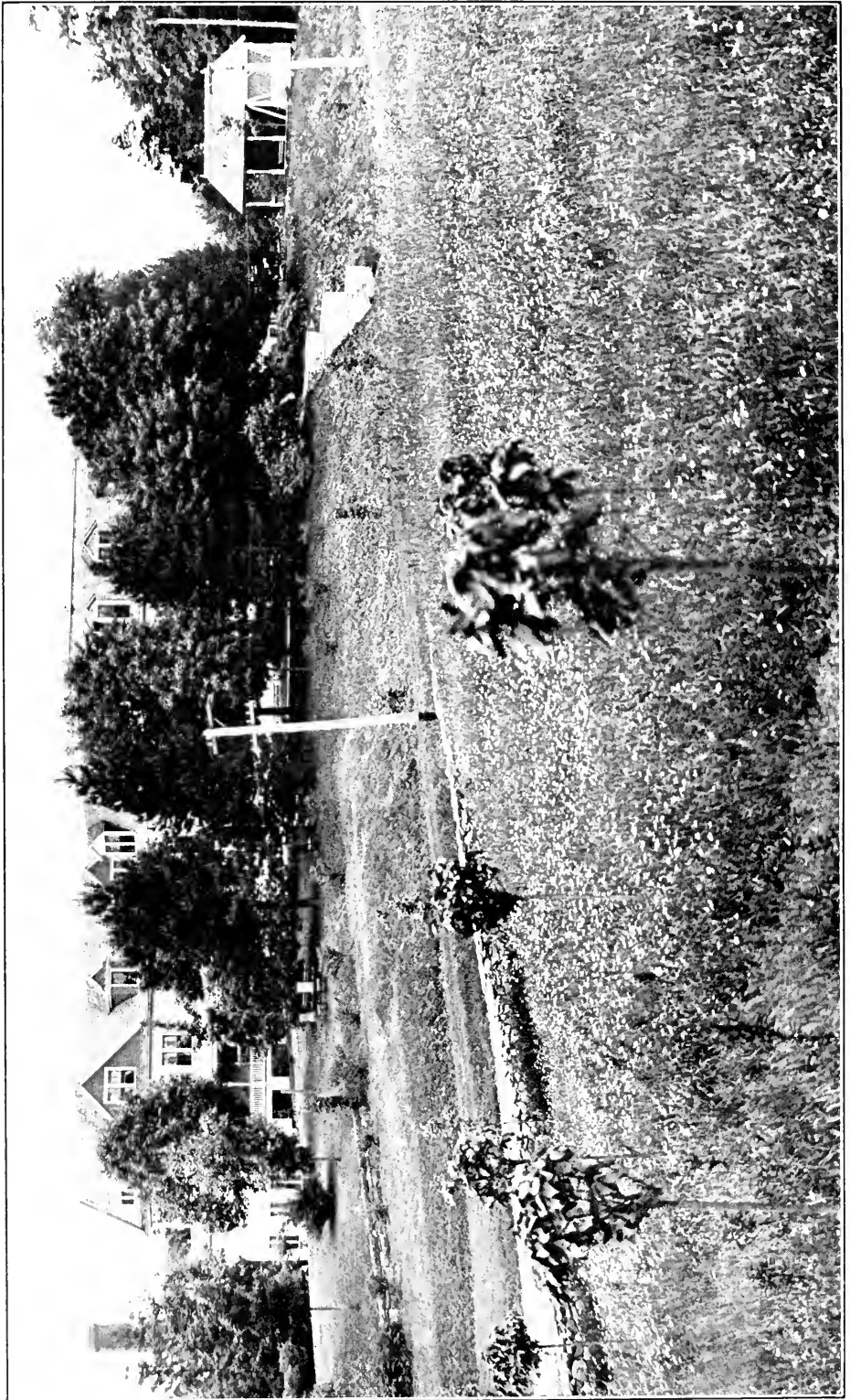
A COOL AND INVITING WALK BY THE LAKE.



THOUGH THIS IS THE MAIN BUILDING, IT IS NOT "INSTITUTIONAL," BUT HAS THE APPEARANCE OF A MODERN HOME ON A COUNTRY ESTATE.



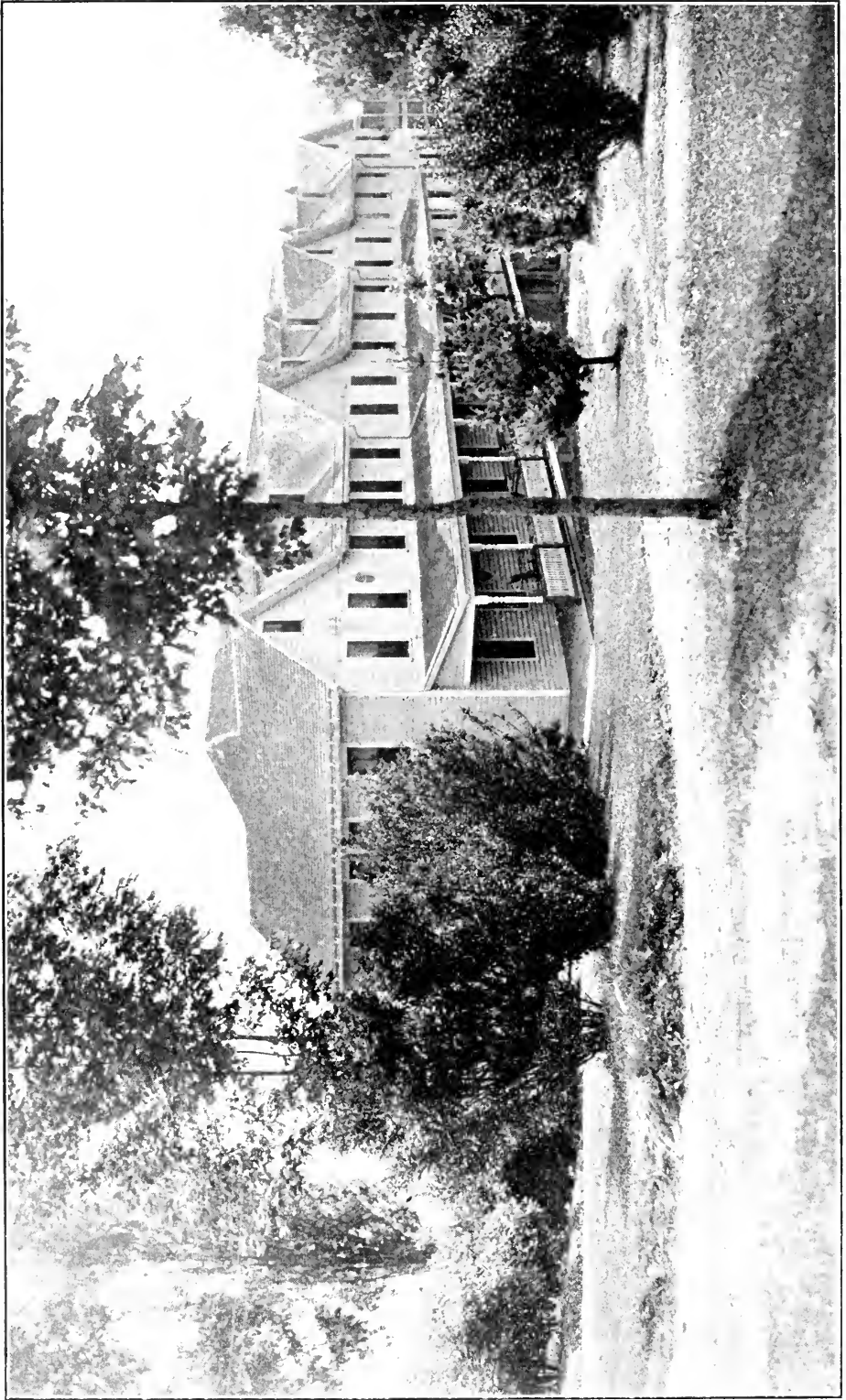
THE NEARNESS OF NATURE IN FLOWERS, SHRUBS, AND TREES.



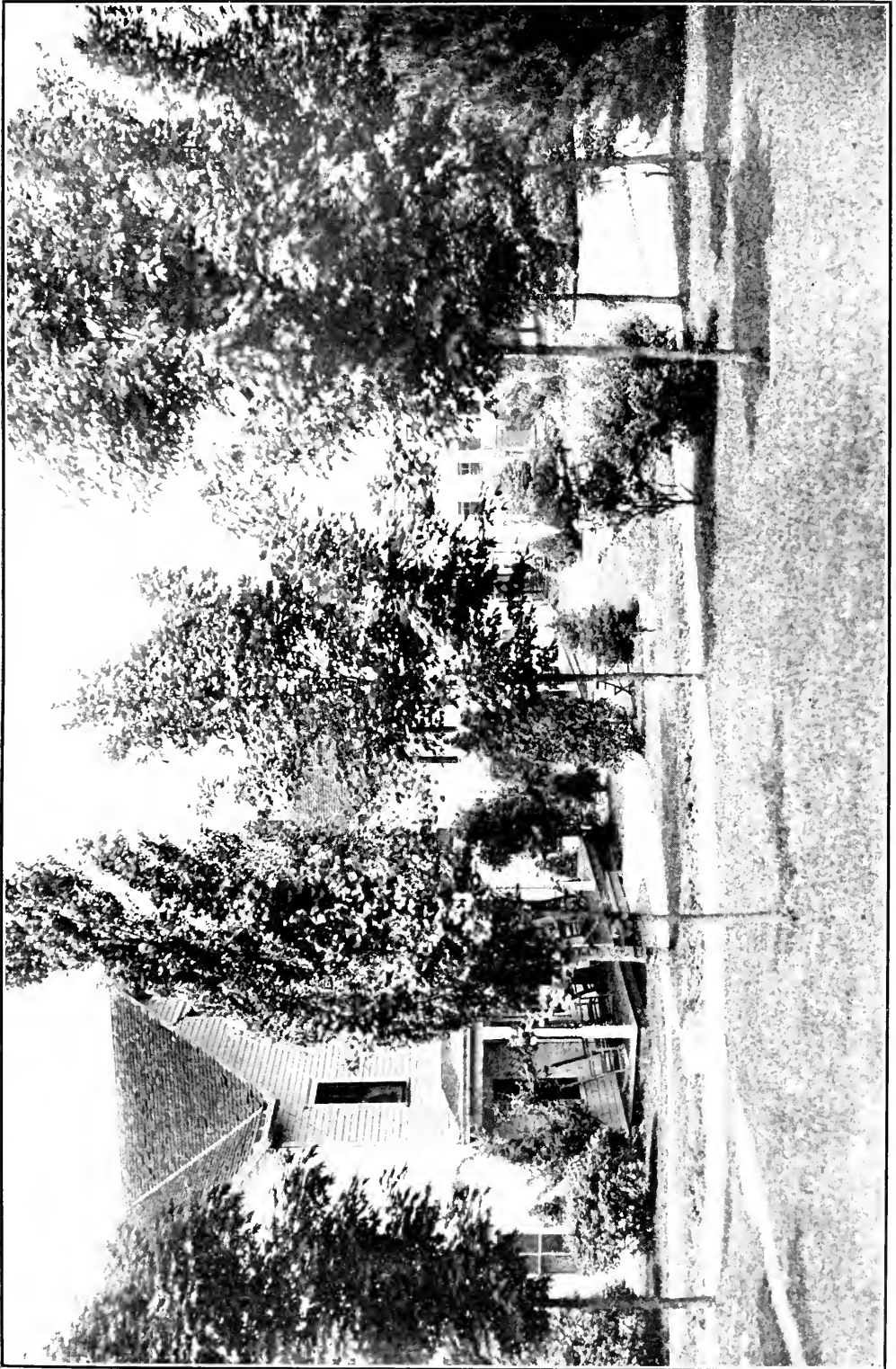
AN INVITATION OF ATTRACTIVENESS.



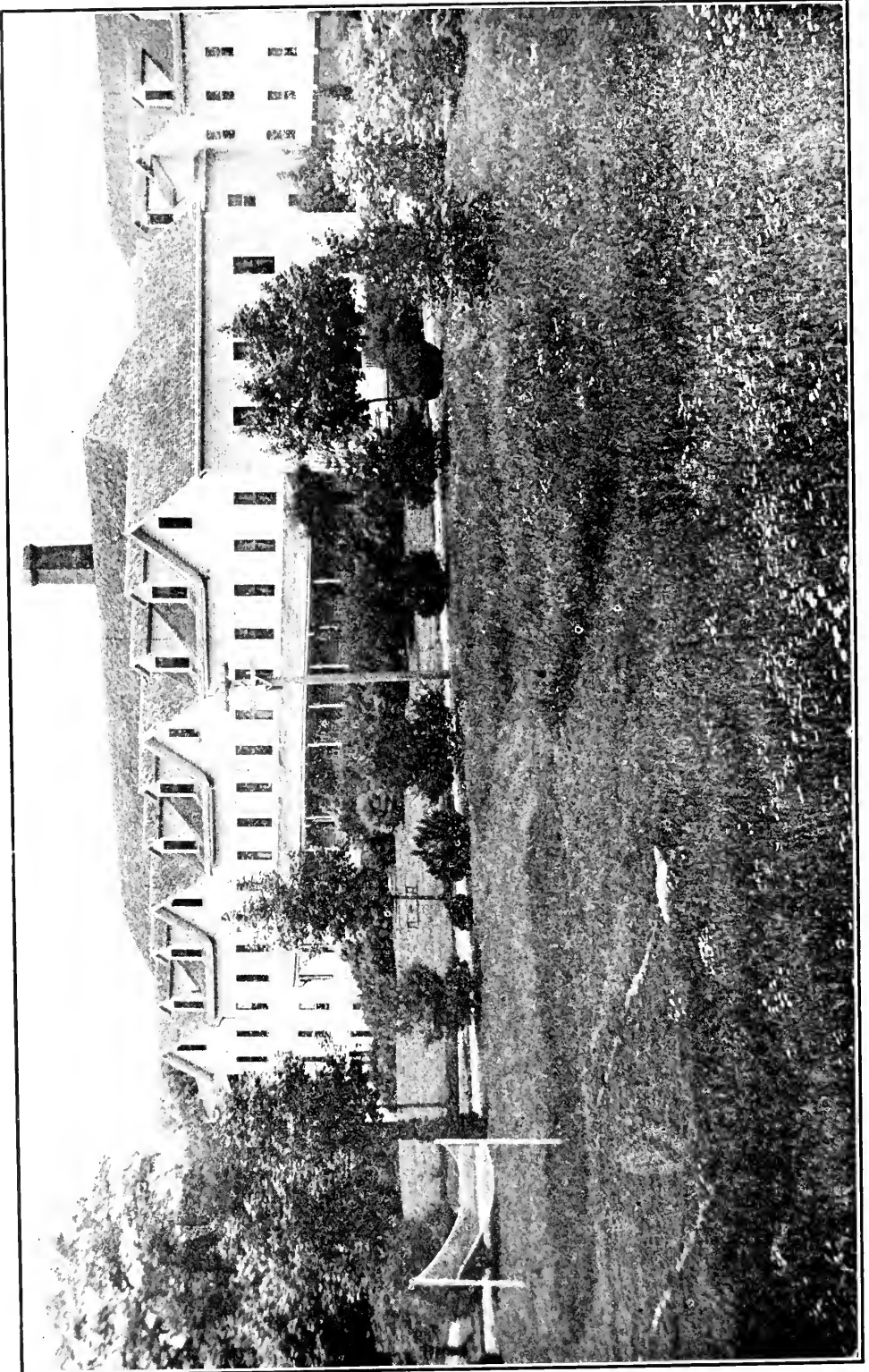
QUAINT AND ATTRACTIVE IN ITS PATRIARCHAL DIGNITY AND SIMPLICITY.



"THE OUTLOOK"—SO NAMED FROM THE LOCATION WHICH GIVES AN INSPIRING VIEW OF THE LAKE.



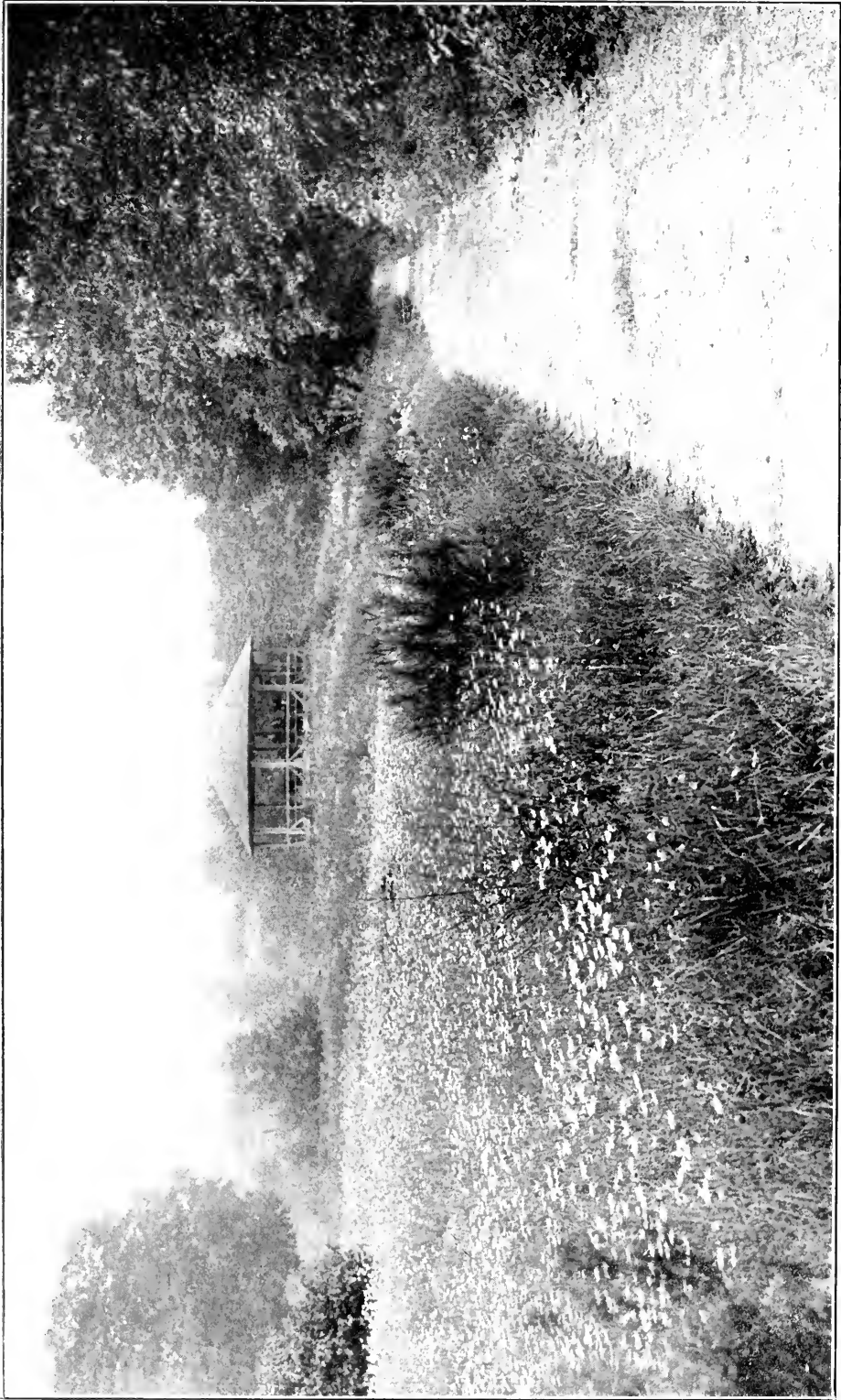
HERE, IN NEIGHBORLY COTTAGES, THE SOCIAL LIFE HAS ITS PLEASANT FEATURES.



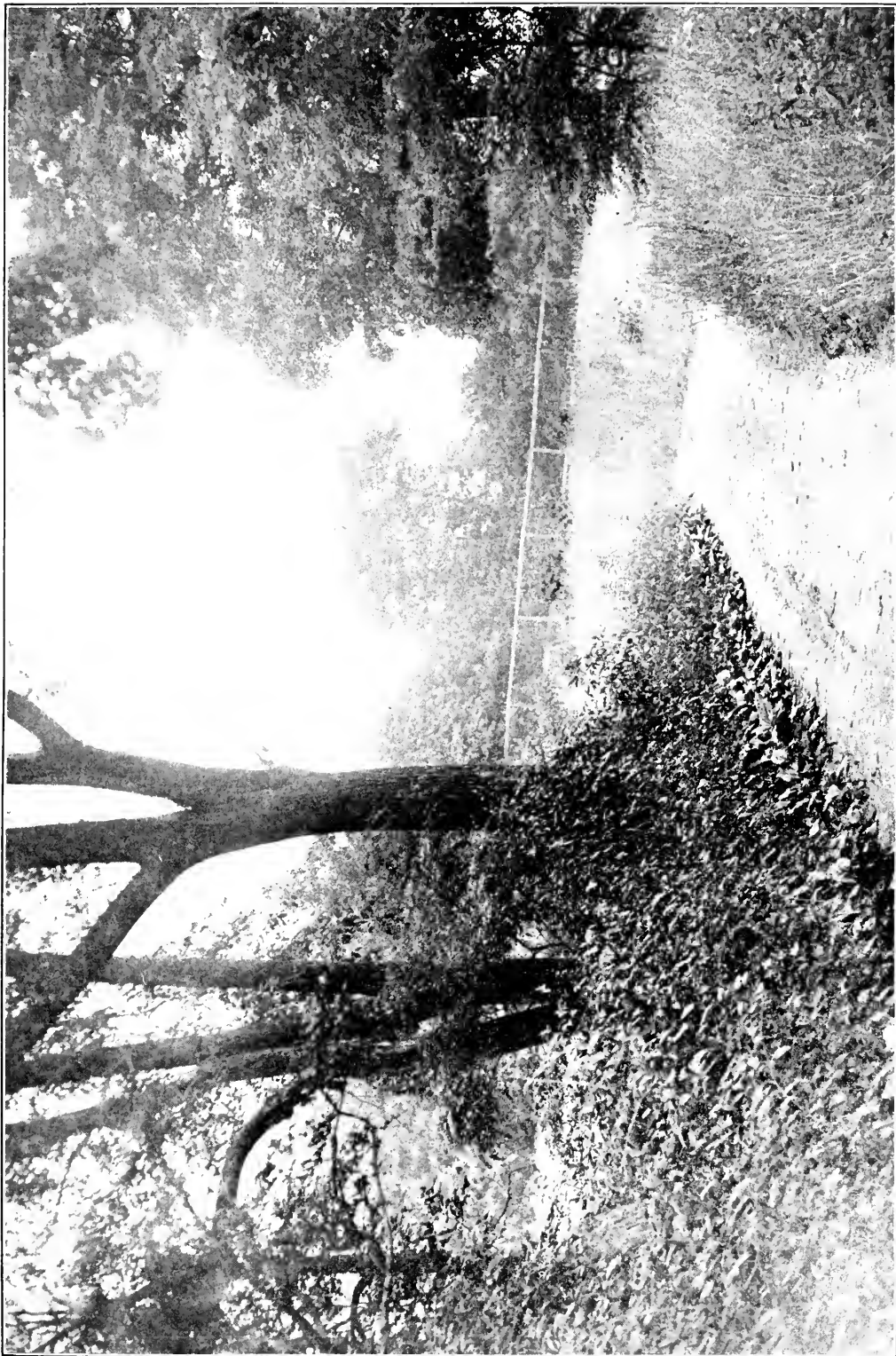
“WOODSIDE”—SO NAMED FROM ITS NEARNESS TO THE OAK GROVE.
The road shown on the following page is in the rear of these buildings.



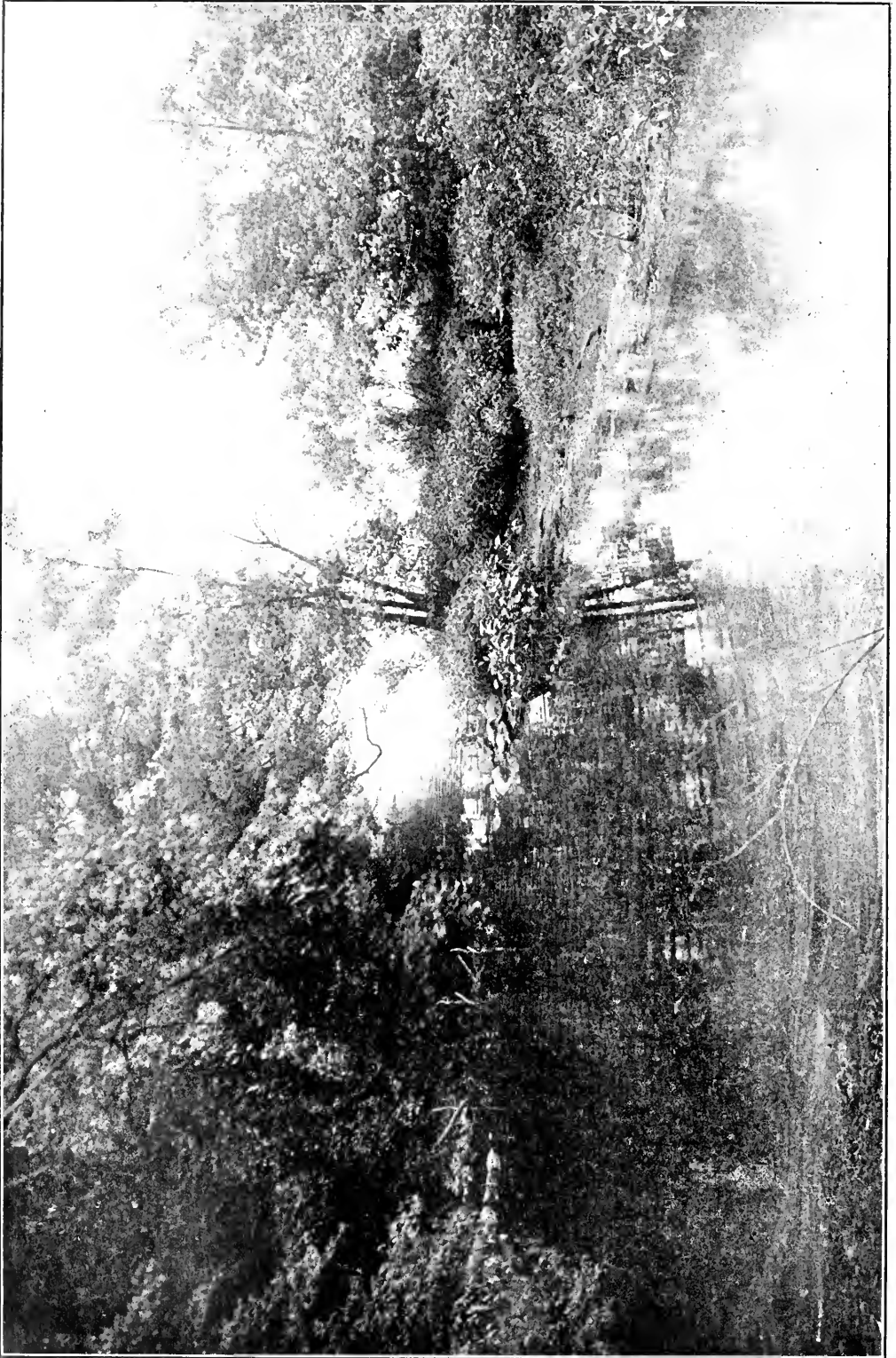
THE WOODPATH BECOMES HENCEFORTH AN AVENUE TO ALL THE DELIGHTS OF THE SEASON. IT INTRODUCES US TO THE PRODUCTIONS OF THE FOREST IN THEIR MOST INTERESTING CONDITION.—HILSON FLAGG.



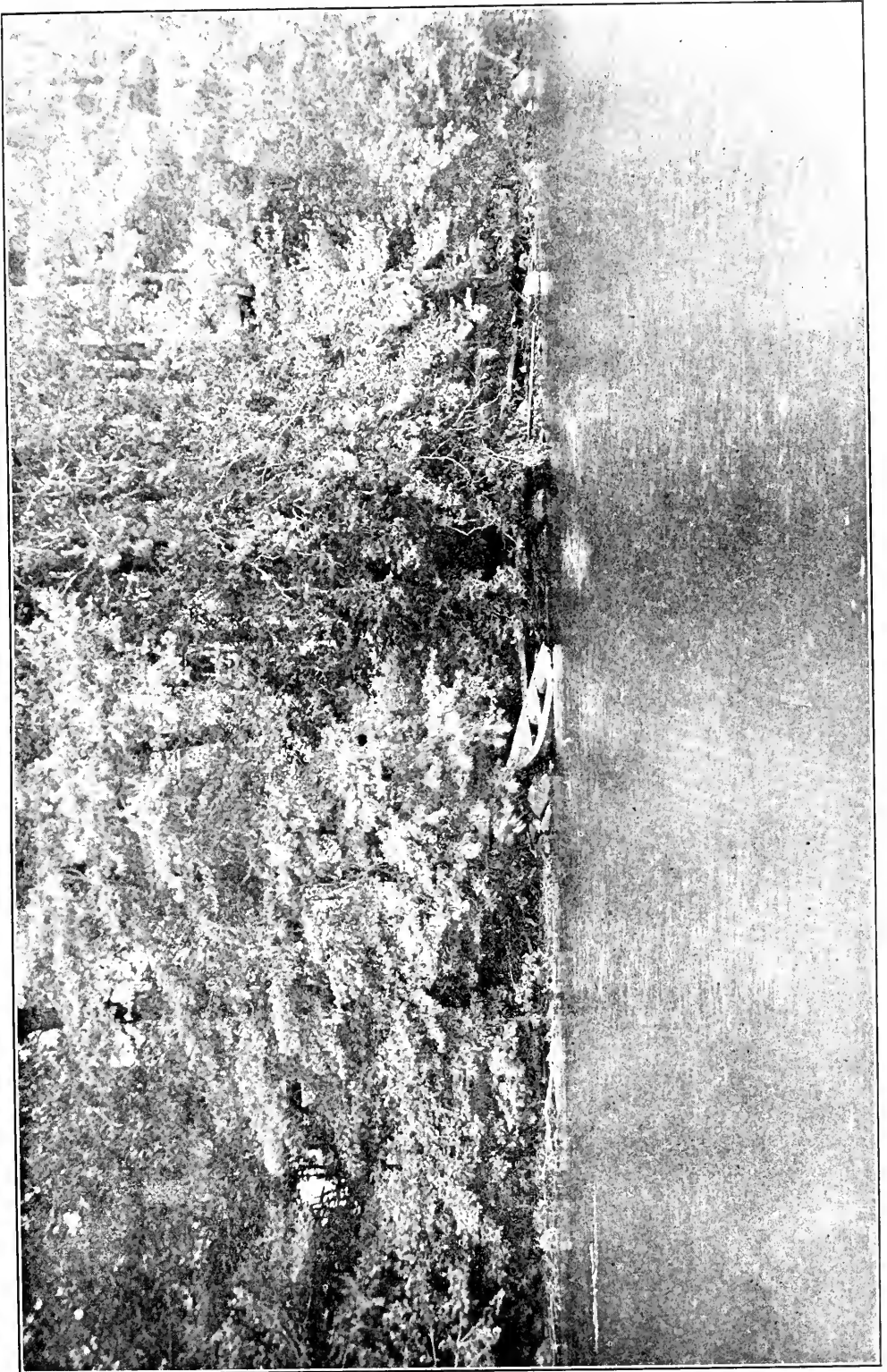
AN ATTRACTIVE WALK TO AN OUTLOOK FROM THE SUMMER HAZE UPON FIELDS OF FLOWERS.



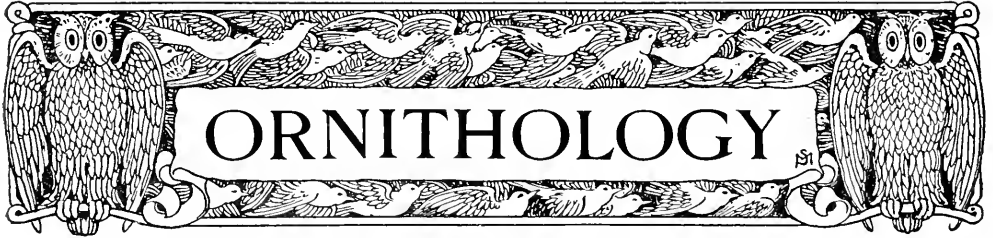
A HAPPY CURVE IN THE ROAD LEADING TO THE PEACEFULNESS OF THE OAK GROVE.



NO BURDENS AND NO SPEEDINGS, BUT JUST TO FLOAT AND TO DREAM.



RESTING ON THE SHORE, FOR A TIME, IN THE SHADE OF THE TREES.



An Account of our Experiment in Propagating Quails.

BY REV. HERBERT K. JOB, STATE ORNITHOLOGIST, WEST HAVEN, CONNECTICUT.

As I believe that an account of this experiment will be of interest, the fol-



YOUNG QUAIL FEEDING—SEVEN WEEKS OLD.
By courtesy of The Outing Publishing Company.

lowing is issued for the public and the sportsmen of Connecticut.

We did not succeed, during this first season, in raising a stock of young for distribution, but every stage of the process was successful until a deadly disease appeared among the birds when they were nearly mature. But the prospects of future success are far brighter than ever before.

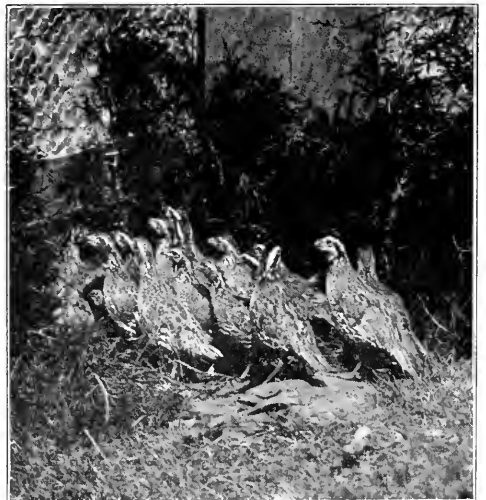
The experiment was conducted at the Connecticut Agricultural College, with an average of thirty pairs of our bobwhite quail. The first result was the perfecting of the details of a successful breeding system, by which even the wildest stock will breed abundantly in confinement. Most of our birds were thoroughly wild. Though we lost the best part of the breeding season through a late start, these thirty pairs produced six hundred and ninety-three eggs. Our banner quail laid seventy-

three eggs, the next fifty. Only one hen quail failed to lay. The average was twenty-three eggs per pair. The fertility was ninety per cent. The system is simple and practicable.

The second result is a successful hatching system. After preliminary tests, the hatches were usually more than eighty per cent, and ran as high as ninety-five per cent, which poultrymen will agree is not bad.

A third result is that an immense amount of detail as to the care and handling of the quails has been mastered. We wish to continue an elaborate series of scientific feeding tests, with a view to the forestalling of disease. We have worked out a promising system for game preserves which we desire to test in detail during the coming season. The quail chicks are beautiful and docile, and seem amenable to artificial conditions and management.

A fourth series of results, of fundamental importance, is in the line of experimental work on quail diseases. Professor L. F. Rettger, the bacte-



A GROUP IN MAIN PEN OF QUAILS DONATED BY MR. HOWELL.

By courtesy of The Outing Publishing Company.

riologist, of Sheffield Scientific School of Yale University, has been carrying on co-operative investigation in connection with poultry diseases during his vacation seasons at the Storrs Agricultural Experiment Station. He has discovered the causative organism of at least one deadly epidemic disease, and is now keeping it in culture, purposing to attempt a vaccine or serum to render quails in captivity immune. He has also recently isolated another organism, first found in the young quails. Though there has not yet been time to demonstrate that this was surely the main cause of their death, yet this view has received remarkable confirmation from the recent discovery

urge that it be continued for at least another year. To stop midway in a promising scientific quest productive of useful results, on the ground that the final goal was not reached in a few months, appears to them an amazing proposition. The Station's investigation of the white diarrhoea of chicks has already taken three years, and a proposed cattle disease investigation is likely to extend over five years. Yet the Government considers money thus used well expended.

The ornithologist is now completing a Report on quail propagation, embodying the results of this experiment at Storrs and of another experiment in Connecticut that was carried on pri-



OUR THIRD BATCH OF FORTY QUAIL CHICKS, ONE WEEK OLD, FEEDING.

By courtesy of The Outing Publishing Company.

by English scientists of a similar organism in diseased grouse. If the organism proves to be the cause, we believe that the disease can be eradicated or prevented by simple medicinal treatment.

The work was conducted on the grounds of the Connecticut Agricultural College, with the assistance of the Storrs Agricultural Experiment Station, and was done under the direct supervision and with the approval of the Federal Government.

The College and the Experiment Station officials, together with other important interests, believing that this work is of value and of economic importance, and that it promises to solve a problem and be worth a large amount of money to the State and the public,

vately in co-operation with him. It is the most thorough treatment of the subject that has ever been prepared.

Until the diseases, the feeding and the handling of quail are thoroughly studied in a scientific manner, the whole problem of their artificial increase will remain at a standstill. The depletion of the birds in one State for the benefit of another will never solve the problem. So long as shipments of quail are made without understanding the disease problem, so long large numbers are practically sure to be swept off by the dreaded epidemic, with grave danger of spreading it among the native quail and grouse. A small fraction of the game fund would continue this fundamental work. It may be remarked that the expense was not as

large as stated in some of the papers. This whole matter naturally rests with the sportsmen of Connecticut, and it is for them to decide whether or not the public will be benefitted by a continuance of the work.

Chimney Swift Nesting in a Pine Stump.

BY THE REVEREND MANLEY B. TOWNSEND, SIOUX CITY, IOWA.

In July, 1910, it was my privilege to take a canoe trip with a friend through a portion of the vast forest that covers northern Minnesota. We purchased an Ojibway Indian birch bark canoe, loaded it with a month's provisions and our camp duffel, and plunged into the

the veery, sounded his twilight bell. I love to think of him as the wilderness bird, the incarnation of the wild. Ducks of many species abounded. A great patch of blossoming arrowhead beautifies a wet depression just behind the tent.

As I sat eating my supper of baked beans, corn bread and tea (the beans were baked in the ground), I noticed a chimney swift circling about a pine stub that stood on the shore. Its peculiar motions caused me to observe it carefully. We had seen many of these interesting birds far from human habitations, and we felt sure that they must nest here in hollow trees, as their ancestors used to nest before the white man provided his convenient chimneys.



THE PINE STUMP, AT THE LEFT, CONTAINING NEST AND YOUNG OF CHIMNEY SWIFT.

forest. We paddled for two hundred miles through a wonderful chain of lakes and streams, doing our cooking, eating and sleeping in the open air, close to nature's heart. One hundred miles from Walker, our starting point, we pitched our tent on the narrow beach of a heavily wooded island in a beautiful sheet of water named by the Indians "Woman Lake." It was a picturesque spot with its charm heightened by the abundance of wild birds in the neighborhood. Just back of the camp rose a tall, dead pine, on which the turkey vultures loved to roost. From the lake the demoniacal cry of the loon saluted every morning's rising sun, and at every evening's sunset, through the darkling wood, last and sweetest of all the feathered songsters,

Presently the bird hovered for a moment before the stub, then through a tiny hole disappeared within the trunk. Question: Was there a nest inside? We determined to find out. It was late, the twentieth of August, but there might be a second brood. The next day we cut a hole at the base of the stub, and after climbing up the inside, we found a nest plastered to the wall, and containing four young, naked and helpless. The stub was dark as a pocket, and musty with the odor of decaying wood, but it was warm and dry. We counted it a rare privilege to observe this bird still adhering to the good old-fashioned ways of its ancestors that its "progressive" kin have mostly abandoned for modern improvements.

Bird Caused Accident.

Mrs. Nelson Macy, a summer resident, had an automobile accident on Lake Avenue on Tuesday in front of the William G. Rockefeller place, and luckily escaped without serious injuries. She was driving her car when a bird flew in back of the windshield. The bird flopped from the wind shield to her face several times. She struck at the bird with one hand and lost control of the car for a moment. In that second the car left the road and bumped into a tree. The glass windshield was smashed to smithereens and Mrs. Macy's face was cut, the chief injury being a long cut on her lower lip which was afterwards sewed up by Dr. Parker. She was taken into W. G. Rockefeller's resident where she was cared for. Mrs. Macy is still sore from her many injuries.—*Greenwich News*.

A Young Robin Cares for Another.

Noroton Heights, Conn.

To the Editor:

I am writing you an account of what seems to me an unusual bird trait, in the hope that you will inform me of any similar experience. On May 31 a young robin, partly pinfeathered, came into my possession, having fallen from the nest and sustained a slight injury.

I fed it earth worms with the aid of a forceps, and a few drops of water from a medicine dropper. It thrived and at the end of a week I fixed a small twig in the ground and put the bird under a wire coop to give it a chance to learn to pick, which it did readily. I then gave it its freedom, but it would come to me when I called "Bob," also would often fly into the window to me. The bird developed quickly, was apparently afraid of nothing, roosted in the trees at night, but would come down to me whenever I appeared.

On June 22 another robin, well feathered and able to fly a little, fell from the nest—another nest. Fearing that the cats would get it I captured it, fed it worms, gave it a drink and tried to make friends with it by showing how Bob would take the worms; it still seemed afraid so I put it up in a tree, hoping the parent birds would

find it and take care of it, which they did not do. The little thing stayed in the tree all day, calling, and toward evening I discovered Bob carrying worms to it. The next day he continued feeding the small bird, but I noticed he never gave it any of the worms I gave him, he gave him only worms and bugs picked up by himself. On June 24 he coaxed it to the ground and began to teach it to pick.

He continues to feed the bird and apparently has assumed the full role of parent—protecting it and teaching it. At the present time Bob himself cannot be more than five weeks old.

Thinking this case of a bird raised by hand, never having had the aid of parental instruction, assuming the position and duties of parent to a still smaller bird, must be very unusual, I take the liberty of writing to you about it.

Very respectfully yours,
(MRS.) HAROLD E. HOYT.

THE GREATER REDPOLL.

By Grace H. Sadleir, Island Pond, Vermont.

Singing in sunshine your glad roundelay,
Dressed in your robes of crimson gay,
Care free, even tho' skies be gray,
Dear redpoll, we welcome you!

Far away in your land of snow
The shifting Auroras gleam and glow
O'er shimmering ice fields and drifting floe,
Where the white fox makes his den,

One day an impulse came to you,
Guided by Him Whose care is true,
And southward o'er frozen wastes you flew
Till you reached our milder clime.

Here, fluttering down into weed filled fields,
You find the banquet Dame Nature yields,
And at night you sleep where the evergreen
shields
Your rest from the wintry blast.

But, little friends from the Arctic land,
Chirping so gaily, a brave, blithe band,
Tell me—how did you understand
That south it was time to go!

Preparedness wins the battle.
Every difficulty overcome, leaves us
stronger for the next one.

The harder the duty, the stronger may it
find you.

Take care of the days, and the months and
years will take care of themselves.

Look well to your margins; they may make
or mar the whole course of your life.

Do the right thing now, instead of plan-
ning great things to do by and by.

THE HEAVENS IN AUGUST

The Heavens In August.

BY PROF. ERIC DOOLITTLE OF THE UNIVERSITY OF PENNSYLVANIA.

Besides the innumerable objects of interest always to be found by one who explores the heavens with a small telescope, we will witness this month the

of the stream of meteoric particles known as the Perseid swarm. On any one of these four nights the observer, by facing the northeast and watching for a few minutes, may see bluish, very swiftly moving shooting stars dart outward in all directions from the radiant

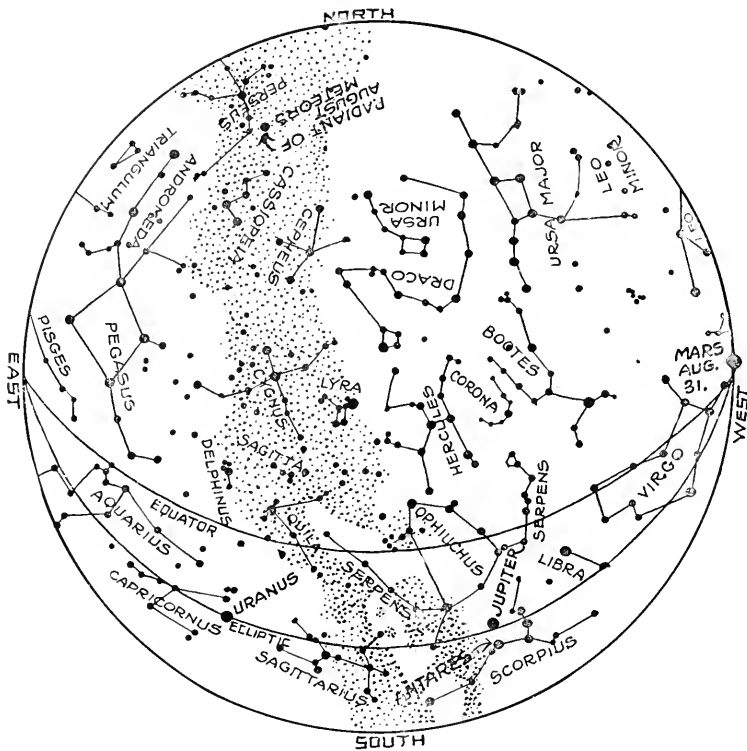


Figure 1. The Constellations at 9 P. M., August 1. (If facing south hold the map upright. If facing east hold "East" below; if facing west, hold "West" below. If facing north, hold the map inverted.)

bright August shower of shooting stars; we will have with us for observation and study the very brilliant Jupiter and Saturn, and we will see the planet Mars approach so closely to a bright star that except by a careful scrutiny they will appear as a single star.

THE AUGUST SHOOTING STARS.

From August 10 to August 13 the earth passes through the densest part

point in the constellation Perseus indicated in Figures 1 and 2, move a greater or less distance across the sky, and finally disappear, usually leaving a phosphorescent trail behind them. The opportunity for witnessing the display is unusually favorable this year because the new moon occurs on August 12, and therefore throughout all of the four nights the sky will be dark. As the

hours of the night go on, the radiant rises higher and higher in the sky, the most favorable hours of all for observation being between 1 o'clock and sunrise, though occasional stars may be seen at all hours of the night.

These shooting stars are caused by the collision of the earth with an immense swarm of little particles which are following the same path about the sun as the third comet of 1862, and are very probably the remains of this comet, which has been torn apart and stretched out along its path by the tidal action of the sun. As each dark and cold little particle of the swarm ploughs through the air of our swiftly moving earth it is burnt up by the friction and is seen by us as a shooting star.

us the occultation is not visible, the moon passing below the star. Could we journey to the southern hemisphere on the night of any of the occultations we would see the moon apparently rising in the sky, owing to our displacement on the earth, and in time it would be seen to hide the star from view. On the morning of August 7 the moon will similarly pass squarely over the Pleiades as viewed from the southern hemisphere, but as seen from the northern latitudes it will appear to pass below them.

When any star is thus hidden by the moving moon it almost always disappears instantaneously; it goes out as suddenly as a flash of lightning; there is no hanging on the edge of the moon and no gradual fading away. Even when

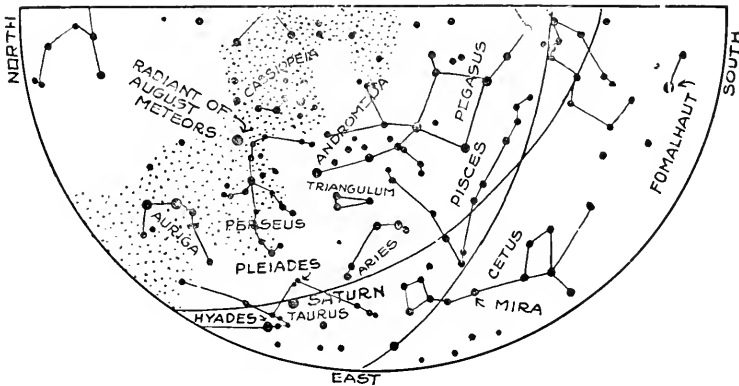


Figure 2. The eastern heavens at 1 o'clock A. M., August 1.

OCCULTATIONS.

The occultation of Antares by the moon, which occurred on the evening of June 26, was witnessed by many observers in the western part of our country, but in the east the skies were so generally cloudy that but few saw this interesting phenomenon. The path of the moon among the stars is at present changing so little and the occultation was so nearly a central one that it will be repeated each time that the moon in its monthly course reaches this part of the sky during August, September and October. But by careful watching the observer may notice that each month the path of the moon in this part of the sky lies a little lower down than the path pursued the month previously. Consequently, as seen by

the phenomenon is photographed by an apparatus containing a revolving, very sensitive, photographic plate, no gradual fading can be detected. The star shines out in full brightness until the body of the moon actually hides it from view. This shows us clearly that the moon has no atmosphere, or, at most, an inconceivably rare one, for had our satellite an atmosphere only one-two-thousandth part as dense as our own, there would be a distinct lingering and fading away of stars on its advancing edge.

A phenomenon of even more interest is the occultation of a star by a planet. This has been several times observed, but owing to the very much smaller apparent sizes of the planets and their far slower motions, it is witnessed far less

frequently, especially as all of our planets are so bright that the faint stars seem to disappear as the planet draws near them. The last observation of this nature to be reported was an occultation on the 13th of last August of a seventh magnitude star by the planet Jupiter, of which several observations and several photographs were taken. In this case the brightness of the star diminished as it drew near the edge of the planet, but what is of especial interest is that when apparently touching the edge it disappeared instantly, probably because its light suddenly became hidden by an impenetrable cloud of vapor. Usually the disappearance is gradual, the star "hanging on the limb," as astronomers say, until finally the interposed vapors become so dense that it is no longer visible.

THE PLANETS IN AUGUST.

Mercury, which reached its greatest distance east of the sun on July 24, runs rapidly westward throughout the month, passing the sun and entering the morning sky on August 22, but not reaching western elongation until September 7. It may be seen with difficulty low in the northwest just after sunset, toward the beginning of the month, and in the morning sky in the northeast toward the end of the month just before sunrise.

Venus is also too near the sun to be easily observed. It sets in the northwest only 32 minutes after sunset on August 1, but this time is increased to 50 minutes by August 31, when it may be detected shining out in the northwest, very near the ground, just after sunset.

Mars, though continuing its rapid eastward motion across Leo and into Virgo, is being so rapidly overtaken by the sun that it has now moved just beyond the borders of our monthly map. On August 27 it will pass very close to the bright yellowish star Beta Virginis. If the observer will turn due west at about eight o'clock on this evening he will see these two bright objects only a short way above the ground and so near together that they can be distinguished only with difficulty with the naked eye. In a pair of opera glasses or in a small telescope, however, they will form an interesting figure, the brighter and far redder Mars

lying a very little distance to the south of the yellow star.

Jupiter will at once attract attention, as it shines out so brightly, a little toward the west of the south point, near the center of the striking summer constellation of the Scorpion. It is still in excellent position for observation, and with its bright moons and its banded surface is a magnificent sight.

Saturn may be seen well up from the ground in the east, almost exactly midway between the beautiful groups of

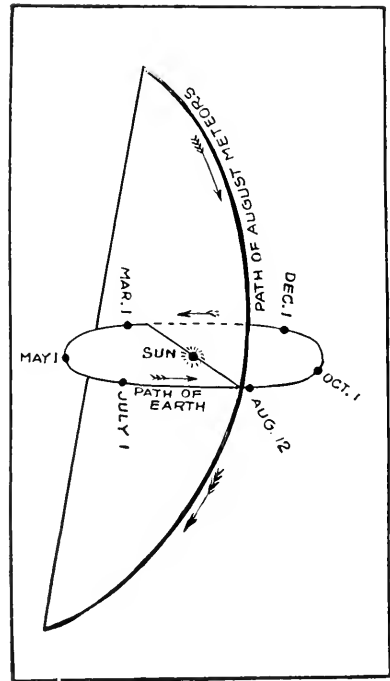


Figure 3. Showing the position of the meteor swarm through which the earth passes on August 10, 1913.

the Hyades and the Pleiades at 1 o'clock in the morning. The rings are now well widened out and the planet presents a beautiful sight in a small telescope. This part of the morning sky is now so attractive and will so well repay observation on account of the presence of Saturn, the occurrence of the August meteors and the close passage of the moon to the Pleiades, on the night of August 6, that we add this month a chart of it (Fig. 2).

Uranus is moving slowly west and south in the constellation Capricornus.

Neptune is too close to the sun to be observed during this month.



When Bees Will Sting and when they Will Not.

A friend has sent me a newspaper clipping that descants on the pleasures and profits of bee-keeping, and says that "swarming bees never sting." My friend asks, "Is that true?"

It is not. Any confiding person who depends upon that statement will get stung. Floating about in various newspapers and magazines, and sometimes in periodicals that should know better, are statements as to why bees sting and why they do not sting, and how to prevent them from stinging. We seem to be affected by a craze for getting money out of our surroundings in suburbs and country, and newspapers and magazines welcome articles that tell us how we can pay off the mortgage by keeping a few honeybees, frogs, chickens or skunks. It is the object of these writers to show as lucidly as possible that the bee will not sting, nor the frog jump, nor the chicken peck at you, nor the skunks offend your olfactory sense, provided only that you know how to handle them and do it at the proper time. In various parts of the country and before crowds of people, I have made remarkable exhibitions in handling bees. I have taken out the frames from as many as seven hives, and have passed about among a company of one hundred and twenty-five teachers the seventy frames, with probably more than half a million honeybees held in hand or flying in the air. I have had bees shaken over my head, I have poured them by the quart over ladies' bare arms. I have placed little children on platforms before large audiences and poured a pint of bees into the lap of each, and the children petted those bees as they would pet kittens. I have taken men, women

and children who were ignorant of the habits of honeybees, to the hives, and had them pass out the frames without the use of veil or gloves.

"But isn't it dangerous?" "Are you a magician?" "How do you stupify them?" "When do you hypnotize them?" "How do you know they won't sting?" These are some of the many questions asked me at such exhibitions. There is no special time. I do not stupify them. I am not a magician. Bees will sting, and sting severely at swarming time or at any other time, but there are certain times, and certain days, and certain colonies known almost intuitively to one who has had experience with bees, on which and by which the operator will be stung only rarely or not at all.

Only a few days ago a club of boy scouts arrived at Arcadia, and though none of them had had any experience with honeybees, and some had never seen any bees in hives, I took them to the apiary, where I at once opened a hive and passed out the ten frames. The boys held the frames and handled them, without aid from me and without gloves or veil.

It is simply a matter of self-confidence and self-control. I firmly believe that from a variety of things in this world we get just what we expect, or are paid in the same coin with which we pay. Go to the bees at swarming time or at any other time, in a nervous, fighting state of mind, slap at the first one that comes near you, and you will be stung. But go with calmness and self-composure, and with gentle, kindly motions, and though you may not escape, you will, by this method, surely minimize the chances of injury. But there is never a time when it is impossible for the bees to sting. When you

think of something else besides their stinging, of kindness and gentleness and love for them, they seem to reciprocate, although they will not always do so. If they are too much disposed to sting you, puff a little smoke into the hive, not to stupefy them, but to give them something else to think about. Smoke tells them that a catastrophe has come, and that the only thing to do is to eat, drink and be merry, for their home will soon be destroyed by a forest fire. They gorge

And yet all I have said must be taken with certain painful exceptions that only experience can teach. Some bees are vindictively ugly at swarming time and, as I once heard a farmer express it, "Those durned critters would sting the hair off a dog, though they are hanging there in a quiet mass so innocent-like on the branch of the tree." Bees are at times angered by smoke and the more they are smoked the worse they will fight.

You have all probably heard of the



BOYS FROM GREENWICH AT THE ARCADIA APIARY, TAKING THEIR FIRST LESSON IN OPENING A HIVE OF BEES.

themselves with honey and are then less able to sting, not only because they are happy, but because they are unable to curve the abdomen in that spiteful, vixenish manner so necessary to drive in the sting effectively.

A similar condition arises at swarming time. The bees fill their honey stomach with honey, and are then not only in a kinder frame of mind, but have greater difficulty in getting into the stinging attitude. Further, there is not so much reason for stinging. After they have left the hive, they have no permanent abiding place; they have no home to protect. They are in an uncertain frame of mind.

henpecked man who told his friends that he would hang around the house for a while until he could ascertain the state of affairs within. If all were calm and serene and smiling he would enter, but if temper were crossgrained he preferred to go to the barn and do the chores.

The skilled bee-keeper exercises, especially in making exhibitions before a crowd, some of the same kind of diplomacy, though the admiring crowd is not aware of the fact. He says to them, "Come on, I will show you how gentle the honeybees are." He goes to one hive, and the guards dart out vindictively. He says nothing about it,

but turns his attention to other hives in succession until he finds one that, looked at from the outside, seems calm and serene at that particular hour of the day. Bees are somewhat like human beings. Cross people are not always cross, and good-natured people are not always good-natured. Bees and people have their moods, and it becomes one to ascertain, in dealing with people or with bees, whether all signs are favorable and the coast is clear.

Take, for example, the colony of bees that I opened recently with the company of boys. Some one remarked, "What a wonderfully gentle colony," and so it was at that particular time, but the next day I tried it alone with the same hive, and under about the same conditions. I was called to lecture before a school, and I thought that I could run out to the hive, take a frame and put it into an observation hive without bothering with gloves or veil. I got severely stung on face, hands, wrists and even through my trousers. Those bees acted worse than the "blamest" yellow jacket you ever saw.

Suppose you knew a pool in a brook where you could go at any time and pull out a pound trout as soon as you drop your hook. Would there be any fun in that? Suppose the newspaper writer, previously referred to, were correct when he says that bees will not sting at swarming time? Would there be any joy in handling them? No; no more than with a swarm of flies. If life was a sure thing in any respect, most of the joy of living would be annihilated. If there were no obstacles, even stings, to overcome, there would be no satisfaction in overcoming. A sinless world or a surely successful world would be unlivably monotonous.

The uncertainties and stings of life are the greatest factors in human happiness—and I do not know but that they are so in bee happiness. However, I sometimes wonder if the bees do not look upon our moods just as we look upon theirs.

Apparently they do.

Take all your worries to Mother Nature; she will brush them away like cobwebs.

Great Clouds of Butterflies.

New York City.

To the Editor:

Referring to our conversation the other day, about migrating butterflies, would like to tell you an experience I have had about twelve years ago in northern Wisconsin.

At that time, our entire family was camping near Sturgeon Bay and I had permission from the owners of Chambers Island, to fish in the several lakes, which were situated in this large and uninhabited Island, which had been purchased many years ago by a manufacturer of oak furniture, who had cut all the available oak down and left the Island in charge of one or two caretakers, until the new growth of hardwood trees should be available again for re-cutting.

On a beautiful September morning, we sailed from Fish Creek in a large sloop to Chambers Island and arrived on the Island early in the morning, passing through very dense brush and forest growth and after about an hour's tramping through this dense, sombre forest, we suddenly came out on a very large clearing of probably 100 acres or so. The entire territory was covered with millions of milk weeds, which had attained a most magnificent growth in the rich forest soil. There was not a breath of wind stirring, a blue cloudless sky brought out sharply the contrast between the sunlit clearing and the sombre forest from which we just emerged. The moment we started to stir amongst the milk weeds, thousands upon thousands of the most magnificent specimens of the Monarch Butterfly rose slowly, like a dense cloud and settled in a few seconds again on the plants, on our clothing, on our hats, on our faces on the branches of the forest trees, overhanging the clearing. I carefully lifted my straw hat. There was no possible space left on which another butterfly could have settled. My wife's clothing was covered from head to foot with butterflies. As we traversed the clearing, more and more butterflies rose and we could actually hear a noise made by the wings of these countless millions of butterflies. Every single milk weed plant was literally covered with

butterflies and innumerable brilliant green cocoons hung on each plant, many of them still filled, many of them already empty of these recently emerging insects. Nobody, who has not seen the quantities of butterflies we saw, could have possibly believed the ver-

nothing else but a Monarch with folded wings. As we were in the midst of this field, fighting the butterflies with branches, from touching our faces, there burst suddenly on our ears the weird laughing cry of a loon, which as we saw afterwards was disporting



A SECTION OF A GREAT FLOCK OF MONARCH BUTTERFLIES.

Kindness of the American Museum of Natural History.

acity of what I am telling you. I have never regretted so much of not having a photographic camera with me as I did that morning. We felt positively uncanny and my wife was frightened. At the edge of the clearing, every branch of any of the trees, looked as if they were covered with dead, brown leaves and every apparent leaf was

on a nearby lake with two young ones and my wife frantically grabbed my arm at this unfamiliar sound and her face turned pale.

I do not think that many people have had an equal experience and during the twelve years that have gone by, my wife and I have many times discussed the same. I have been hunting in the

India jungle and traversed South America on horseback and there are only two situations, in my life which I could compare with my impression of Chambers Island. One was when going on horseback through a very extensive swamp region in Argentine and countless numbers of flamingos, black necked swans and white and black Ibises were rising before my astonished eyes and another time when in shooting tigers in India, a very large quantity of peacocks suddenly rose between the feet of the elephant on whose back I was riding.

I remain, with sincere regards,

Yours very truly,

JOHN C. UHRLAUB.

Migration of Monarch Butterflies.

To illustrate the migration of the monarch butterfly the American Museum of Natural History, in New York City, has prepared a new group of these insects containing five hundred specimens. The accompanying illustration is from a section of that group. In the early part of the autumn the butterflies go southward in flocks of many hundred or even of many thousands, and often remain in one locality for several days.

In an interesting article in "The American Museum Journal," Professor Frank E. Lutz writes as follows:

"Curiously enough, certain definite resting places, or gathering places, seem to be used year after year. Such an one is near Clinton, Connecticut, where the specimens for a Museum group were obtained in the fall of 1911. The swarming butterflies are so numerous and clustered so thickly that the leaves are obscured and the brownish undersides of the wings of the resting butterflies gives to the tree a truly autumnal appearance.

"Then comes the continuance of the southward flight. In places the air is brown with fluttering butterflies. As they reach the more southern states they doubtless spread out over the country again, but we are indeed ignorant as to how far those individuals which were born in New England for instance, really go, how they spend the winter, or from whence the monarchs of the next New England spring come. No one has put on record a return flocking from the South, so that if there be a migration northward it would seem to be only by stragglers. Furthermore the specimens found here in the spring seem to be in rather too good a condition to have made the journey. On the other hand no specimens have been found in this vicinity in the winter and as adults are

fairly common in May, it is just as hard to believe that they did not come up from the South."

We desire to obtain observations regarding such migrations of butterflies, and want our friends and all members of The Agassiz Association to report promptly in regard to such butterflies especially monarch in flocks large or small.

Winged Ants.

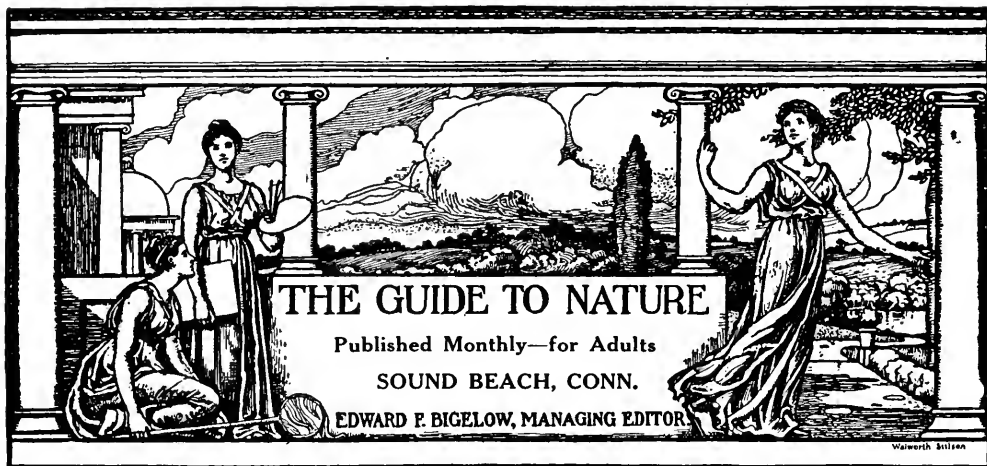
Croton-on-the-Hudson, N. Y.

To the Editor:

The winged ants, mentioned in the June number of *THE GUIDE TO NATURE*, may be seen at their mating season, during the last days of August in parts of Delaware County, N. Y. Their day is about August 24, in places where I have observed them, and they appear in swarms that actually fill the air. They evidently prefer a sunny afternoon, and continue their flight until the sun sinks behind the hills. By looking toward the setting sun they may be watched to very good advantage. They arise in bunches, or swarms, each swarm evidently representing one queen and hundreds of males. I have seen ants from the colonies representing the good part of a long valley, all celebrating this mating occasion at once. Whether this common impulse was due to the suitable, sunny August afternoon, or to some prearranged plan, it was hard to conjecture. Work usually ceases for a time on the farm, during this flight of the ants, and all hands make a few, more or less scientific, observations. It is extremely difficult to follow the activities of the ants after they return to the ground, to see how the males spend their few remaining hours, and where the queens prepare their nests, and the writer is hoping for the opportunity of reading a few extra pages from this little explored part of the book of nature during the coming vacation.

CHARLES A. DANN.

You know it is quite a task to support a family and save a dollar for a good book, but I am so used to *THE GUIDE TO NATURE* that I would not like to be without it if I have to pay for it on the installment plan.—*H. Koster, Brooklyn, New York.*



Time and Dissolution vs. Thought and Evolution.

A friend took a long pedestrian journey with me through the most rural and picturesque part of the country. We passed a deserted, dilapidated, decaying farmhouse. The gates were off their hinges, most of the picket fence was broken down, one of the barn doors was off and the other swinging by one hinge, the garden was smothered in weeds and the appearance of the whole place was that of desolation.

Said my friend, "Isn't it a pity that this picturesque farmhouse and its pleasing surroundings have been deserted and neglected for so many years?" Then he gave me a little history of the place because he was acquainted with that part of the country and knew the sad story of this farm that once was in good condition and prosperous.

We travelled onward for a mile or more and approached a thoroughly modern farm with well painted out-buildings, with a silo, with the fences in good condition, and with all the surroundings bearing the marks of modern and intelligent cultivation. My friend said, "Mr. has made a great transformation in the few years during which he has been here. He is a thinker and worker, and in addition he has the facilities for developing the farm."

We travelled onward still, and my friend, who is an atheist, began to draw me into conversation on his favorite subject. "It does seem wonderful," he explained, "that the plants and animals of our earth are so wonderful-

ly developed and so well adapted to their surroundings, but there was plenty of time, you understand, to bring about any number of changes. Time will accomplish much if you have enough of it. The improvements may be extremely slow from century to century, but if you have centuries enough you can accomplish almost any degree of perfection."

"Perhaps so," I said, "but time, plenty of it, alas! too much of it brought only dissolution and decay to that farmhouse that first attracted our attention."

"But then," he eagerly interrupted, "that kind of time produces nothing but dissolution and decay."

"Oh, I see!" I exclaimed; "it requires not time only, but intelligence to produce a place like that second one."

"Yes, yes," he eagerly assented.

And I said, "When you assent to that, as you have done, don't you see that you are 'begging the question,' and throwing away your argument that, as I understand it, development and progress can be caused by time alone, without the influence of an Infinite Intelligence to overrule and to direct? You are no atheist. Be an atheist if you are bold enough to take the risk, but don't be a fraud."

This was a dream that I had last night. I am dictating it to my stenographer the first thing upon my arrival at the office. I dreamed no more. Perhaps you know more of an atheist's mind and can help me finish the dream. This old earth is evolving, it is improv-

ing, and there is detailed and infinite mechanism everywhere. I see it under the microscope, I see it in the heavens. I see it all around me, and yet my friend claims that the only thing needed is time, time, time, plenty of time, and then perfection and beauty and complicated mechanism can be produced. But my thought returns over the road, and asks, What was the matter with that first farmhouse? If time alone developed and bonified the second farm, why did it destroy the first? The first dilapidated house had even longer time. Evidently time alone here brought dissolution and decay. Think it over, friend.

A Proposition for Nature Study.

Mr. Bernard Sexton, Greenwich, Connecticut, issued this call in the last

silent children of life which dwell in the fields and woods about us, are happy in the possession of intimacies which enrich and ennoble us.

To be alive in a world of beauty and power and to grow more intimate with it from day to day is to retain the spirit of childhood. The sympathetic observance of the great creative movements in the visible world brings to those who have it resources and consolations as well as positive joys—

"O ye stars, ye waters,

On my heart your mighty charm renew;
Still, still let me as I gaze upon you
Feel my soul becoming great like you."

* * * * *

It is mainly with a thought of these high considerations that we are



MR. SETON'S BOYS AND GIRLS IN THE AGASSIZ GROVE IN ARCADIA.

of May for a nature class in June. It shows that he has the right spirit.

The coming of spring brings home to the dullest some sense of the transcendent importance of the powers that operate in the world of nature. We are surrounded by mysteries of beauty and power. The growth of knowledge does but add to our reverence in the presence of the processes of life which at this season confront us wherever we turn. Those of us who have made some slight acquaintance with those

planning to go into the woods of June and make the growing and living things there a subject of study. Our work, however, is to be a really diligent search for truth and beauty, not a mere desultory wandering in the woods. Each member of the party will be equipped with notebook, drawing material and collecting apparatus. We begin the walks on Monday, June 3d, planning to be abroad on four days of each week during the month of June, from ten in the morning till four in

the afternoon. The outing days will be Mondays, Tuesdays, Wednesdays and Thursdays save when heavy rains make changes of schedule necessary. An occasional rainy day may be spent indoors preserving and classifying specimens. In general it is the deep appreciation of a number of the more interesting and beautiful types rather than the memorizing of undigested and unpalatable facts that we shall aim for.

MY CREED.

"My creed is work; to follow duty's call
 However far it leads across the plains—
 Through trackless woods, or ringing on the hills:
 To seek for pleasure in the realms of toil—
 Still ever striving for a larger self
 With which to do a service for the rest.
 To lay a new path through the unknown way,
 And leave some heritage e'en though so small
 No other hand would love or care to leave.
 Rejoicing ever in my brother's craft,
 To follow system and the perfect law—
 Be what I am, and do my very best
 To lead a life which towers above the hills,
 And points the way across the plains to God."

THE MOUNTAIN GARDEN.

By Emma Peirce, Sunset Hill, New Hampshire.

Straggling on, as stone-walls do,
 A wall of verdure it straggles through;
 On one side nature has done her part,
 On the other is seen the gardener's art.
 Near ferns and brakes of coolest green,
 The gleam of golden-rod is seen,
 St. John's wort with its neighbor vies.
 And buttercups of golden dyes.
 Clover blooms are all around,
 Gay in white and crimson gown'd;
 The red of raspberries is seen,
 Like jewels in a casket green.
 With pendent cherries ruddy wine,
 The white of clematis is fine;
 Tall grasses wave in summer air,
 And meadow-sweet is everywhere.
 Beyond the wall is golden-glow,
 A fitting crown for blooms below,
 Weaving its gold, in discs of light,
 Through nature's woof of colors bright.
 The flag has waved its last adieu,
 Though still the larkspur wears its blue.
 And hollyhocks in stately row,
 Show every tint, from wine to snow.
 Sweet William won an early fame,
 And left behind a fragrant name;
 And now in fine array is phlox,
 A picture in its crimson frocks.
 At this regal beauty's feet
 Nestles white alyssum sweet,
 While mignonette the border makes,
 And from its tawny tresses shakes
 The perfume that is ne'er forgot,
 The incense of the garden-plot.

"The Charm of Expression."

One of our subscribers, Mr. C. D. Jackson of New York, recently received the following letter from his ten year old boy who is at present in Paris. We publish it because of the originality and terseness of expression.

Hotel Astoria, Avenue Des Champs-Elysees,
 Paris.
 June 14, 1912.

Dear Father,

Excuse me for writing to you so late. But I have had all my time taken up.

Sunday when with my friends one of them had a water pistol with which he squirted everybody. Once he squirted a little boy on the legs, and he went and told it to his mother.

The ones who had squirted him ran away and another boy and I staid alone.

The lady came up to us, and in an impetuous tone demanded of us if we had squirted her son. We answered that we had not but that it was our friends. "Where are your friends?" she asked. "We don't know," we answered. But we did know. Then she said, "The next one who touches my boy gets a good slap."

The governess of the one who had squirted the boy had her chair right next to the mother of the squirted boy. Now the boy that had the water pistol needed his gouter so he sent another boy to get it for him for he knew that the squirted boy would recognize him. But unluckily his governess wanted him to come and get it himself. I am sorry to say I cannot tell any more for just then I had to go home.

I meet Fred nearly every morning on the Avenue Du Boie.

Your loving son,
 Charles Douglas Jackson.

P. S. Alan cannot put in a few lines because he is sleeping.

Walking With God.

Very few men cultivate the habit of walking with God, or have any inward assurance of God. They have merely heard pious rumours of such a personage. These rumours have given me no comfort; but now and again in the years, sometimes with little children, sometimes alone under the sky, I have experienced the Divine Presence, have felt that the great comrade was here, and those have been the richest hours of life. I have walked with the Master a little way in the silent fields—with the only master.—*Stanton Davis Kirkham in "Outdoor Philosophy."*

Study the birds, the trees, the flowers,
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During two weeks of the coldest weather last winter, more than four hundred people, of all ages, visited Arcadia to see two tablespoonfuls of spawn transform into embryo trout. More than fifty of these visitors came on one of the stormiest and coldest days of the season, but they all felt well rewarded for their efforts. Some even published letters of appreciation in the papers of Stamford and Greenwich. If this one little phase of nature, visible at an unfavorable time, with the exhibition held in an overcrowded room, can thus attract the public, how much more might other exhibitions of nature's doings be appreciated in good weather and in favorable circumstances.

How many of these interested persons know why a leaf is green? If we had proper facilities, we could give you ocular demonstration of the grains of chlorophyl. How many know anything of any of the life-processes of the plants that they cultivate? If we had a hall with projection equipment, we could give you ocular demonstration of the movements of the "physical basis of life," the protoplasm, within the cells of certain plants. How many know that every plant is built up of cells, or what a cell is? We could give to several people at one time ocular demonstration of plant and animal structure and activities if we had the room.

During all of April and May we have had many visitors; we should like to have more. One day I was at the hatchery and the microscope table from 9.00 A. M. until 11.00 P. M. instructing and entertaining visitors. Some days all our rooms have been crowded.

It is not unusual to have from forty to fifty visitors at one time. It is utterly impossible to give each individual attention and do justice to the subject. In this town of Greenwich there are 4,600 children and 11,863 adults. In nearby Stamford there are 6,502 children and 22,334 adults—a total of 45,299. If I give only an hour's attention to each, and have two visiting days a week, eight hours a day, I can, by this individual method, receive personally only 832 a year, thus needing more than fifty-four years to reach each person for one hour. We want to reach more people in less time, and I do not expect to live over 108 years more in order to have the second visit from all!

We need an Assembly Hall, where demonstrations can be made to several at one time. We need all our present rooms for progressive, original work. They are full of equipments. We welcome the public, and for that reason make this appeal for the necessary room for exhibitions.

To show these interesting objects directly to each caller is effort not used to best advantage. No two persons have exactly the same foci to their eyes. The microscope focused for me may not be best focused for any one else. I see one thing, and in the same object you will not see what I want you to see, unless you can adjust the instrument, as you probably cannot. We want to make exhibitions to several people at one time, and we will if we have an Assembly Hall. We ask for \$1,600 with which to build it. The foundations are completed and paid for. The lectures, to be given by various naturalists, **WILL BE FREE TO THE PUBLIC.** We want to show life processes. We want mosquitoes magnified on the screen; flies' tongues

magnified; sections of plants; we want to show trees, flowers, birds, frogs and other living creatures. In this way we can exhibit the minute details, and it is these minute points that form the wonderful and instructive whole. We want to show Nymphalia on the curtain and on the tables; we want to show the details of Nymphalia. We want, yes, we want \$1,600, and we want the money now. Everything shown or said in the building will be FREE TO THE PUBLIC.

May we not have a dollar from every citizen of Sound Beach, Greenwich and Stamford? We should not ask people in distant places to contribute. This is, or should be, local co-operation.

Please send NOW. The Agassiz Association, Inc., Arcadia, Sound Beach, Connecticut.

EDWARD F. BIGELOW,
President.

Contributions to Agassiz Assembly Hall.

Balance from Building Fund of New Arcadia	\$14.59
Mr. J. Langeloth, Riverside, Connecticut	50.00
Mr. Wesley H. Finney, Sound Beach, Connecticut	1.00
Mrs. E. Dimon Bird, Greenwich, Connecticut	2.00
"Homedale," Greenwich, Connecticut	2.00
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Miss Belle W. Ferris, Sound Beach, Connecticut	1.25
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Miss J. Pinkham, Sound Beach, Connecticut	1.00
Total	\$75.84

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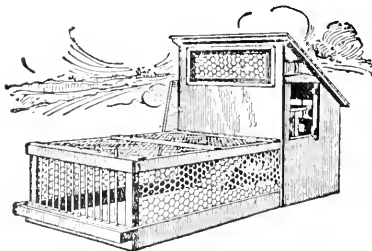
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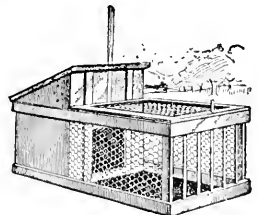
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THE GUIDE TO NATURE

Vol. V.

AUGUST, 1912

No. 4

One of the brightest features in Agassiz's character, is the fact that he sank all personal interest in science. He was devoted to it, his life seemed a consecration to the dissemination of knowledge.

* * * * *

The success of the Agassiz Association lies in the fact that it appeals to all, old and young, big and little.

—Charles Frederick Holder, LL. D., in "Louis Agassiz: His Life and Work"

EDWARD F. BIGELOW, Managing Editor

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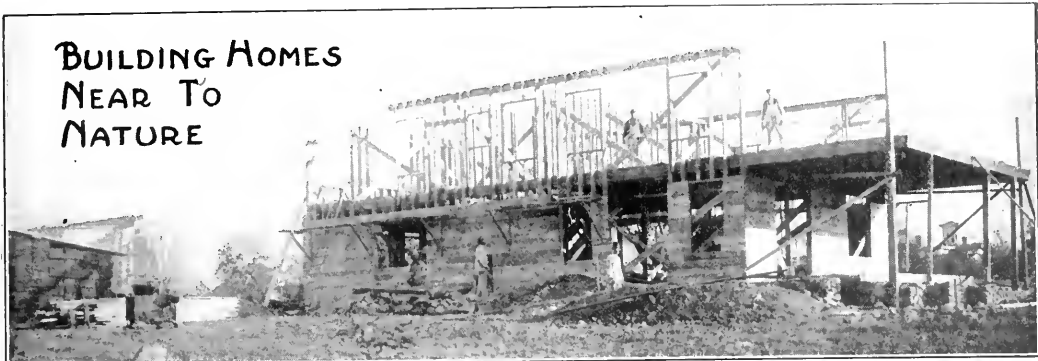
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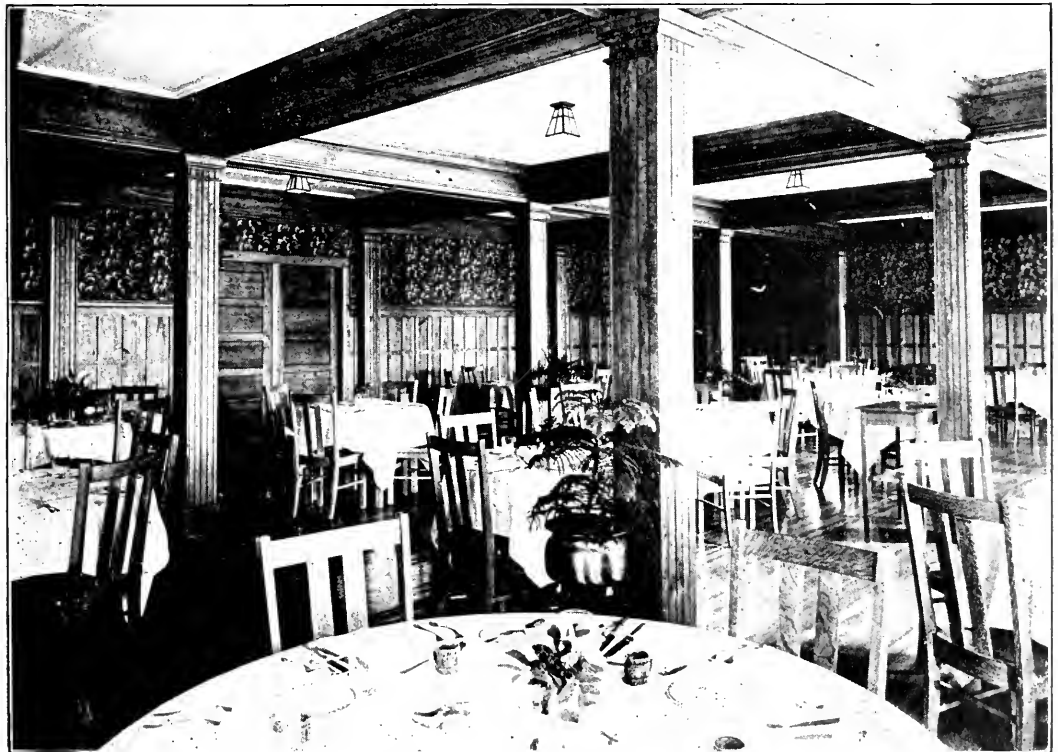
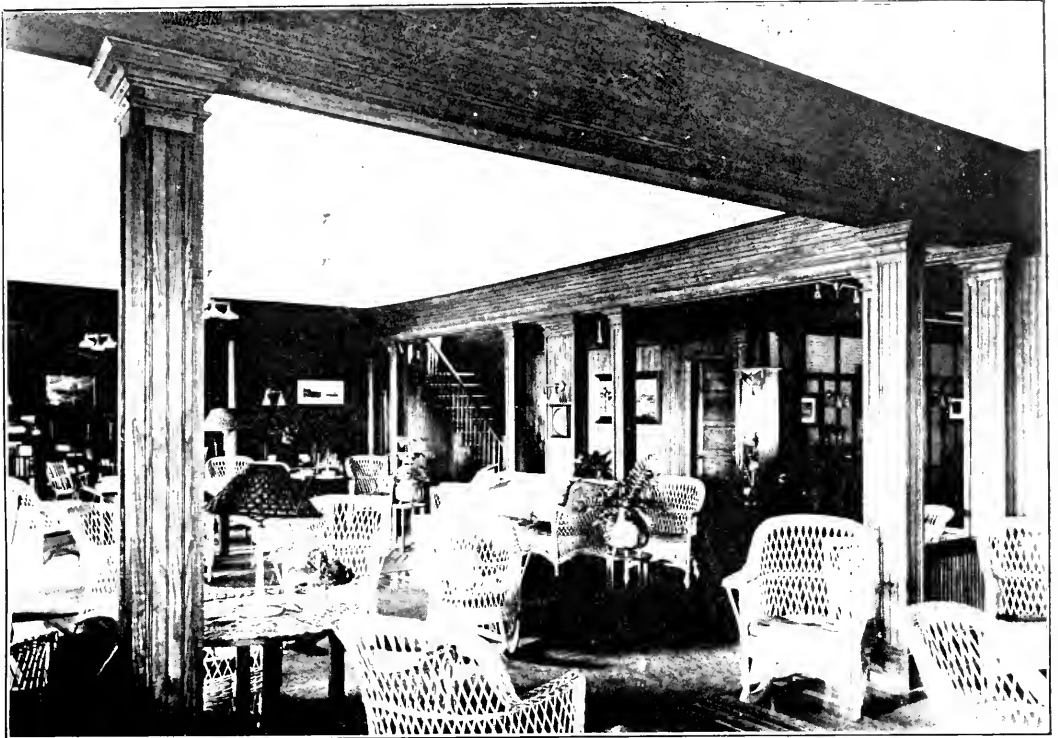
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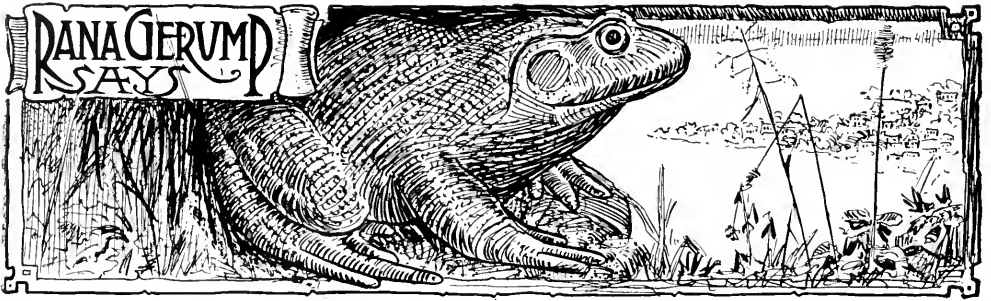
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A VIEW OF, AND A VIEW FROM SANTA CRUZ INN.



THE HALL AND THE DINING ROOM OF SANTA CRUZ INN, HAINES FALLS, NEW YORK



A boy who had lived for perhaps ten years, was fishing from the bank of my pond. A fish-hawk suddenly dropped into the water and flew off with a fish in his claws. The boy looked on in amazement. As he hurriedly wound up his line I heard him say, "I am afraid of that bird. It might carry me away, it is such a strong bird."

At my last glimpse of him he was running.

It was necessary for me to call at a house to make an inquiry. A little girl of five or six years followed the woman to the door. I appreciate the fact that any child might justly be surprised to see a frog on the step, and astonished to hear him speak, yet it may be unseemly for the child to ask questions and to interrupt. The woman gave me the information, and when the child continued to pull her mother's skirts and to ask questions, the woman turned and slapped her in the face. The little girl said nothing. She appeared to be accustomed to such treatment, but it sent a pang to my reptilian heart.

The land at one side of my pond rises in a gentle acclivity, on which nature has planted some trees and scattered some stones. Among the stones are feathery sprays of asparagus escaped from cultivation. I saw two boys climbing the slope. One was showing the other some of the beauties of the natural objects about them. I overheard him say, as he touched a plume of asparagus, "This is Indian thyme. The Indians planted it here a hundred years ago."

I was pleased to perceive that the boy had some natural power of observation, and I was glad to see that he was willing to help a companion, but

I wish he had been a little nearer the truth. Yet it may be better to know nature incorrectly, than to know her not at all.

I dislike to pay tax. When the Tax Assessor visits me at my pond, to talk over the amount of my personal property, I am disposed to croak in my loudest and harshest voice, and I usually do so. When I look at certain things for which my money is spent without my consent, the paying of tax becomes to me especially offensive. The schools for instance. I know that the English language is the most difficult in the world to write correctly, but, really, the adult of the present should do better with it than he often does. The other day, as I was hopping abroad, I noticed on a fence a sign-board that said.

"No Crosing aLoUD."

I had recently paid my school tax, and this placard gave my nervous system a shock that sent a thrill into my pocket. I was still thinking condemnatory thoughts, when on the side of a house I read,

"For Sale. Inquire on the Pormisis," and, as one of my friends was wont to say, "I was saporized."

Where lies the blame? On the teacher, the system or the pupil? After all these years, after all the treasure that has been lavished, where lies the blame?

Why do so many human beings have bad manners? To protect myself when I traverse the village streets, I move quietly and slowly, and keep myself concealed as well as possible in the grass by the wayside, or among the weeds or the bushes.

As I was resting, or hiding under the open windows of another house, I heard the querulous voice of a child and a woman's reproving words. As

I was about to hop onward, the child continued to whimper, and I heard the woman say, "If you don't stop that crying, I will knock you down."

Poor little thing I am sorry for you. In my intention I press your hand. In reality my hand is cold and moist; you would not like it to touch yours, but I am sorry for you.

Are all human mothers like these two? If they are, I prefer the frogs' methods.

I abandoned my errand, and returned to the pond. I will fare me forth no more this day

Don't Scrape the Trees.

We are informed on excellent authority that it is a mistake to scrape the trunks of trees to free them from any insect pest. Scraping the trunk does not lessen the number of hiding places in the bark, nor prevent the insects from climbing higher; in addition to this, it disfigures the tree and may seriously injure it. The better way is to kill the pests.

Useless in Results and Hideous in Appearance

Amherst, Mass.

To the Editor:

I have noticed several times in my visits through towns of Connecticut that they are making a practice of scraping the bark from their elm trees. I suppose this was done to prevent the elm leaf beetle and other insects from finding shelter under the outer bark, but I would not tolerate it for a minute. I have been tree warden here for twelve or fifteen years and always try to keep the trees as natural in appearance as possible. To scrape a tree gives it a conventional appearance and does it no good; moreover I always leave that little fine feathery growth on the trunks of elms as it is a protection and gives the tree a more or less natural appear-

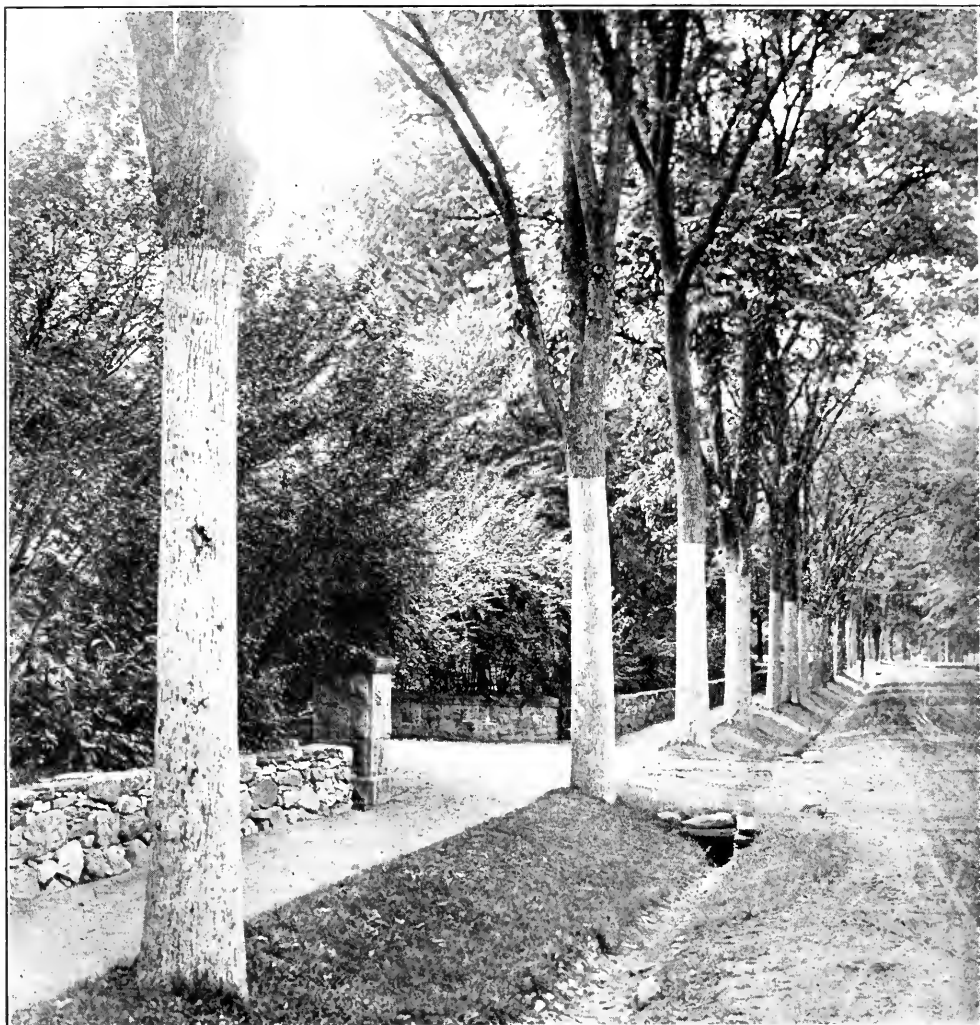
Nature Study in the Sound Beach Kindergarten.

Through the skill and enthusiasm of Miss Julia Louise Jacobs, the kindergarten teacher at Sound Beach, the young people have been doing really practical work in nature study in a school garden, as shown in the accompanying illustration. A variety of plants have been cared for.

It is not school-books we want, it is students. The book of Nature is always open, and all that I can do or say shall be to lead young people to study that book, and not to pin their faith to any other.—*Louis Agassiz.*



THE SOUND BEACH KINDERGARTEN IN THE GARDEN.



HOW THE TREES HAVE BEEN DISFIGURED ON ONE OF THE MOST BEAUTIFUL STREETS IN STAMFORD.

ance. It is a common practice to scrape apple trees more or less, and while it may do some good in this case they sometimes scrape them so close that it does harm. An apple orchard, however, is planted in such a way that it has a conventional appearance, and where one is spraying for scale, etc., it is better to have a smooth surface to spray on, but there is no excuse whatsoever for disfiguring shade trees in a town by scraping them. Only an insignificant number of insects would be harbored under the bark. A few pupae of the elm leaf beetle may get under the outer bark of elms, but the destruction of the pupae by hot water, and other ways is absolutely valueless in controlling the pest. Anyone who

has studied nature in all its phases knows that there is no greater delusion than the idea that every insect killed means one less next year. All that we can do at present for the control of insect pests like the elm leaf beetle is to spray the trees to preserve the foliage so that the leaves may manufacture food sufficient to keep the tree in a healthy condition.

Finally, I will say that I consider the scraping of elm trees not only useless and expensive but one likely to give a hideous appearance to the tree.

Yours very truly,

G. E. STONE,

Department of Vegetable Pathology and Physiology, Massachusetts Agricultural Experiment Station.

Practically no Benefit.

Office of State Entomologist
Geological Hall, Albany, N. Y.

To the Editor:

I do not consider scraping the rough bark from trees of material benefit in controlling insect pests, except in a few special cases. Removing of the rough outer bark is of slight service in checking the elm leaf beetle, since a larger proportion of the grubs usually descend to the base of the tree and it is therefore possible to destroy more of the assembled insects with applications of hot water, kerosene emulsion or some other contact insecticide. This method of checking the beetle is, however, of very little value compared to thorough spraying for the destruction of the parent insects and the voracious grubs. This latter method is really the only satisfactory one and, as a consequence, scraping of trees is practically negligible so far as controlling elm leaf beetle is concerned. I have known instances where this work has been done with practically no benefit, aside from the presumably large profits accruing to the party doing the scraping.

Very truly yours,
E. P. FELT,
State Entomologist.

Entirely Unnecessary—"and Disfigures Trees."

Washington, D. C.

To the Editor:

In my judgment the scraping of bark from large trees and also coating trunks with whitewash, etc., are entirely unnecessary, while in some instances actual damage may be done to the vitality of the trees. There is no question but that treatment of this kind disfigures trees.

Very truly yours,
GEO. B. SUDWORTH,
Dendrologist, Forest Service, Washington, D. C.

"Serves no Useful Purpose."

New Haven, Conn.

To the Editor:

The scraping of the rough bark from the trunks of shade trees is useless, so far as the elm leaf beetle is concerned and it is not to be recommended for other insects except in localities infested by the gypsy moth. Such practice

injures the appearance of the trees and serves no useful purpose. It is better to allow the elm leaf beetle larvae to descend the trunk to the ground, where they will transform. It is better yet, to spray the trees with arsenate of lead, so that there will not be any larvae left to transform.

Many so-called tree experts carry this scraping process altogether too far. They go too deep cutting into the cambium and really injure as well as disfigure the tree. If the expense of this work could be diverted toward the proper spraying of the foliage, it would go far to preserve the leaves for the whole season.

Very truly yours,
W. E. BRITTON,

State Entomologist of the Connecticut Agricultural Experiment Station, New Haven, Conn

"Unnecessary, Expensive and Unsightly."

Stamford, Conn.

To the Editor:

I consider the scraping of trees unnecessary, expensive, unsightly, and many times injurious to the trees. Very few insects are destroyed, and where the scraping is done deeply, it destroys both the live tissues and allows attacks of sucking insects such as aphid and scale.

THE FROST & BARTLETT CO.
F. A. Bartlett,
President.

Stop Disfiguring the Trees.

It is a strange anomaly that the greatest disfigurements to trees on many of the streets in our towns or cities, is made by those who are supposed to be experts in the care and culture of trees. Here is an illustration of one of the most beautiful streets in Stamford, Connecticut, showing how the bark has been scraped. Such treatment is pitiful. The worst of it is that this endangering, and disfiguring, and consequent expense to the owners or to the city, are absolutely useless. We do not know who did this particular deed, but we know from observation throughout the state that there are plenty of others guilty of the same thing, evidently with a mistaken notion as to the value of such treatment. It is, indeed,

a pitiful sight and THE GUIDE TO NATURE believes that it can do no better work in behalf of trees than to oppose and if possible stop this mistaken practice everywhere. To make certain that our condemnation is just, and in accord with modern dendrology and economic entomology, the editor of this magazine wrote to several authorities. Their replies are published herewith.

A marked copy of this appeal to stop the pernicious practice will be sent to a large number of Connecticut newspapers. We hope they will copy it and also publish an editorial condemning this disfigurement and needless expense.

A frog, a calm, philosophic frog, I insist, is wiser than an owl—that's the opinion of Rana Gerump, the editor of this department. Do you insist the owl is wise? Then read the following:

Unmasked.

The bird whose wisdom is proverbial cuts a ridiculous figure in a story told in Mr. H. Perry Robinson's book, "Of Distinguished Animals"; moreover, the manner in which he was stripped of his imposing presence does not tend to strengthen the belief in his sagacity.

The physiognomy, indeed, of all owls is charmingly unbirdlike. To see an owl at its most ludicrous, it is necessary to see it wet, for it is a dreadful impostor in the matter of size, being but a poor hapenny-worth of solid owl

to a quite intolerable deal of fluff.

Some years ago my family possessed a pair of brown owls, whose cage abutted on the stable yard. One of the owls, being brought out into the day, when the hot sun beat upon the paving of the yard, flew helplessly about, and chanced to settle immediately under the tap of a rain-water butt which leaked.

The leak was inconsiderable. Perhaps a single drop fell from the tap every two or three seconds. To the first few drops the owl paid no atten-

tion; then it began to shake its head. Evidently it was raining, and the owl knew all about rain. It knew that when rain fell in one spot it also fell elsewhere, on the just no less than on the unjust, and there was nothing to be gained by shifting. A move of three inches in any direction would have kept it dry, but owls are ill-adapted to walking on a level, and undertake it with reluctance.

Doubtless, too, it considered that moving would be futile; so it sat and submitted to be rained upon, and gradually it grew wetter and more wet, till, "for all its feathers," it was soaked.

The plumage of the head and neck, much of which normally stands out at right angles from the skin, cling close to it, and to our astonished eyes the true dimensions of the bird were revealed. In place of the pompons-looking, comfortable fowl of our daily acquaintance, was a thing less bird than gargoyle—a new and obviously mythical creature, thin, ungainly-footed, with an extraordinarily long neck, terminating in a head which had become resolved into a beak and two huge eyes blinking at us with incomparable solemnity.—*The Youth's Companion*.

Spraying for Insects and Disease.

Extensive experiments that appear to be successful have been made on the Wm. Zeigler estate, Noroton, Connecticut, by The Frost and Bartlett Company, in spraying for insects and disease. It does seem as if the materials that are useful in ridding trees of insects, and those that prevent the growth of fungi, may well be mixed together, and used together. This is a labor saving process and accomplishes two excellent results at one time.

Heigh-ho for the out of doors,

For depths of woods, and for breezy shores,
For the oxygen that fills our pores,

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The Chambered Nautilus

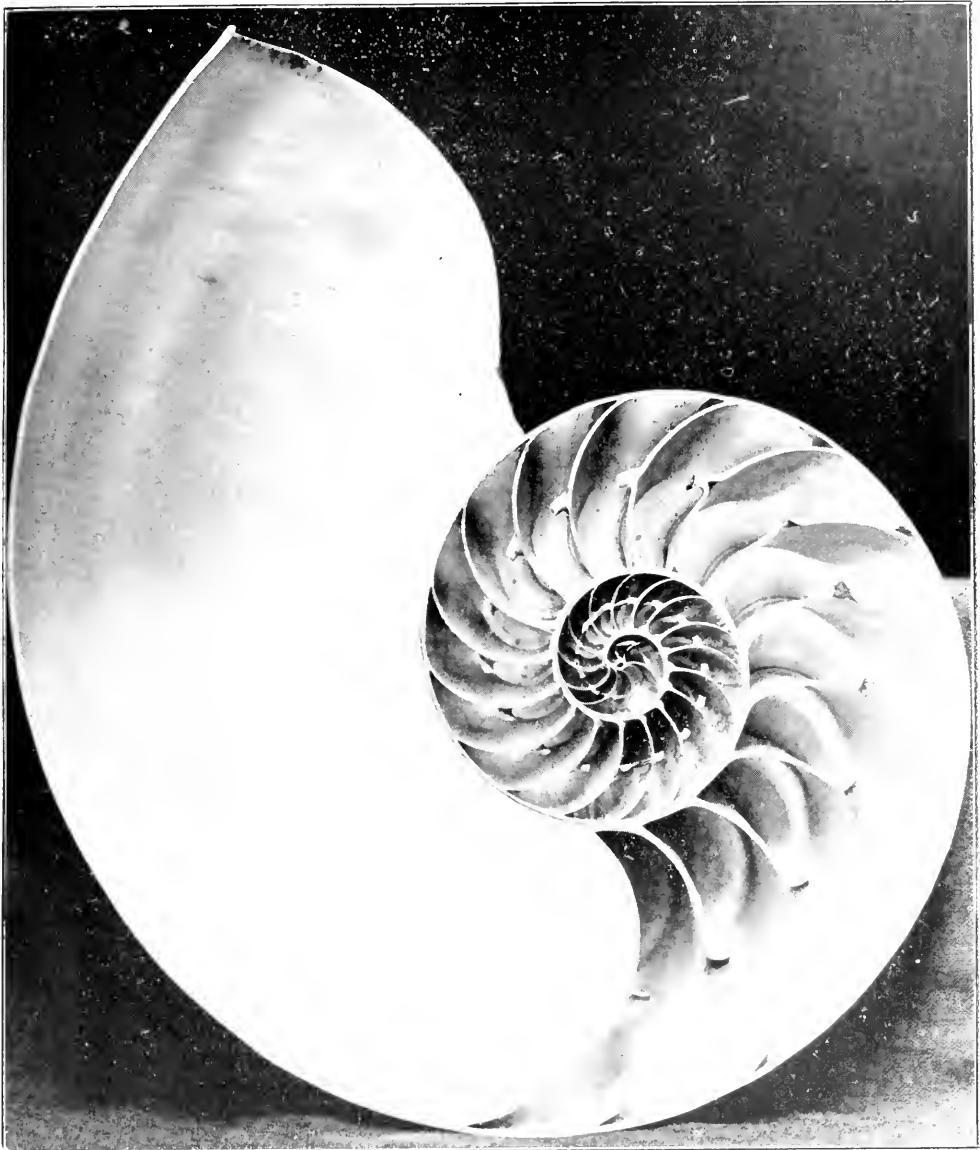
This is the ship of pearl, which, poets feign,
 Sails the unshadowed main,—
 The venturous bark that flings
 On the sweet summer wind its purpled wings
 In gulfs enchanted, where the Siren sings,
 And coral reefs lie bare,
 Where the cold sea-maids rise to sun their streaming hair.

Its webs of living gauze no more unfurl;
 Wrecked is the ship of pearl!
 And every chambered cell,
 Where its dim dreaming life was wont to dwell,
 As the frail tenant shaped his growing shell,
 Before thee lies revealed,—
 Its irised ceiling rent, its sunless crypt unsealed!

Year after year beheld the silent toil
 That spread his lustrous coil;
 Still, as the spiral grew,
 He left the past year's dwelling for the new,
 Stole with soft step its shining archway through,
 Built up its idle door,
 Stretched in his last-found home, and knew the old no more.



"THIS IS THE SHIP OF PEARL"—THE CHAMBERED NAUTILUS.



"AND EVERY CHAMBERED CELL . . . BEFORE THEE LIES REVEALED."

Thanks for the heavenly message brought by thee,
 Child of the wandering sea,
 Cast from her lap, forlorn!

From thy dead lips a clearer note is born
 Than ever Triton blew from wreathed horn!
 While on mine ear it rings,

Through the deep caves of thought I hear a voice that sings:—

Build thee more stately mansions, O my soul,
 As the swift seasons roll!

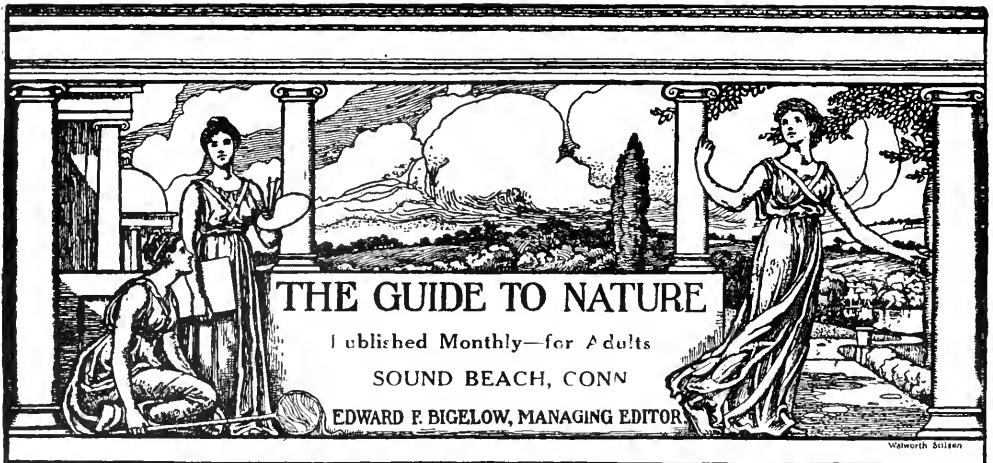
Leave thy low-vaulted past!

Let each new temple, nobler than the last,

Shut thee from heaven with a dome more vast,
 Till thou at length art free,

Leaving thine outgrown shell by life's unresting sea!

—*Oliver Wendell Holmes.*



Volume V

AUGUST 1912

Number 4

Astonishing Performances of a Blue-Bird.

It is not to be wondered at that the term nature faker has been applied to many genuine naturalists. The wonder is that it has not been applied to more. When one sees a natural action, though it be decidedly out of the ordinary, it seems perfectly natural, and the observer usually takes it as a matter of fact. But perhaps long afterwards, the full and remarkable import dawns upon him. Then he writes an account of his observations, and this account, isolated from the original observation, seems incredible and to entitle the observer to a place among the nature fakers. As an example of this, I recently witnessed a remarkable performance of a bluebird, and not until several days afterward did it occur to me that it was unusual or specially noteworthy. At the time it seemed surprising, yet quite the ordinary thing for a bluebird to do, simply because a bluebird did it, and in a very natural manner.

I was sitting with a pleasant company on some rustic furniture around a rustic table on Mr. John C. Uhrlaub's lawn, under a wide spreading tree. A bluebird flew down and lighted on the end of a perpendicular stake, some 40 or 50 rods away in the garden, making it seem from the isolated position of the stake, an unusually conspicuous position. I exclaimed to the lady who sat on the opposite side of the table, "See that bluebird," and with my index

finger and fully extended arm, I pointed to the bird. She turned to see it and immediately, as I extended my arm, the bluebird flew straight toward my finger. From some strange fascination as I saw that bird coming toward me I held my arm and finger in the same position. The bird was evidently fascinated or attracted in some unknown psychological or hypnotic manner by my extended arm and finger, because it flew as straight as it could fly, until it was just on the other side of the table, then it swerved abruptly downward, went under the chair in which the lady was sitting, through the intricate rustic work on the lower side of the table and through the rounds of my chair, brushing sharply my trousers by its extended wings as it swept under me. The question is: What was the cause of that bird's peculiar action? It seems to me that she was attracted by the extended finger, but that the attraction was disturbed by fear as she came near to us, and yet why did she take the course under the table, which seemed a difficult place to pass through?

Misunderstood Kindness.

Not long ago I was traveling in the country near the home of my boyhood and found a picturesque old house in which a friend of my boyhood was living. He was not at home, but I took an excellent photograph of his house and later sent it to him with my compliments. It was probably the first

time that the antique farmhouse had been photographed, and I thought the owner would be grateful. Imagine my surprise when some of the neighbors told me later that he called me all sorts of names, and said everything against me that he could think of, knowing that what I had done was the outcropping of the innate rascality that he had observed in my boyhood. "It is bad enough," he said, "to be forced to live in an old farmhouse and not to have an up-to-date house, but it is worse to be twitted about it and have it thrown in my face in the form of a photograph by a fellow who lives in the city."

He had not only been living in beauty and surrounded by beauty without knowing it, but was resentful when by the aid of the camera I attempted to tell him the facts of the situation. I almost envied him for living in such a house. It was so quaint, so picturesque, so attractive, but he evidently regarded it as ugly and as an evil to be endured, longing to escape to the city for a finer residence.

But is he alone in this? Are there not plenty of people living in this old, old world in a very paradise of beauty and amid lovely memories of the past, who are longing to go to some other paradise, or some holy city, or some beautiful mansion in some land of the blest? And yet when someone tells such a person that the beauty surrounding him is the very perfection of beauty that the Infinite God knows how to make, he resents it. Sometimes he says to the sneaker, "Why, are you a materialist? Don't you know this is a vale of tears?"

Don't you know that this was produced by an Infinite Father for you? He wants you to use it as it is and to appreciate the fact that it is as it is. Probably Browning had that thought in mind when he said, "God must be glad one loves His world so much." If I had been the one who placed that friend of my boyhood in that old farmhouse in that particular position in life, I should not have been pleased when I learned that he gets mad because some one tells him that his residence is a marvel of beauty, and that he should be contented with it, enjoy it as it is and not be everlast-

ingly envious of a city house. When one who appreciates the beauties of this world as they are, and tries by camera and by words to show that they are the best in existence, and, so far as we know, never to be excelled by anything better adapted to our capacities at the time, many an auditor either laughs to scorn or becomes contemptuous when the beauty is shown to him. But there are others, and I am thankful to say they are not few in number, who are grateful when the charms and the beauties of the earth are shown to them.

Darwin realized that it is possible to become so calloused by neglecting to cultivate a natural love for the beautiful, as to be unable to value the present beauty. He expressed regret that he had lost his taste for poetry and for music.

Because no one had shown Carlyle the constellations when he was a boy, it aroused his indignation in advanced years, and he exclaimed regretfully and with a touch of resentment, "Why did not some one teach me the stars when I was a boy?"

Shall some one, fifty years hence, find fault with you because you, an adult naturalist, did not teach him in his youth to know not only the stars but the beauties of his surroundings? Not long ago I tried to interest a business man in our star maps but I only aroused his indignation. It was but a parallel to my sending of the photograph to the dweller in that old farmhouse—only in one case I was trying to show the beauty of the heavens and in the other case the beauty of an earthly paradise. Both men got mad, incredible as it may seem. Again I met a well-known lawyer in the street last week and he made this remark, "Why, of course, everybody agrees with your *THE GUIDE TO NATURE*, or at least they could not disagree with it. It is good so far as it goes, but it is awfully wishy-washy. You ought to take up real things that have a vital interest to people if you want to make a successful magazine." Then he told me what he regards as vital interests and spoke of his vivid interest in both the Republican and Democratic conventions. Can it be possible that "such things" are of greater interest to any human

being or can it be possible that such temporary human affairs are to be compared in any sense with the beauties and interests of nature? Read the newspapers rather than read a nature magazine! Hark, I hear an echo from the past—the voice of Henry David Thoreau is saying, “Read not the times, but the eternities.”

“What Is It Good For?”

What in the name of common sense, in the spirit of all that is good and true in this beautiful old world do you mean by everlastingly asking the question, “What is it good for?” Has your sensitiveness to the value of things for themselves become so obtunded by the endless scramble for dollars to put clothes on you, and to stuff things down your throat, that you cannot think of anything as good for anything in itself, unless it supplies you with money, or clothes, or food?

Pardon this strong statement, but the repetition of this question by high and low, old and young, surely borders on the exasperating and I find that almost invariably every questioner, when asked to define his query, seems unable to do so.

I was recently coming from the fields with a fine collection of ants, their eggs, larvæ and cocoons. It was one of the best gatherings that I had ever made, and I was showing it with great satisfaction to several persons on the trolley car. They listened while I described how I had captured the insects by sweeping the entire nest into the fruit jar by the aid of a brush. They listened to what I said about ants as wonders of creation, and then, imagine, if you can, my dumfounded amazement by the almost simultaneous question, “But, what are they good for!” When I inquired, “What do you mean by the expression ‘good for?’” they became confused and thought that I was taking them at an unfair advantage, and was quizzing them on some technical or philosophic point. At last I centered my cross-questioning upon one young woman, and I said, “Really, I want to know; please relieve my suspense; what have you and the others in mind, after all I have told you about these little creatures, when you ask that oft repeated question, ‘But, what are they

good for?’ Can’t you see; is it not self-evident that they are good because they are among the most interesting forms of animal life?”

“Oh, but,” she hesitated and giggled, “I-I didn’t mean that; I-I meant, aren’t they good for something?”

“Please,” again I insisted, “relieve my suspense; tell me what you mean. Out with it, and get it off your mind. Express it in some way. What do you, and those who are not interested in any realm of nature, who know nothing of this world around us except as it furnishes dollars and clothing and food, what do you mean? I should like to get inside of minds and ascertain the significance of the question that comes to me so often, ‘What are they good for?’”

Again she hesitated and giggled and stammered, and I felt almost cruel for embarrassing her, but I was determined to chase that question into the inner recesses of her mind, and discover if I could what was there.

“I merely meant,” she said, “and I did not suppose that the question would so excite you, I-I merely meant are-are they, are they-they good for bait for fish or something of that kind?”

Ye gods, have pity upon the poor ignoramus whose limited knowledge of the creatures of this world induces him to think that they can be of no use unless they are “bait for fish or something of that kind.”

It is evident that Professor Bailey also has met such persons, that they have wound around him like innumerable threads, the persistent inquiry, “What are they good for?” Here is how he tries to escape from these exasperating, tantalizing questions:

“Yet we still think that every animal and plant was created for some purpose other than for itself, and we are always asking what every organism is ‘for’. When speaking once to a popular audience, a person interrupted me with the question: ‘Can you tell us what a snake is good for?’ I replied that I surely knew the answer to one question; a snake is good to be a snake.”

Most persons seem to think, since man is the “lord of creation,” and stands at the head of all created things, with power and dominion over them, that

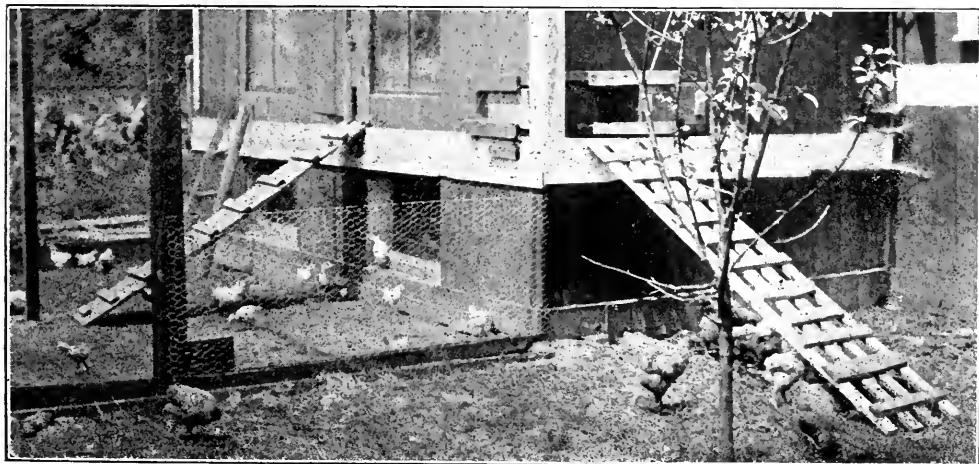
they are all intended to serve his needs, or his wants, or to be the utilitarian protagonists in his special life drama, and that they must be active and continuous in supplying him with the things needful for his physical well being. But that does not seem to be God's thought and intention. He has said, that man shall not live by bread alone. All animals and all plants are not intended to minister only to man's body. He has a mind, or is supposed to have such an appurtenance, and is expected to cultivate it. Of what use is an ant or a rattlesnake? I don't know God's purpose in making them, but I may possibly ascertain it if I use the mind that He has given me. I can at least try. On his first day at school, your boy may ask, "What is that hard alphabet good for?" What is the world's literature good for? For precisely the same purpose for which the study of the ant's habits is good—to enlarge, to expand, to cultivate your mind, your power of observation, your ability to appreciate and to enjoy the wonders and the beauties of the heavenly world, when you get there. If the gate should unfortunately be closed in your face, before you go elsewhere, you will probably pause to ask, "What was I good for?" Why not ask yourself the question now?

Methods Rather Than Results.

I have recently seen in my chicken yard a pretty good imitation of human actions. A large flock of barred Rock chickens was confined to a brooder house and small yard. I desired to

have them in a larger yard on the end rather than on the side of the brooder house, and for that purpose cut another hole through the end of the brooder house and made another ladder to lead into the larger yard. The chickens greatly enjoyed the larger yard during the day, and went up and down the new ladder into their accustomed home, in which not the slightest change had been made. But when night came, they wanted to roost; they were lonesome and homesick, and one hundred chickens began that painful, pitiful peeping that chickens make when they are lost, and the clamor continued although their home had in no way been changed. It was only a change in the manner of going to bed, by means of a new ladder at a new entrance about the size of a cat-hole cut through the end, as shown in the accompanying illustration.

The thing that interested me and presented this parody on humanity was the fact that the chickens were pained, lonesome and homesick, because of a new method, of which the final result was exactly the same as that of the old. It was laughable yet pathetic to see those chickens walking up the new ladder into the new entrance, and then pleading pitifully as if they were lost, and turning around and coming out again, still bewailing their forlorn condition. They went into the larger yard repeatedly, and tried to get into the smaller yard so that they could go to bed (in a fireless brooder) by the usual method. It has taken them several days to become reconciled to the new ladder



THE NEW LADDER AND ENTRANCE AT THE RIGHT, OPENING INTO THE LARGER YARD.

and the new entrance, and they bemoan their fate in this changeable world, not only upon going to bed but after they get there.

On the first evening when this new ladder made these poor chickens homesick, there appeared in a daily paper published in a neighboring town, a strong letter from the prohibitionist party, stating that they would not work for no license with the committee of the churches, for the reason that while they desired to accomplish the same object, they were opposed to the method. They wanted prohibition but they wanted it in their own way. The Republicans and Democrats must become prohibitionists or their no license aims would be painful and pathetic. It was a plaintive letter filled with moans of disappointment and dissatisfaction. I do not intend to enter into the argument, for I cannot understand nor sympathize with such objections, any more than I can understand why my chickens could not settle down contentedly, though they had come up that night by a new ladder through a new entrance. But the psychology of my chickens and the psychology of those prohibitionists are alike unfathomable. To say the least, without going into the subtleties of the argument, it must have surprised the pastors and congregations in their union fight for no license to be opposed by the prohibitionists!

It would be too personal and too provocative of controversy, if I were to press this parallel into the domain of nature, education and religion. It is perhaps enough to make the reference to a political situation.

Extended work in Teachers' Institutes for many years, and personal arguments with many educators, have convinced me that my chickens have no monopoly in bemoaning new and better methods, even if the same results are attained more easily, and a larger "yard" thereby made more available. I wonder if in some future life we shall quarrel and complain because some have come up by one ladder and some by another. But it is enough to limit our philosophy to the present life. We even hear it said, "Oh you get the people interested in nature, but your methods are not the 'best'—too simple and too popular". Some

people insist that information and reasons should be in technical and philosophic form. And when I read a letter that moans and cries and wrings its hands because my methods are not the same as the writer's, I go out not to feed the chickens but to look at those two ladders, and the more I think of some things in this world and perhaps of arguments pertaining to the next, the more—well, but can you realize, my friend, what a consolation it is to pick up and pet a nice little barred Rock rooster that has come down a new ladder crying because he is lonesome and homesick in the same old bed that was reached by a new ladder from the larger yard?

Studying The Echo.

BY JOHN T. TIMMONS, CADIZ, OHIO.

Our readers may spend an interesting afternoon or, better still, a few hours of the early morning in studying an echo. Success will depend much upon the location of the student and the shape of the surrounding country.

The best time is in the early morning, before a rain or an electrical storm. The atmosphere is then heavy and the echo seems to be louder and is more easily located.

How can we find an echo? By experimenting in the use of our loudest and clearest voice. If we hear the words repeated across the fields, or on some hillside, we know that an echo exists in that place. At certain times an echo known to be at a given point is indistinct, while at other times it is plain, and the words or any other sounds that we may make are almost as loud as the originals. Single words and short sentences should be used, or the experiment will not be satisfactory. A few clear notes on a flute or on some other instrument produce good results, and a few words of a song are pleasing, as the tune as well as the words are reproduced.

A gunshot is likely to stir up wonderful echoes, and striking two blocks of wood together, or clapping the hands will produce good results.

If we are fortunate in our search for a suitable locality, we may find a spot at which we may hear two or more echoes, each coming from a different point.

Occasionally we may find a spot at which one echo will produce another, and if we listen we may possibly hear a third produced by the first. There

they suppose to be another animal, when they are answering only an echo.

Those that cannot go to the country may study the echo if they will but watch and listen. The shape and size of city buildings, and the width and the angle of streets and alleys will often produce interesting echoes, which are easily studied.

A good way in the city is to move about quietly, or to remain at the open window, and listen for the echo of a sound made by some one else. The peculiar whir of an electric car as it approaches a corner is often echoed by some building, until the cars seem to be coming from some other direction. The puffing of a locomotive as it moves through the railroad yards, or along the track, often makes an interesting echo, that suggests the presence of several locomotives.

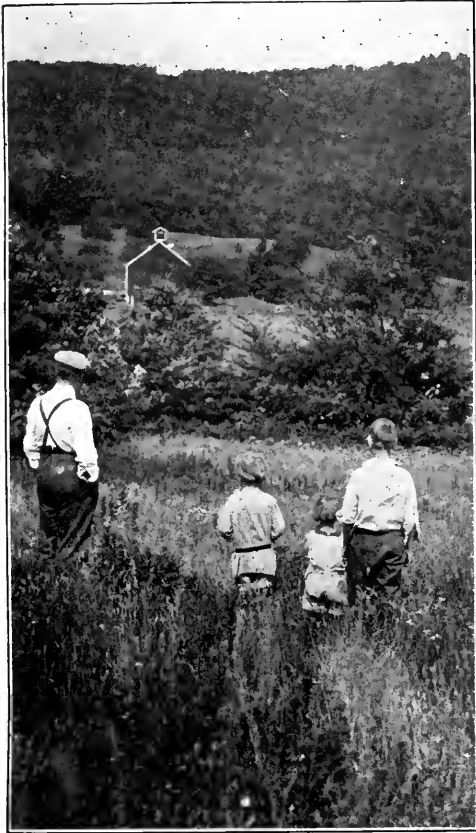
In certain localities the heavy rain clouds that sometimes pass over, leaving a calm, cool atmosphere, will send back an echo. Much of the rumbling of the thunder during a storm is the echo of the first report, the great sound waves striking both the hills and heavy clouds, and being reflected back.

In many deep canons in the mountains, and in some caves, the echo is wonderful. It is estimated that in some places a single word or a revolver shot will be repeated hundreds and occasionally thousands of times, producing a bedlam of sounds.

I believe that it is possible to trace the echo in other ways than through sound. I believe good thoughts, kind deeds and a loving heart produce echoes that are still more interesting than those produced by sound. Let us study them all.

Efficient Lectures on Nature.

John J. Schoonhoven, M. A., 1374 Union Street, Brooklyn, New York, offers a series of very attractive and effective lectures on nature. Among his subjects are the sea beach, animal parasites, fungi, and the microscopical world. Professor Schoonhoven has had many years of experience and can adapt his addresses either to a popular or a scientific audience. We cordially recommend him and his work. He is scholarly, and a man, genial and winning.

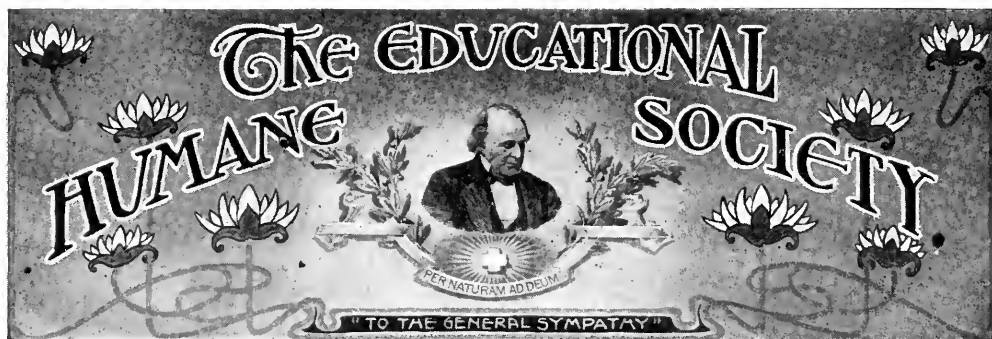


MR. WELLS McMASTER, OF SOUND BEACH, WITH THE YOUNG FOLKS DEMONSTRATING THE REMARKABLE ECHOES NEAR HIS COUNTRY HOME IN CHESHIRE, CONNECTICUT.

are localities in the great hills and mountains where the echo is repeated until it seems to wander miles away across the country. In such places music or a short song gives the best results.

It may pay us to listen to the whistle of the locomotive as the train speeds through the country, since it often causes a pleasing echo. Such is often heard by passengers on the rear of the train. There is an instance recorded in which the echo of a locomotive whistle came so distinctly from a direction opposite to that of the actual sound that a man was misled by it and was killed by the train.

It is interesting to hear cattle or dogs bawling or barking in answer to what



A Chapter of the Agassiz Association. (Incorporated 1892 and 1910.) The Law of Love, Not the Love of Law.

How Animals are Taught Their Tricks.

The training of animals, to teach them to perform all sorts of entertaining tricks, is a task that requires perhaps a special talent on the part of the trainer, but above all demands patience and a thoroughly methodical procedure. Let us begin with the dog, and see how he is taught his tricks. We commence with the simplest, and gradually work up to the most complex and apparently impossible feats.

The first thing every dog must learn is his name. Select a short, sharp-sounding name, and stick to it. Never call him anything else. If you have several dogs, the name is taught on the same principle. Divide their food, and then, placing a piece on the ground, call each in turn by his name, and give him the food when he comes for it. Send the others back if they come forward out of their turn. By and by they will learn that a certain name is always associated with a certain dog. Ramble among the dogs, and call out one of their names every now and then. If the right dog comes to you, reward him with a piece of cracker. Pay no attention to the other dogs. They will learn very soon; and the first great lesson—dependence and obedience—will have been learned.

Having taught a dog to fetch and carry—which he will easily learn—the next thing is to teach him to go and get any object called for. Place a glove on the floor; then say to the dog, "Fetch the glove," putting the accent on the last word. Then, when he has done this several times, place a shoe on the floor; and teach him to fetch this in a similar manner. Now place both objects on the ground, and teach

him to fetch either one, as asked for—rewarding him when he brings you the right one, and rebuking him when he fetches the wrong, which you take from him and replace. He will soon learn to distinguish the articles, when a third may be substituted, and so on until a number are on the floor. You should then go into the next room, taking the dog with you; and send him in to fetch any article you mention. After a little time, he will bring you the right one every time.

Next, teach him differences in color. Place a red object on the floor, and a blue one beside it. Teach him to fetch you the article called for as you did before, being careful to reward him every time he brings you the right handkerchief. Then put down a green object, a purple, a yellow one, and so on; until finally the needed array of colors can be placed for selection.

Next, he should be taught the articles of furniture—table, chair, etc. He must go to each one as you call out its name. Finally, combine some of the previous commands: "Place the glove on the chair"; "Get the handkerchief, and place it on the table," etc. At first this should be said very slowly and only half the command repeated at once; but the halves of the sentence may be gradually blended together, until you can say it as you would to any individual; and the dog will obey your command.

To a certain extent, also, dogs may be taught the letters of the alphabet, the numbers of spots on cards, large dominoes, etc. The method of training them is simply one of constant repetition. Cards bearing the letter or number are placed in front of the dog,

and the letter or number is called out aloud, and at the same time the dog is shown which one it is. After several trials, he will select this one and disregard the others, when it is called for. This once learned, the next letter is taught in like manner, until a large number are recognized by the dog, and he is able to pick out any of them at will. Plants are also to be selected in a similar manner, from a row placed on the table, and so forth.

It must be admitted, however, that most feats of this character, as performed in public, are the result of some trick, rather than any marvelously elaborate training on the part of the dog, which would be necessary if these feats were genuine—granting them to be possible at all. As a matter of fact, most of these apparently marvelous feats are based on a very few cues, given to the dog at the appropriate time, to which he has been taught to respond in a simple manner. A few examples will make this clear.

Many of these feats are performed by means of a cue word, in just the same kind of way as "mind-readers" entertain and puzzle their audience. As soon as this word is given, it may be in the course of a sentence, the dog knows that he is to perform a certain action. It is not necessary for him to understand the whole of the sentence; only one word in it. As soon as that word is caught, the action is performed. Each action corresponds to a certain cue word. Again, there is the method of training by the use of the eyes. The dog watches his master's eyes, and when his master glances in any direction—at a card, for example—the dog can follow his glance, and pick out the card in turn. Or the dog may be told to bark a certain number, in which case the dog watches his master's face closely, and simply barks until the eyes, or some movement, tell him to stop. He does not have to know that he barks nine times. All he has to know is that he must go on barking until he is told to stop by his master's signal; and the trainer is the one who does all the counting.

There are certain stage tricks which depend very largely upon the dog's memory, however—such as picking up a numbered card, and the like. The cards are arranged in a row, and the

trainer stands in front of the row in which the card rests. A string is attached to the dog's neck. First, the dog is trained to go to the row of cards nearest the trainer; then, if he is inclined to pick up one too near, a slight pull on the string is given, pulling the dog up to the required number. The trainer stands at a certain distance from the table in these tricks; if close to the table, the dog knows it means card one; if farther away, card two, and if still further, card three. By care in training, the dog can be taught to pick out any required card, without in any way knowing the number written upon it. When the dog has been taught to pick up any card by means of this code, the trainer may appear to make it far more complicated by causing the dog to add, subtract, multiply, divide, etc. All that is necessary, of course, is that the performer himself should do the sum, mentally note the position of the card giving the answer, and indicate this card to the dog by means of some hidden code.

In the same way, horses can be made to stamp out any desired number, tell the date of a coin, etc., by simply going on pawing the ground until the trainer gives them the signal to stop by means of some secret sign, unnoticed by the audience.—*Scientific American*.

Notes on the Armadillo of Texas. . .

BY DR. R. W. SHUFELDT, C. M. Z. S., WASHINGTON, D. C.

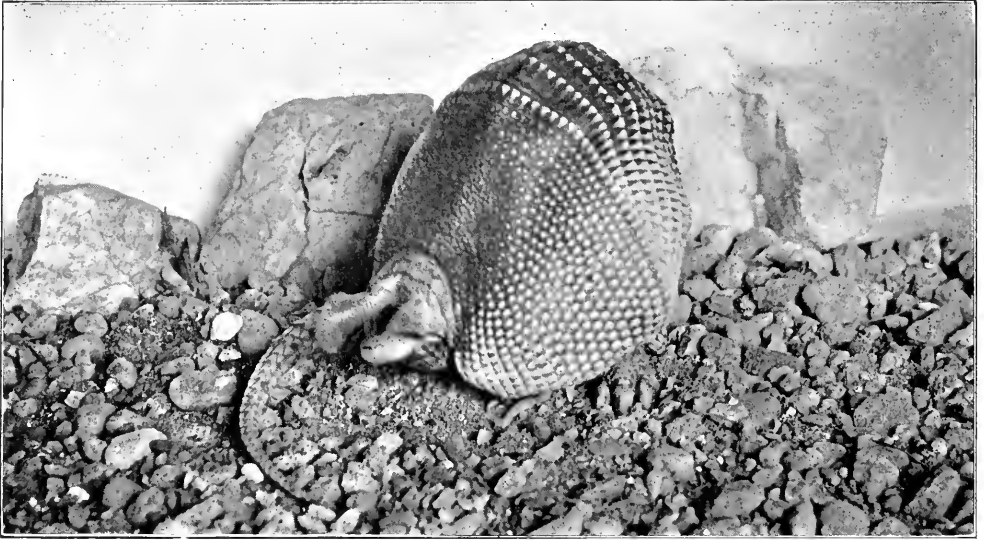
There occur in the American fauna quite a number of different kinds of armadillos, their habitats ranging all the way from southern Texas, down through Mexico, the Central American states and South America. They are all timid, inoffensive animals with very interesting life histories, and they are related to the extinct glyptodons, which, like the living forms, were protected by an osseous coat of mail composed of little confluent scutes formed in the integuments. Most of the glyptodons were large animals, their armor often protecting the entire body, but sometimes only the back where it is known as the carapace. In our own existing armadillos, however, this coat of mail never covers the belly, while above it is divided into three definite sections, an anterior, a posterior and a middle part. This middle part is gen-

erally composed of from three to nine transverse bands, and when these are complete, the armadillo has the power to roll itself up into a ball as a means of protection against its enemies.

Just now I am preparing a contribution on the armadillos, and so will not have much to say here in detail about them. Recently I have made some very successful photographs from life of the nine-banded one, which

graphs, several of 8 x 10 size. Other material was also obtained from this pair later on. They are delicate and do not thrive well in captivity for some reason or other, and so do not live long in that state.

Very few good photographs of living armadillos are in existence so the ones obtained by me from the aforesaid pair are much to be prized. One of these made by a 5 x 8 camera has



TEXAN ARMADILLO ROLLING INTO A BALL.
Photographed from life, by the author.

is found in southern Texas, and preserved their skeletons and coats of mail for future descriptions.

Mr. Edward S. Schmid, who has the animal establishment at 712-12th Street, Washington, D. C., and to whom I have been so frequently indebted for loans and gifts of various kinds of animals, has, on several occasions, had in his collection living specimens of several of the different species of armadillos. Some ten years ago he had a female nine-banded one, which had a litter of young, only a few days old. Something or other prevented me from getting a photograph of this group,—a fact that I have never ceased to regret. Last summer, however, I was more successful, and when he loaned me a pair of three-quarter grown females of the same species, taken in southern Texas, the best was made of the opportunity, and I secured from life a valuable series of photo-

been reproduced, and, as a cut, illustrates the present article.

It shows the animal in the very act of rolling itself up into a ball, a feat I succeeded in having it perform by gently tapping it on the bony plate covering the top of its head with a little rod I held in my hand. It is one of the most interesting things in the world of nature to watch the ease and rapidity with which an armadillo of this species can do this feat. In the figure, the act is all but performed, and it is most interesting to note the position of the feet, the head, and the tail.

From this pair of armadillos I learned a good deal as to their habits, which I never knew before, especially as to the manner of their feeding, their peculiar traits and behavior, and the wonderful strength they possess.

There is no Sanitorium to compare with the great out-of-doors.

Birds or Cats?—Which?

The present discussion by various magazines and newspapers of the common cat as the greatest enemy of our birds, is timely and necessary, as the matter is growing more and more serious. "Forest and Stream" makes a plea against the cat in behalf of the common game birds, especially those in parks and says:

"These birds nest, lay and hatch each year, but then what happens? The common or garden cat comes along and takes its toll from among the progeny as well as the progenitors. The result is that instead of thousands of game birds in this great park, we have thousands of cats and few game birds. Park Commissioner Higgins, than whom there is no more conscientious and active commissioner, knows little about conservation of game birds, consequently a great opportunity is lost. A law should be passed by all city governments, and if city governments will not take care of it, the Conservation Commission should take it in charge, forbidding all residents on park property from owning or housing cats. City authorities should order all cats in city parks destroyed. If this is not done, all un-housed game birds in city parks soon will be wiped out. Why not a bounty on the scalp of the ex-house cat? When it was a house cat it had a mission; now that it has ceased to be a house cat, it should have a dismissal."

The simple question is, Should cats have privileges not permitted to men and boys? It is strictly against the law to go gunning for birds, yet here in Sound Beach I have positive evidence that cats kill more birds than would several boys or men with their guns. The gunner would here and there shoot a bird in the tree tops, but the cats make wholesale destruction of the young birds in the nest. This spring there were several nests of red-shouldered blackbirds in the marsh near by. The dry season evaporated the water so that these nests were easily accessible, and it is my belief not one young red-shouldered blackbird has been permitted to live. The same is true of some other birds. There should at least be a law against ownerless cats and providing that the wardens of the Fish and Game Commission may shoot them or otherwise dispose of them. The cats can

hardly be blamed for capturing young birds, as they must at times, take the birds or starve. Then too, it should be provided in the law that cats shall not be permitted to roam at will, especially in the months of May, June and July. It is a remarkable fact, in view of all the laws and efforts for the protection of birds in all parts of the United States, that there has been absolutely nothing done to prevent this great slaughter by cats.

Why should there be an exception in favor of this four-footed animal any more than of oxen, cows or horses? They are not permitted to roam at will over everybody's property. Horses or cows left to go at will over a neighbor's lawn or garden, would not cause a greater financial loss than cats cause when left to roam at will over his chicken yard. This is said in kindness and good will toward one of the best household pets. We should not condemn the starving cat for seeking food, but should preferably change the lax methods of caring for the cat. The time is coming when this difficulty must be adjusted. Summer dwellers at seaside resorts take their cats, and leave them at the end of the season. With the cat it is either to prowl and hunt and become half wild, or to die of starvation. Consequently the birds suffer, the cats suffer and are condemned, while the guilty summer-visitor, thoughtless, careless and greatly to blame, goes free. Is there no occasion for a change here? And is there no occasion here for a little missionary work?

The Cat and Birds.

Oradell, New Jersey.

To the Editor:

The cat is not such a monster as he is reputed to be by his enemies. Do you know—indeed you must—that cats brought up from kittenhood with birds are harmless as far as birds are concerned, and that the cat bred for a pet is not as a rule a hunter? We never even guarantee any of our cats to be mousers, unless they have been farm-raised cats accustomed to hunt, though again, any cat may be trained to it as was my own at the age of three years when necessity compelled it, as the rats and mice were getting ahead of us and I do not believe in poison or traps if it is possible to avoid them—the natural

enemy always seems to me, so much less cruel than our human devices. Since his hunting instinct has been developed, I notice he has an eye on the birds, but I also notice he is very bungling and so rarely catches one that the birds do not hesitate to come and nest in my yard and they raise their families in practically absolute safety. And yet my cat is as lithe and active and clever as a cat can very well be.

Please forgive my harping back to this subject again but I love the birds and the animals. I notice those that come under my observation with wonder and delight, and am convinced that wanton cruelty or killing for the love of killing is either abnormal to them or else acquired by training from their human associates.

There—am I quite and absolutely unfair? To those who think so I can only contend that they do not know animals as I do, have never watched them with the same amount of sympathy, nor allowed them to show themselves in all their native innocence and beauty of character.

Sincerely yours,

JANE R. CATHCART.

Are Outdoor Interests Exclusively Killing?

By coincidence several magazines devoted to outdoor life accumulated on my reading table so that one evening recently I examined several in succession. In them was brought to my eyes a broadside of shotguns, rifles and pistols. After reading those magazines I felt as if I had been in the armory or into a museum filled with all kinds of apparatus for "playing" and killing fish and shooting four-footed animals. There were rifles and shotguns, rods and nets and barbed instruments and fictitious flies without end, but strange to say I looked in vain for one advertisement of a field glass, a camera, a telescope or a pocket microscope. Can it be possible that the great majority of men, and a liberal number of women too, are more interested in killing than in seeing and thinking? Now I am not saying that it is wrong to go fishing for the good reason that it is not. I am not sure but it is permissible to use a rifle or a shotgun at times on certain conditions.

Only occasionally do I have a desire to use firearms and that is when I see a horde of cats in Sound Beach carrying off young birds from the nest, and occasionally one of the parents. But even in that my first impressions may be wrong, because the cat is acting according to its nature and its instinct, and probably that should not inspire me with a desire to kill the cat because it is killing something else. What I hope to see is an intelligent interest in nature eradicate as much as possible our inherited savage instincts, through which we find pleasure in torturing the "playing" fish or in filling a game bag. I do not like to say that these are wrong because I know many kind-hearted men and women who indulge themselves in that kind of relation to the outdoor world, but I do affirm that it is not right for these magazines to make so much of our outdoor life, under a variety of titles, center in a "slaughter of the innocents."

Coyote Pets.

Mulino, Oregon.

To the Editor:

While living in South Dakota I had the good fortune to secure at different times a number of baby coyotes or prairie wolves. Although not abundant in our locality, they were occasionally brought in alive, to show the "town folks" and get the bounty of a dollar or so per head, and by watching my chance I now and then picked up one or two before they were destroyed.

Some of the puppies were so small that they had to be fed milk with a spoon, and, when they grew larger, ate bread and milk with great relish.

But as they grew they developed that crafty expression so common to the wolves and foxes. It was sometimes concealed under a look of innocence but was nevertheless there. I remember of watching one of my pets, then about three months old, lying with chain slack, in the tall weeds outside his kennel door. A half grown chicken was picking up the crumbs too small for a coyote to notice, but neither did the coyote notice the chicken. Nearer it came, but the pup was looking in another direction, and the foolish bird, becoming bolder, crossed well over the dead line. Sud-

denly there was a rush forward, a scurry back into the kennel, and an hour later a few feathers told the tragedy.

With careful handling coyotes may be well tamed, but it must commence when they are very young. The one

blance which, to my mind, undoubtedly exists, and this is equally true of other races of men and breeds of dogs. I have not the slightest doubt that you have absolutely touched the right note in saying that mankind stands to the animal world as the representatives of



TICTO, A STUDY.

DINGO, THE LITTLE INNOCENT.

shown in the large photograph was owned by a friend, and was a model pet. One sad day its instinct got the better of its training, and escaping from the pen it raided the neighbor's chickens. Beneath that shell of peacefulness an eruption had taken place, and a rifle ball ended the life of one of the nicest pets that I have ever seen.

Some of my favorite coyote names were Dingo, Tobo, Blanca, Ticto, Romulus, Remus and Nero.

ALEX WALKER.

Dogs and Their Gods.

I have noticed that dogs and cats (the latter to a somewhat lesser degree) are particularly susceptible to the emotional influence of those with whom they are in contact and that in this way, certain breeds of dogs have acquired not only a sort of national (or local) "character" but actually a certain resemblance to the general type of the inhabitants of the country they live in. Have you *e. g.*, studied the expression of —(a) an Aberdeen terrier, and (b) the typical Highland crofter? I feel fairly certain that if you have, you will have been struck with the resem-

their God.—LEON L. HYMANS. [I do not think that I have ever noticed any general facial resemblance between the dogs and the men of any country; but I have often thought that when a dog and a human being have lived in close companionship for a long time the dog does come to resemble its master in the expression of its face, as in character.—E. K. R.]—*London Country Side*.

What a lesson for human beings, if a dog in its devoted companionship comes to resemble and partake of the characteristic of its Superior Being!

Enjoyed a Day at Arcadia.

I want to tell you that my visit to Arcadia was the most pleasant visit I ever made to any place. I was very much surprised in the privilege extended to me in the way of examining photographs and specimens, and especially in using the instruments. I found your buildings, library and equipment good and in perfect order. I wish you every success.

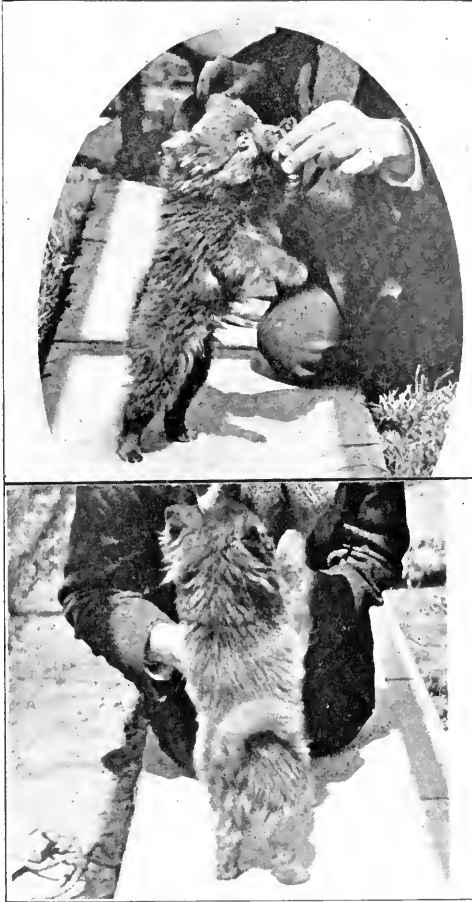
JOHN VOLLMER,
Ashland, Pennsylvania.

A Pomeranian Resembling a Teddy Bear.

Cincinnati, Ohio.

To the Editor:

Enclosed please find another picture of my "little Teddy bear," when he was three months old. In this picture he is depicted pulling a cap off my



ATTRACTIVE ANTICS OF THE POMERANIAN.

brother's head, one of his greatest sources of amusement (and ours as well, at that time).

He was born on January 5th, 1911 at the Glenkirk Kennels, located at "Waldheim," Hollidaysburg, Penn. and arrived here three months later, viz. April 5th, a shaggy brown or beaver-colored fluff of dejected and homesick Teddy bearism. The box in which he was sent was partially covered and partially slatted giving him air and light. In the box were some straw and a drinking cup. Attached to the outside was a label which read as

follows:—"Mr. Expressman, I am a wee bit of a puppy: Please be kind to me; give me water to drink, and food is in the sack." Securely fastened to the outside of the box was a cloth bag, or sack, with food. Imagine our surprise when on opening the box, instead of a puppy, out comes what seemed an actual living Teddy bear. The little fellow was an exact duplicate of a small brown Teddy bear, as to color, size, shape, tail, ears, mouth, and all. He weighed but 3 lbs and 2 oz. Innumerable people have been deceived by his appearance, thinking him to be a real bear cub. Inquiries without number have come to us as to his habits, food, behaviour, etc., etc. As to the latter would state that he is the most adorable little fellow we have ever had. His keenness of preception is wonderful, and his sense of right and wrong is marvelous. Never have I seen a creature so sensitive to the least harshness in speech; a harsh word is all the punishment he needs for any correction.

As he has grown, his baby coat, which was so shaggy and bear-like, is gradually being replaced by that long silky hair which makes the Pomeranians such beautiful dogs. His energy is untiring—ever ready to play and romp, and have a good time.

Since January 12th, his fame as a wonderful dog has increased very materially, for on that day the Pomperanian Club of America had its annual show at the Waldorf-Astoria. There were over 320 entries, dogs from abroad as well as this country and Canada, some of them valued at hundreds of dollars, one being listed at \$1,000. The sire of my little fellow took first prize in both his classes, and was reserve winner to "Offley New Marco" the \$1,000 Pomeranian mentioned. This was the greatest competition in Pomperanians ever known in this country. Besides this he won other prizes. In December at a dog show in Pittsburg, the Glenkirk Kennels won nine first prizes, three silver cups, and fourteen ribbons. Needless to say we are justly proud of our little "Glenkirk Brownie." For brevity we call him "Glen." His pedigree is enormous, it being recorded for five generations. It may be of interest to note that his nose and eyes are the same

color as his coat. With kindest regards and best wishes,

Very truly yours,
G. A. HINXEN.

A Bat Fed Her Captured Young.
Elgin, Illinois.

To the Editor:

Attracted by the peculiar antics of a robin, I was led to the discovery of two bats which lay, partly concealed, in

Firefly Hunting in Japan.

In Japan fireflies are an adjunct to all grades of social festivity from the private garden parties of nobles to an evening at a cheap tea garden. Sometimes they are kept caged, sometimes released in swarms in the presence of guests. To supply this demand there are a number of firms in Japan employing men to catch the fireflies. At sunset the firefly hunter starts forth with



THE YOUNG BATS.

the grass under a maple tree from which they had probably fallen. Two square ash sieves, placed one in the other, served as a cage. Here the bats spent the rest of the day. The following morning I went to see how they had fared during the night, when I discovered that another bat had joined them and was clinging to the outside of the sieve.

This new arrival proved to be the mother. She had found her two young ones in this unusual place, and was nursing them when discovered. At the approach of dusk she flew away, and did not return.

For several days I attempted to keep the young bats alive by feeding them with milk from a teaspoon. My attempts were in vain. Within a few days they died.

CARL F. GRONEMANN.

a long bamboo pole and a bag of mosquito netting. On reaching a suitable growth of willows near water, he makes ready his net and strikes the branches twinkling with the insects with his pole. This jars them to the ground, where they are easily gathered up. But this must be done very rapidly, before they recover themselves enough to fly. So the skilled catcher, sparing no time to put them at once into the bag, uses both hands to pick them up and tosses them lightly into his apron where he holds them unharmed till he can hold no more, and only then does he transfer them to the bag. His work lasts till about two o'clock in the morning, when the insects leave the trees for the dewy soil. He then changes his method. He brushes the surface of the ground with a light broom to start the insects into light; then he

gathers them as before. An expert has been known to gather three thousand in one night. Besides being a business, firefly catching is a sport in Japan. Little girls pursue the insects with their fans, boys with wands to which a wisp of yarn is fastened, and they sing an old folk rhyme as they follow the glistening insects. Nor do their elders disdain to join in the sport. They organize festival parties to visit certain spots, long known and famous, to witness the beautiful spectacle of the fireflies swarming.—*The Oriental Review*.

—————
Painted Turtle's Visit to a Garden.
 Stockbridge, Mass.

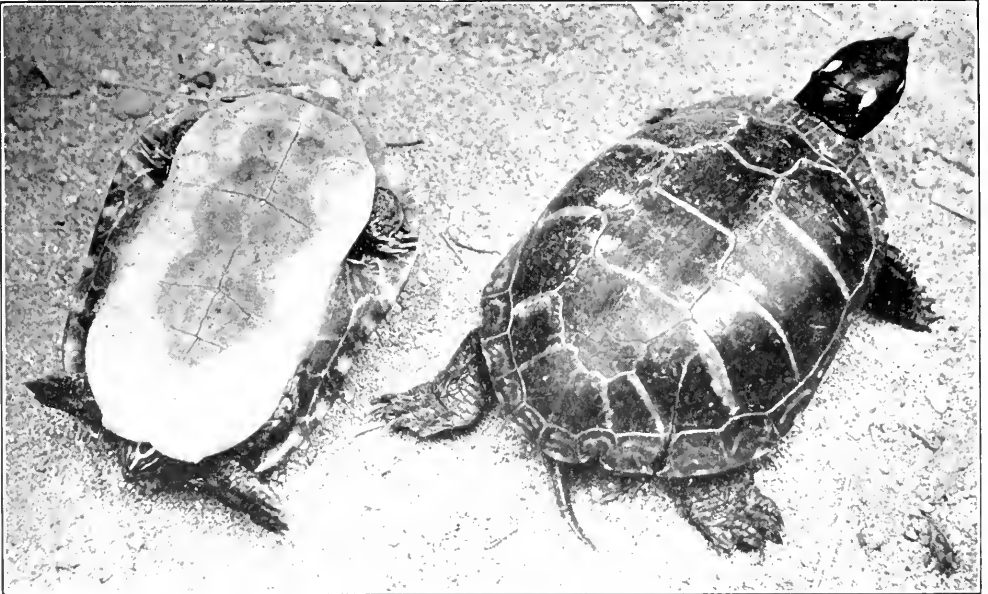
To the Editor:

I think I wrote you last year of the painted turtle which every year comes

The Dog Cemetery at Hornell, New York.

BY F. E. BRONSON, HORNELL, NEW YORK.

Paris has a cemetery for dogs. There is one in London. There is also one in Hornell, western New York. The cemetery for dogs at Hornell is to be found in a delightful grove situated near the city. It is a tribute to the affection in which the dog is held by one of its citizens, Mr. Frank L. Myers. Some years ago Mr. Myers lost a favorite dog, and, not wishing to dispose of the body in the usual way, he bought a fine ten-acre grove near the city and there established this cemetery for pets. Mr. Myers has not limited the cemetery to the burial of his own dog, but anybody may have the privilege of burying his pet animal and of erecting a suitable stone with its name and the



THE PAINTED TURTLE, SHOWING LOWER AND UPPER SHELL.
 Photograph by Raymond L. Ditmars, New York City.

to the garden, at strawberry-time, and stays till after the currants are gone. He came this year again, and has been here at least fourteen times, and perhaps longer, though I believe 1900 is the earliest date on his shell. Last year he came back to the garden when he had been carried away and thrown into the river, at least an eighth of a mile off, and he accomplished this walk in about two hours.

Yours truly,
 VIRGINIA BUTLER.

name of the owner. The grounds have been extensively worked to beautify the spot. Drives and walks were laid out and seats were placed in convenient spots for the use of visitors. One of the many graves is that of Swaler, who lost his life in responding to a call of the fire department when he was the department's mascot. As you enter the grove and near the graves of Mr. Myers's dogs is a large tablet on which is inscribed the Eulogy on the Dog, one of the famous speeches of the late



THE DOG CEMETERY AT HORNELL, NEW YORK.

Senator Vest of Missouri. Senator Vest represented a plaintiff whose dog had been wantonly shot by a neighbor, and the jury after two minutes' deliberation awarded him \$500., damages. The Eulogy is as follows:

"Gentlemen of the jury—The best friend a man has in this world may turn against him and become his enemy. His son and daughter that he has reared with loving care may prove ungrateful. Those who are nearest and dearest to us, those whom we trust with our happiness and our good name may become traitors to their faith. The money that a man has he may lose. It flies away from him, perhaps when he needs it most. A man's reputation may be sacrificed in a moment of ill-considered action. The people who are prone to fall on their knees to do us honor when success is with us may be the first to throw the stone of malice when failure settles its cloud upon our heads. The one absolutely unselfish friend that man can have in this selfish world, the one that never deserts him, the one that never proves ungrateful or treacherous, is his dog. A man's dog stands by him in prosperity and in poverty, in health and in sickness. He will sleep on the cold ground where the wintry winds blow and the snow drives fiercely if only he may be near the master's side. He will kiss the hand that has no food, to offer, he will lick the wounds and sores that come in encounter with the roughness of the world. He guards

the sleep of his pauper master as if he were a prince. When all other friends desert he remains. When riches take wings and reputation falls to pieces, he is constant in his love as the sun is in its journey through the heavens. If fortune drives the master forth as an outcast in the world, friendless and homeless, the faithful dog asks no higher privilege than that of accompanying him to guard against danger, to fight his enemies; and, when the last scene of all comes, and death takes the master to its embrace and his body is laid away in the cold ground, no matter if all other friends pursue their way, there by his graveside will the noble dog be found, his head between his paws, his eyes sad but open in alert watchfulness, faithful and true even to death."

What Ignorance.

The first lesson was to be one in natural history, and the teacher had chosen the interesting but complex subject of a cat.

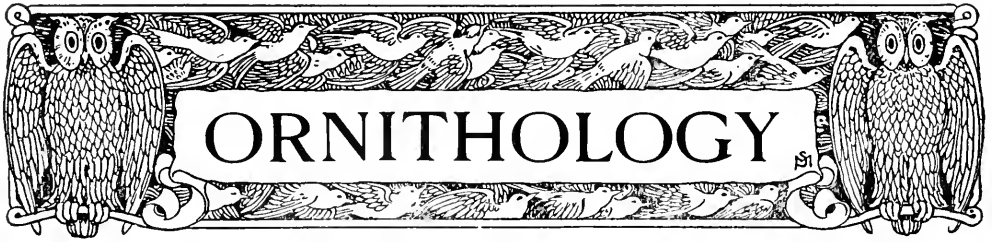
"Now, children," she said, "tell me what sort of clothes pussy wears."

No reply.

"Come, come!" said the new teacher, determined to extract the right answer by naming everything that pussy didn't wear. "Does she wear feathers?"

A pained expression crossed the face of a little boy in the front row.

"Please ma'am," he asked pityingly, "ain't you never seen a cat?"—Ed.



**The Problem of the Hawk and the Owl
Are Hawks and Owls Good or Bad?
To Shoot or not to Shoot.**

BY HERBERT K. JOB, STATE ORNITHOLOGIST,
WEST HAVEN, CONNECTICUT.

Most hawks and owls will at least occasionally destroy a chicken or a useful bird. Some kinds do this habitually; others prefer a different diet and commit depredations only under force of circumstances. While it would not be desirable to have birds of prey really abundant, on the whole they have a useful function to perform, in the keeping down of noxious vermin? To have them entirely exterminated would be a calamity.

Take, for instance, the great horned owl, classed as one of the most destructive species. It certainly kills game birds and poultry to some extent. But I have often examined the nests to which it brings its prey. In the majority of cases I have found there rabbits, skunks, woodchucks, squirrels, rats, snakes, but birds only occasionally. It feeds mainly on vermin, but if there were too many owls there would not be vermin enough to go round, and the owls would invade the poultry yard. They are magnificent great creatures, and I love to hear them hooting in the twilight in the rugged hill country and the big timber. Much the same is true of the barred owl.

We have only two kinds of hawks that are a serious menace, the Cooper's and the sharp-shinned hawks. Their principal diet is birds and poultry, and it is proper to shoot them at sight. There is no danger of exterminating them.

The other hawks and owls are like most people, neither notable saints nor very great sinners. Some of them, like the so-called hen hawks—the red-tailed and red-shouldered hawks, sometimes bother the game birds, though they usually confine their attention to vermin and insects, being rather heavy,

sluggish birds, and taking what comes easy.

"Good" birds will sometimes fall from grace. I know of a screech owl that killed a Hungarian partridge through the wire of a pen. I have even heard of one that killed a large hen. It was winter, and probably they were desperate from hunger. Ordinarily they are splendid mousers and ratters. The marsh hawk that quarters over the meadows, the retiring broad winged hawk of forest tracts, the little sparrow hawk with reddish back that hovers over the field for mice and grass-hoppers, are birds of this same category. Those who shoot them all indiscriminately only reveal their lack of observation.

In the western grain-raising country, the hawks and owls keep down the gophers, the farmer's worst pest. In some localities in which bounties have been offered for hawks and owls, it is said that rodents have so increased that they girdle the fruit trees and seriously ravage the crops.

My plea, in short, is to discriminate. Keep down only the really injurious species. Kill individuals of other kinds that commit depredations. Consider that many of our raptorial birds lead quiet and mostly harmless lives, holding down the flood of vermin that would overwhelm us.

A Bull Snake Eating Pintail Eggs.

BY ROBERT B. ROCKWELL, DENVER,
COLORADO.

The bull snake is a large snake of terrifying appearance, and although he makes an awe inspiring demonstration when disturbed, he is little more than a bluffer, as he is entirely harmless.

Yet his big body must have nourishment, and as he is only an ordinary hunter, he selects the easiest prey. He therefore likes nothing better than to find a nest full of bird's eggs upon which to gorge himself. On this ac-

count he is the constant dread of those birds which nest in marshes where he lives. If you will investigate the next noisy demonstration among the nesting blackbirds, you will probably find that a well-fed bull snake and an empty nest are the cause of the excitement.

The accompanying picture is the result of a fortunate accident. In a low

a time. They built every day in a corner of our piazza near the roof, on a little ledge which was hardly large enough to contain a chipping sparrow's nest. The consequence was that we found each morning a heap of hay and rubbish on the floor of the piazza; this went on for at least two weeks. At last my sister had some sticks put



TWO PHOTOGRAPHIC STUDIES OF THE BULL SNAKE EATING PINTAIL EGGS.

marshy meadow near a large lake, I one day found a nest containing nine eggs of the pintail duck. The mother duck was very tame, and several attempts were made to photograph her, some of which were nearly successful. About a week after the nest was first seen, the mother bird was still brooding, but four of the nine eggs had disappeared. The next day the nest was found to be occupied by a bull snake almost four feet long, which had just swallowed one of the remaining eggs. It took the snake some time to force the egg, which was somewhat wider than his own body, down his throat, and after having forced it down for about three inches, the snake almost instantly disgorged it when he was touched with a stick. A fortunate exposure caught the egg just as it was leaving the snake's mouth.

Birds are not Always "Wise."

Stockbridge, Massachusetts.

To the Editor:

I wonder if you will be interested in the idiotic conduct of a pair of robins here; that is I presume there are a pair, though I never saw but one at

across the corner, and the hay collected, and put back thereon, since which time the female is apparently incubating, though she is very timid and flies off the nest almost every time we go out on the piazza, although the nest is fully ten feet above our heads in a dark corner. I have been wondering if there were such things as "high-class defectives" among birds.

Yours truly,

VIRGINIA BUTLER.

The Right Methods of Bird Study.

New Haven, Conn.

To the Editor:

The following may be of interest to the readers of *THE GUIDE TO NATURE* as a bit of birdlife in and about New Haven, Connecticut. It was read before our Monday evening Nature Club, at New Haven, which will explain its local references.

In ten minutes I am to tell where to find the warblers about New Haven, and I invite you to take a favorite walk with me, through Edgewood Park and Mix's Wood.

Sometimes, it takes ten minutes to

get a good look at a warbler, or enough, at least, to identify it; and, again, we may see a half dozen different ones at close range.

Equipped with field glasses, a little bit of uncertainty, a big lot of hope, for something not seen before, and a fair amount of patience, we will first enter Edgewood Park from Chapel Street, and take the lower path. Along the bank, in shrubs, or trees, we may see the brown thrasher, the white-throated sparrow, and perhaps some other sparrows, but not many warblers.

As we come to the "Willow Path" near Edgewood Avenue, we may hear the familiar notes of warblers, and if we are fortunate in timing our walk at the hour when the small boys and girls are in school, or some other happy place, we may spend a good hour in this secluded corner and watch the black and white, the black-throated green, the black-throated blue, the yellow warbler and the vireos.

Then, again, we may go there and plainly hear the tantalizing calls from all sides, seemly, and not get a good look at *one* bird. *It all depends!* In such cases, we desperately climb the sandy bank, and go on to Mix's Wood.

Here, too, we will take the lower path, and are almost sure to see, all along by the water, the Maryland yellow-throat, with its distinguishing black cheeks. We usually look for these pretty little birds in the low places, near the water; although I have seen them in a high part of this wood, and perched in a fairly good sized tree, singing just as happily as ever.

On the left hand, somewhere on the bank, I once saw the hooded warbler; therefore I always look that way, *hoping* to get a second chance at one.

As we come out into the open part, up in the shrubs and low bushes at the left, which are slightly protected by the bank, we are quite apt to see the blue-winged, and the parula; also the Canadian warbler, with its pretty black-beaded necklace.

About two weeks ago we wandered through this path one cold, windy, gray day, and not a sign of bird life appeared. Just as we were leaving, in despair, the trees and shrubs near us suddenly seemed to be *full* of life, and we were surprised to greet the black

and white, the myrtle, and the yellow palm; evidently their first arrival. Almost at the same time, two or three boys and a dog came from the swamp near-by, and our birds vanished up the hill. Of course, we followed, and on the upper path, we were rewarded by being surrounded by these same three warblers, in quite large flocks.

On this upper path, we also may see the chestnut-sided the Blackburnian, the bay-breasted, and the redstarts; but the redstarts are almost everywhere.

Who that has ever looked for the oven bird could tell *where* he is? We hear the impertinent, "Teacher, Teacher, Teacher," and *look* —up in the trees, down on the ground, around, and about, and everywhere; perhaps we see him, and perhaps we don't; but quite near, again we hear, "Teacher, Teacher, Teacher;" and we *know* he is there—*somewhere!*

Now, we will go on out into the open part, and on the "Oak Path" overlooking the lower path, with its circular patch of green grass bordered by the trees and shrubs, the open marsh beyond, and then the Edgewood bank, showing the many beautiful colors of the oak, maple, beech, hemlock and willow, we pause and rest, listening, perhaps, to the song of the brown thrasher perched on the very topmost bough of a near-by tree. Then the call of the grosbeaks attract our attention, or the sight of the scarlet tanager, until we hear the familiar notes of the warblers. Then we may see in the oak trees, the myrtle, the magnolia, the black-throated green, the blackpoll and perhaps others.

Warblers are active and restless little birds, and we may see all these on our walk, or may see only a *very few*, if any.

We could go on to Mitchell's Hill and perhaps see the myrtle, the yellow palm, the black and white, the blue-winged and others also. Then we could go out to the Wopawaug River, and it is possible to see and hear the black-throated green, the black-throated blue, and have them flying in large numbers so close that you could almost put a hand on one; but these places are farther away and we content ourselves with the old familiar walk, at Edgewood and Mix's Wood.

(Miss) M. M. WEED.



THE HEAVENS IN SEPTEMBER

The Heavens in September.

BY PROF. ERIC DOOLITTLE OF THE UNIVERSITY OF PENNSYLVANIA.

As the summer draws to its close we again witness the gradual but steady transformation of the face of the heavens into the autumn and early winter sky. The characteristic

way to the zenith in the east, and again we welcome the royal star, Fomalhaut, which this month reappears to pursue its short course across the southern heavens after an absence of nearly a year.

THE SEPTEMBER STARS.

If the observer will face toward the

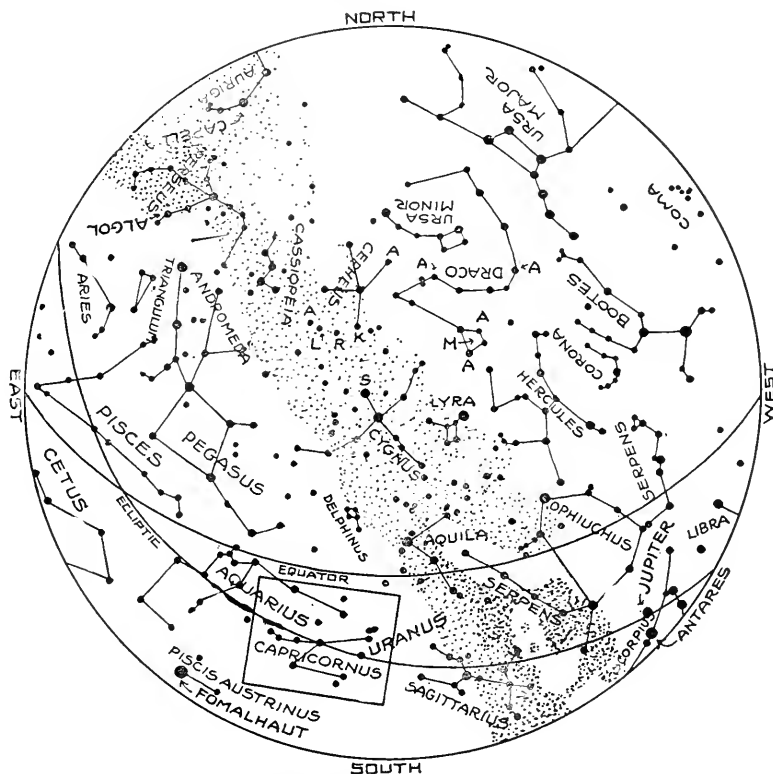


Figure 1.—The Constellations at 9 P. M., September 1. (If facing south, hold the map upright; if facing east, hold "east" below; if facing west, hold "west" below; if facing north, hold the map inverted.)

summer group of the Scorpion has half disappeared in the southwest; the great constellation of the Virgin has wholly gone, while the Balances, the Serpent and the brilliant, golden Arcturus have sunk nearly to the western horizon. Meanwhile the beautiful groups of Andromeda and Pegasus have already climbed half

north on any clear, moonless evening of September, he will readily find the Great Dipper, now lying in a nearly upright position, slightly above the ground, while above this he may with somewhat more difficulty trace out the inverted and far fainter Little Dipper. Between the two groups there lie the coils of the Dragon, which entire

figure can now be easily traced out from the extreme tip of the tail below the North Star to the striking quadrangle of stars at M, Figure 1, which mark its head. All of its stars marked A in Figure 1 are easily seen double in a small telescope, and some of them are very beautiful objects. The highest star of all, at the upper end of the group marking the head, is a celebrated star, which 4000 years ago was nearer the pole of the heavens than any other. Many early temples were dedicated to it, and it was worshiped in the Boeotian Thebes—the City of the Dragon.

September 15 at 1 hour 3 minutes, A. M.; on September 17 at 10 hours 20 minutes P. M., and on September 20 at 7 hours 9 minutes, P. M. (Eastern Standard time).

Above Perseus there is the well-known Cassiopeia, between which and the Dragon there is the rather faint but most interesting group known as Cepheus. At this time of the year the observer will have but little difficulty in tracing out this constellation, which includes nearly all of the stars along the Milky Way lying between Cassiopeia and the Northern Cross. With

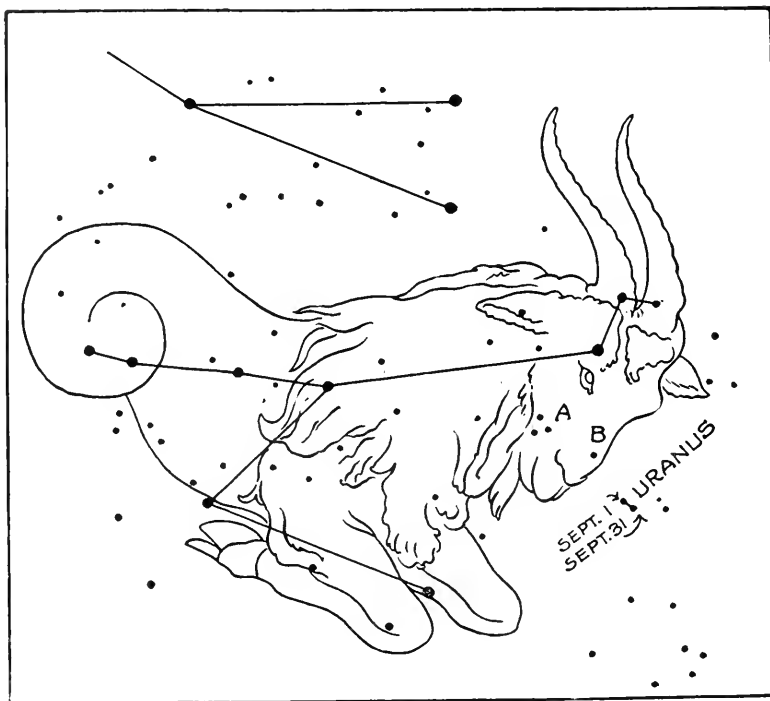


Figure 2.—The square Figure 1 enlarged to show the position of Uranus.

The remarkable modern discovery of the aberration of light was made from observations on this star.

On the opposite side of the pole from the Dragon there will be seen the brilliant yellow solar star Capella which now lies almost on the horizon. Above this stands Perseus, the rescuer of Andromeda, whose place is marked by an irregular group of bright stars, one of which is the wonderful demon star, Algol, five-sixths of whose light is periodically cut off by the passage of a darker star between Algol and us. This star may be seen to have reached its greatest faintness this month on

a small telescope he will find that each of the stars marked A is an interesting double, while at the point R, nearly midway between the stars L and K, but a little above them, there is a remarkable red and variable star. This is sometimes of so deep a red as to be the reddest bright star of the northern heavens; at other times it is orange merely. Its color is best studied by comparing it with the nearby white star at K. Its brightness also varies irregularly, so that sometimes it emits more than twice as much light as at others.

It is interesting to note that were

we on the planet Mars the North Pole of our heavens would lie nearly midway between the star K and the beautiful white star of the Northern Cross at S. The former of these will be our own Pole Star when 56 centuries have passed away.

THE PLANETS.

The observer has doubtless noticed how rapidly the very brilliant planet Jupiter has been sinking in the west. In a very few weeks this beautiful world, which has for so long a time poured out its steady, golden radiance in the south, will have left us for another year, although it will not actually enter the morning sky until next December. But just as Jupiter leaves our evening sky the most interesting ringed planet Saturn will enter it, and meanwhile the brilliant Venus is steadily withdrawing from the sun's rays in the west, so that throughout the entire winter we will have these two most interesting objects with us.

Mercury is now a morning star. On September 7 it reaches its greatest distance west of the sun and may then be seen rising in the northeast, about one and one-half hours before sunrise.

Venus sets almost at the west point of the horizon, about 50 minutes after sunset on September 1, which time is increased to about 1 hour 12 minutes by the end of the month. It is steadily drawing eastward from out the sun's rays, but, unfortunately, it is also moving southward over the sky so that throughout the entire month it can only be detected for a short while after sunset as it shines out near the horizon in the sunset glow. When once found it is seen very easily, however, as it is three times brighter than the planet Jupiter.

Mars is rapidly approaching its greatest distance from the earth and is hence only as bright as a second magnitude star. It may still be detected shining out near the ground, almost due west, for about one hour after sunset. On the night of September 8 the more rapidly moving Venus passes to the east of Mars and the two planets may then be seen near together in the western sky, Venus being north of Mars and at a distance away from it a

little less than the apparent distance across the face of the full moon.

This is the last month of the year when the interesting Jupiter may still be well studied. It is very low in the southwest, just above the bright star Antares; when the change of the seasons has again brought this planet into our evening sky we will see that it has moved into Sagittarius, nearly across the Milky Way.

At about 20 minutes past 9 o'clock on September 1 the observer may see the beautiful Pleiades just rising in the

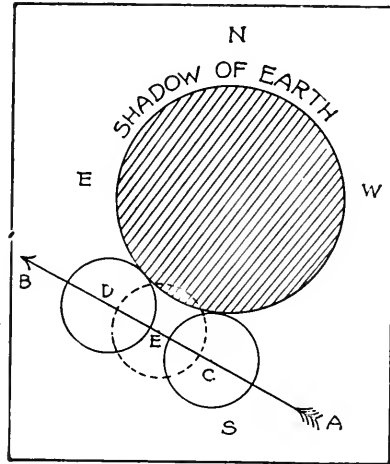


Figure 3.—The passage of the moon through the earth's shadow the early morning of September 26.

northeast, and an hour later the group of the Hyades will also emerge from the ground. The planet Saturn will at once attract attention in this part of the sky as it shines out half way between these two groups with more than twice the brightness of a first magnitude star. By the end of the month the planet will be well above the ground at 9 o'clock in the evening, and from this time on throughout the winter will be a most interesting feature of our evening sky.

As the planet Uranus is now well out of the Milky Way and in excellent position for observation in a small telescope, a map is added to help in its location.

THE PARTIAL ECLIPSE OF THE MOON.

On the morning of September 26 the full moon will pass a very little way into the earth's shadow and a part of its light will be cut off.

THE CAMERA

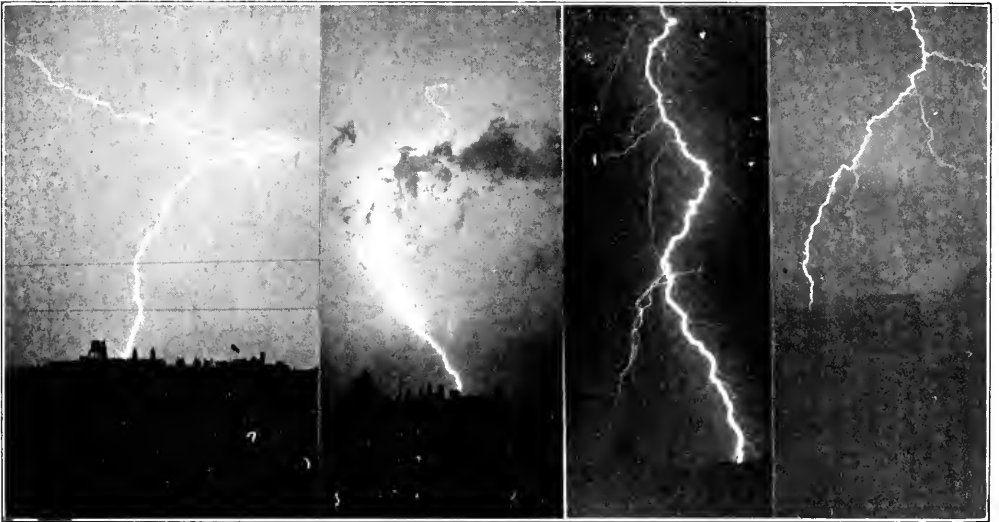


The Photography of Lightning.

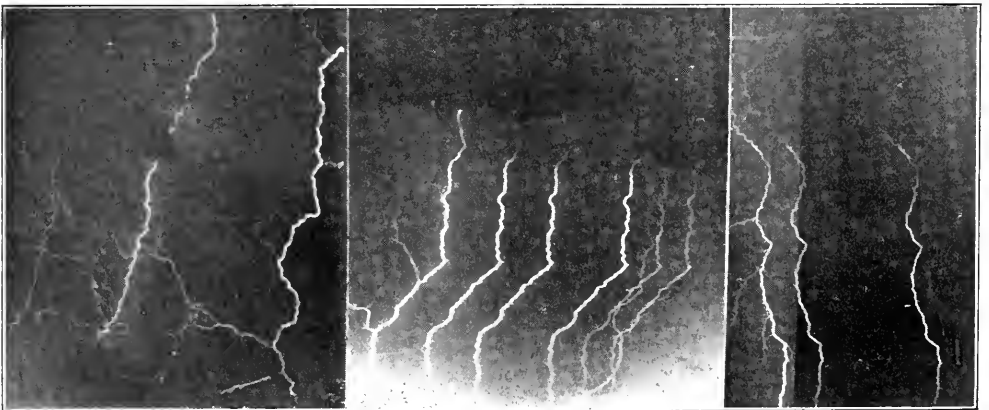
BY ALEX LARSEN, CHICAGO, ILLINOIS

The usual method employed to photograph lightning is to place an ordin-

ary camera, with the shutter open, in a stationary position that is sheltered from rain and storm, and that faces toward the direction in which the



FOUR VERTICAL FLASHES TAKEN WITH THE CAMERA STATIONARY.



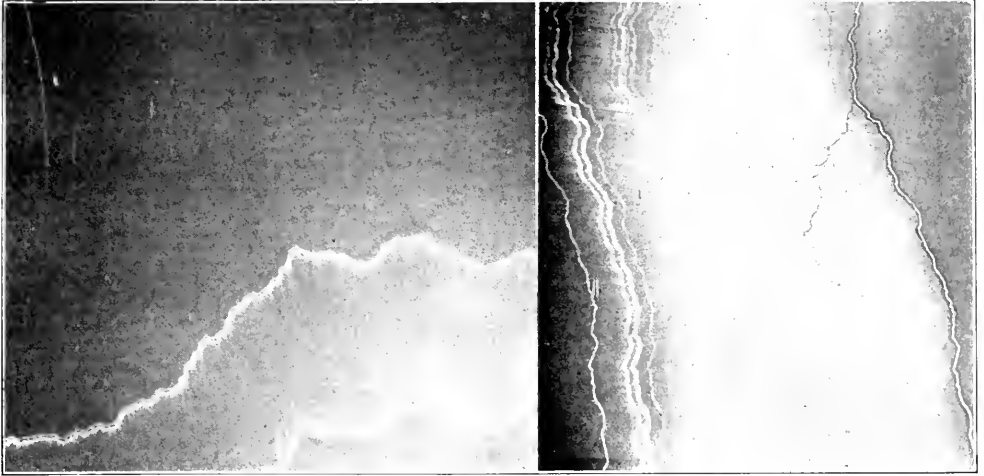
NO. 1

NO. 2.

NO. 3.

No. 1 shows two separate flashes, one composed of only one discharge, and the other of one discharge reaching the ground and others reaching only part way.

Nos. 2 and 3 are typical of how vertical flashes appear on the plate when the camera is moved during exposure.



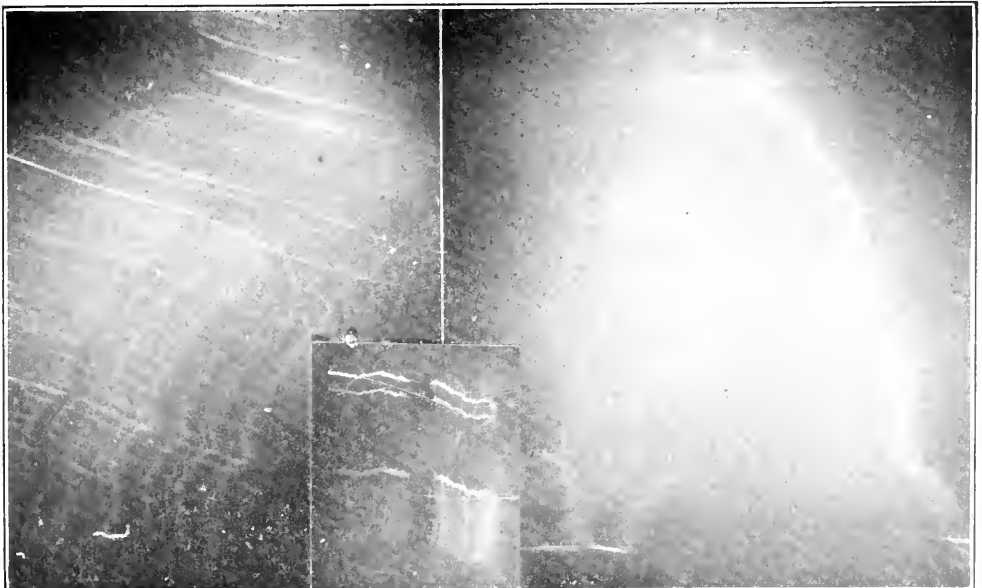
NO. 1

NO. 2

No. 1 is a vertical flash. The cut shows the top at the left side. No. 2 shows a flash composed of forty separate discharges. The duration of this flash was about $\frac{6}{10}$ second, and the intervals between some of the discharges as low as $\frac{1}{500}$ second. The first discharge shows black. The reason for this is not clearly understood at present, but it is supposed to be caused by reversal of the image on the plate, but there are many reasons which oppose this explanation.

lightning is seen, and immediately closing the shutter after a flash has passed across the field of the lens. This must be done at night, and when only clearly outlined flashes are seen; when there is much sheet lightning the result will usually be only spoiled plates.

Photographs obtained in this manner do not give us much knowledge of the details and nature of the flashes, because the pictures show only single discharges, whereas in reality, most flashes are multiple, consisting of many discharges that follow one another in



NO. 1

NO. 2

NO. 3

No. 1 shows a horizontal flash broadened by moving the camera. No. 2 is a vertical flash, the dark part in the center being a cloud through which it passed. No. 3 is a horizontal flash with one branch terminating in the ground—taken with a camera moving up and down.

rapid succession through the path opened by the first discharge. In order to separate these so that they may be seen and studied, it is necessary that the camera be made to move during the

the angle of most of the lenses used in ordinary cameras.

Where exactness is essential, a revolving table operated by a motor must be used. The plates are developed as



NO. 3 OF THE PREVIOUS ILLUSTRATION AS TAKEN WITH A STATIONARY CAMERA.

exposure. By so doing, we change the position of the flashes on the plate, in the same manner in which the image of a landscape is shifted on the ground glass when the camera is turned. So that instead of a single streak on the plate after developing it, the flash may reveal a number of streaks running parallel with one another, and sometimes covering the entire width of the plate. The distance between these streaks varies, depending on the time intervals between the flashes, and also on the speed with which the camera is moved. By knowing the speed of the camera and its angle, we can estimate the time between the discharges that form the flash, and also the total duration of the flash.

Perhaps the reader would like to know how to proceed with the moving camera. The simplest and perhaps the best way, where exactness is not required, is to move it by hand, holding it slightly elevated in front of the body, swinging it from one side to the other when the flashes are vertical, and up and down when they are horizontal. By practice, we can acquire a fairly uniform speed, and can make one swing a second, moving the lens through an arc of about sixty degrees, that being

they are in ordinary work, contrast and details being looked for.

Lightning photography offers an unending variety, no two flashes being alike, and if the thousands of amateurs that are scattered far and wide would take up the subject, and spend a few hours when opportunity offers in gathering these mysterious messages from above, they would not only add to their collection of curios, but they might be instrumental in aiding science to solve some of the questions connected with atmospheric electricity.

A Yellow Columbine.

Baltimore, Maryland.

To the Editor:

You mention in your June issue columbine as being red, blue and white. I have two plants in my yard that produced a beautiful yellow blossom. Every one who saw them acknowledged that they never had seen a yellow. Have you?

Yours truly,

JOHN A. DAVIS.

I love you because you love the things I love.—*Alice Hubbard.*

A Beginner's Star-Book. By Kelvin McKready. With Charts of the Moon, Tables of the Planets, and Star Maps on a New Plan. New York: G. P. Putnam's Sons.

This is one of the best, if not the best, popular book pertaining to the heavens that has come to my attention. It is of novel arrangement and gives the information one desires in attractive and convenient form.

The Biology of The Seasons. By J. Arthur Thomson, M. A. Illustrated by William Smith. New York: Henry Holt and Company.

This book presents the gist of the seasonal drama, without going too minutely into the details of the successive scenes. It is a biology and not a naturalist's year-book. It is most admirably adapted for all who enjoy the pageant of the year and the drama of the seasons.

Butterfly and Moth Book. By Ellen Robertson-Miller. With illustrations from drawings by the author and photographs by J. Lyonel King, G. A. Bash, Dr. F. D. Snyder and others. New York: Charles Scribner's Sons.

Here is a nature study book that shows original work. The illustrations are not borrowed from a variety of antiquated sources, but for the most part are original. The text is enthusiastic and interesting.

General Science. By Bertha M. Clark, Ph. D., Head of the Science Department, William Penn High School for Girls, Philadelphia. New York: American Book Company.

This course in general science, which was successfully developed by the author for use in her classes, is suited both for the general reader and the pupil in the high school. While it deals with physics, chemistry and hygiene, the controlling idea has been to make the presentation as informal and untechnical as possible.

The Rolling Earth. Outdoor Scenes and Thoughts from the Writings of Walt Whitman. Compiled by Waldo R. Browne. Boston, Massachusetts. Houghton Mifflin Company.

Whitman was preeminently a rough and rugged man, but a tender poet of outdoor life. He says:

"I restore my book to the bracing and buoyant equilibrium of concrete outdoor Nature, the only permanent reliance for sanity of book or human life."

The compiler has included some of his best work in prose as well as in verse, though even his prose is really poetry.

"A song of the rolling earth, and of
words according,

Were you thinking that those were the
words, those upright lines? those
curves, angles, dots?

No, those are not the words, the substantial words are in the ground
and sea,

They are in the air, they are in you."

Physiology of Man and Other Animals. By Anne Moore, A. B., A. M., Ph. D. New York: Henry Holt and Company.

This is a successful attempt to correlate the laws of human physiology with the laws of other sciences. The material is put in admirable form as a class text-book.

Moths of The Limberlost. By Gene Stratton-Porter. New York: Doubleday, Page & Company.

This is a beautifully illustrated book on heavy coated paper. It is popularly written and also contains much valuable definite information not given in the regular manuals of moths.

Heredity in Relation to Eugenics. By Charles Benedict Davenport. New York: Henry Holt and Company.

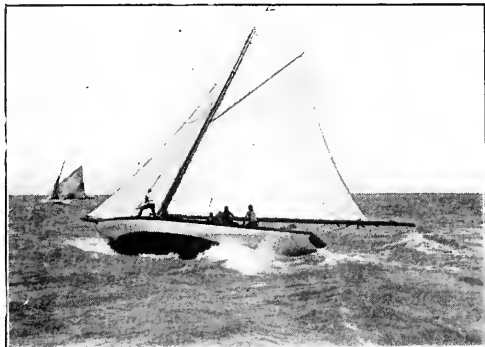
This quotation from the first chapter very nicely expresses the spirit and scope of the book:

"It is a reproach to our intelligence that we as a people, proud in other respects of our control of nature, should have to support about half a million insane, feeble-minded, epileptic, blind and deaf, 80,000 prisoners and 100,000 paupers at a cost of over 100 millions dollars per year. A new plague that rendered four per cent of our population, chiefly at the most productive age, not merely incompetent but a burden costing 100 million dollars yearly to support, would instantly attract universal attention. But we have become so used to crime, disease and degeneracy that we take them as necessary evils. That they were so in the world's ignorance is granted; that they must remain so is denied.

"The general program of the eugenist is clear—it is to improve the race by inducing young people to make a more reasonable selection of marriage mates; to fall in love intelligently. It also includes the control by the state of the propagation of the mentally incompetent. It does not imply destruction of the unfit either before or after birth. It certainly has only disgust for the free love propaganda that some ill-balanced persons have sought to attach to the name. Rather it trusts to that good sense with which the majority of people are possessed and believes that in the life of such there comes a time when they realize that they are drifting toward marriage and stop to consider if the contemplated union will result in healthful, mentally well-endowed offspring. At present there are few facts so generally known that they will help such persons in their inquiry. It is the province of the new science of eugenics to study the laws of inheritance of human traits and, as these laws are ascertained, to make them known. There is no doubt that when such laws are clearly formulated many certainly unfit matings will be avoided and other fit matings that have been shunned through false scruples will be happily contracted."

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—Alice Hubbard



THE GUIDE TO NATURE

Vol. V. SEPTEMBER, 1912 No. 5

We stand for full appreciation of this world. Don't lose "the heaven of such a place as this." The better the use of this, the better the preparation for the next.

* * * * *

God must be glad one loves His world so much.

—*Browning.*

EDWARD F. BIGELOW, Managing Editor

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against this unnecessary practice, which is becoming far too common.

Yours very truly,
HARRY G. HIGBEE.

[Mr Higbee is a Member of The Agassiz Association, and a skilled student of insects and trees.—Ed.]

The spirit of nature-study requires that the pupils be intelligently directed to the study of their immediate environment in its relation to themselves; that there shall be, under the natural stimulus of a desire to know, a constant effort at a rational interpretation of the common things of life. —Professor Wilbur S. Jackman.

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By EDWARD F. BIGELOW, Managing Editor

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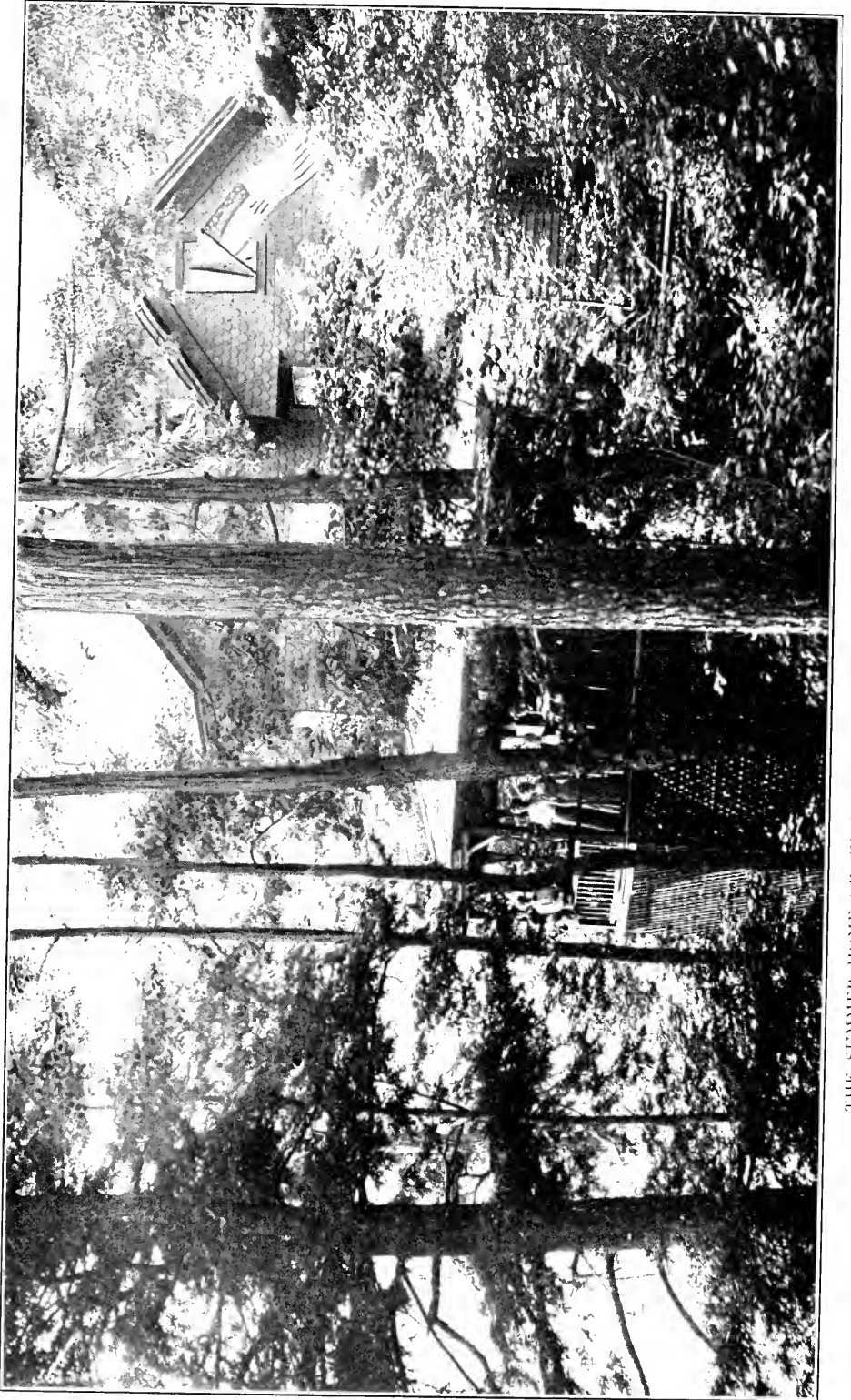
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After you have exhausted what there is in business, politics, conviviality, love, and so on—have found that none of them finally satisfy, or permanently wear—what remains? Nature remains; to bring out from their torpid

Arc Adia

recesses, the affinities of a man or woman with the open air, the trees, fields, the changes of seasons—the sun by day and the stars of heaven by night.—*Walt Whitman*



THE SUMMER HOME OF CHARLES H. LOUNSBURY OF STAMFORD, CONNECTICUT.
"Tree Tops"—a Home Near to Nature—near the peak of a mountain in the Catskills, Santa Cruz Park,
Haines Falls, New York.



Volume V

SEPTEMBER 1912

Number 5

“The Switzerland of America”

BY EDWARD F. BIGELOW, Arcadia: Sound Beach, Conn.



HERE is only one trouble with the title, “The Switzerland of America,” when applied to the Catskill Mountains. It pays too great a compliment to Switzerland. Rather let us refer to Switzerland as the Catskills of Europe. That this is no hyperbole

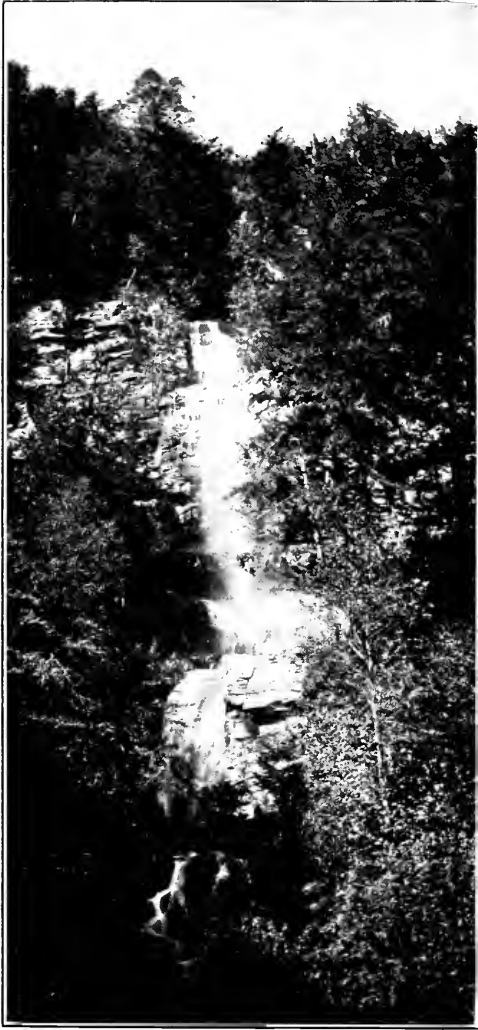
well as patriotism in the oft repeated slogan of railroads and tourists, “See America first.” Too many people have been perhaps not so much seeing things abroad first, as they have been thinking of them as first in picturesqueness and beauty. It is greatly to be questioned whether any place in Switzerland can equal the verdure clad hills



IN THE SITTING ROOM OF “TREE TOPS.”

nor figure of speech will be acknowledged, I believe, by every patriotic American. There is poetic truth as

and valleys of the Catskill Mountains. Here is no sharpness of detail, but all blends into a dreamy and hazy softness



THE WATER DASHES DOWN IN PICTURESQUE WATERFALLS.

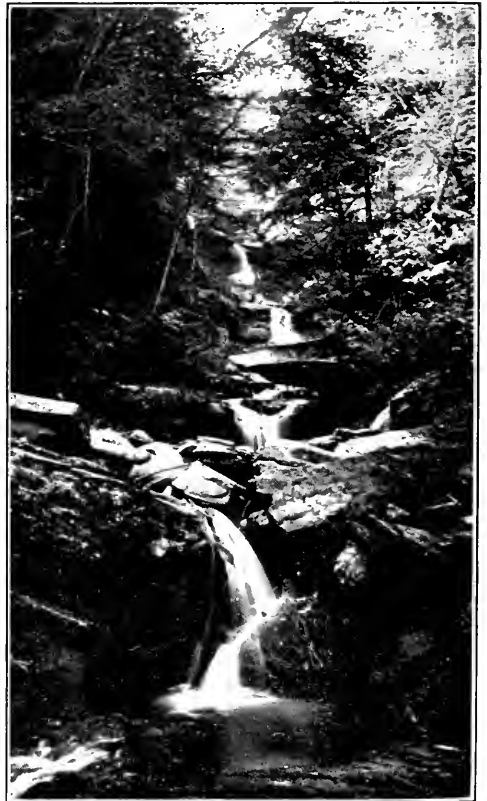
of outline. For a hundred miles or more on the clearer days, one can see down a valley and be enchanted by its multitudinous and luxuriantly foliaged trees. Mountains have proverbially rugged, barren tops, but these, while high enough to be picturesque and to afford pure air, are not lofty enough to rise above the natural limit that we call the "tree line."

This arboreal setting is so dense as to produce the impressiveness of the primitive wild. It would be, indeed, the foot of a brave man that would try to depart from some of the paths and penetrate the tangled wilderness. But the art of man at great labor and expense has made good roads and by-paths that lead into many of these

deeper recesses. Here the lover of birds may listen to the song of the hermit thrush, perhaps the loveliest of all singers, and to the rich, yet more plebian notes of the wood thrush. Warblers with their interminable mingling of dainty notes flit from branch to branch and their exasperating variety of color and marking lead one on tantalizingly to complete identification of each variety.

The lover of trees can here wander back in imagination to primitive days, or to the time when the red man went on the warpath, or pursued the fleet and fleeing game. The lover of the smaller forms of plant life here revels in their luxuriant variety, and occasionally has the delight, known only to a persistent botanist, of finding in these dim recesses some flower to him unknown.

But perhaps as a Mecca for all natural scientists no other place can be more alluring for the enthusiastic geologist and mineralogist. Treasures are to be had for the picking up. To the right and to the left and in front one



AWAY THROUGH THE GURGLING RAVINES.



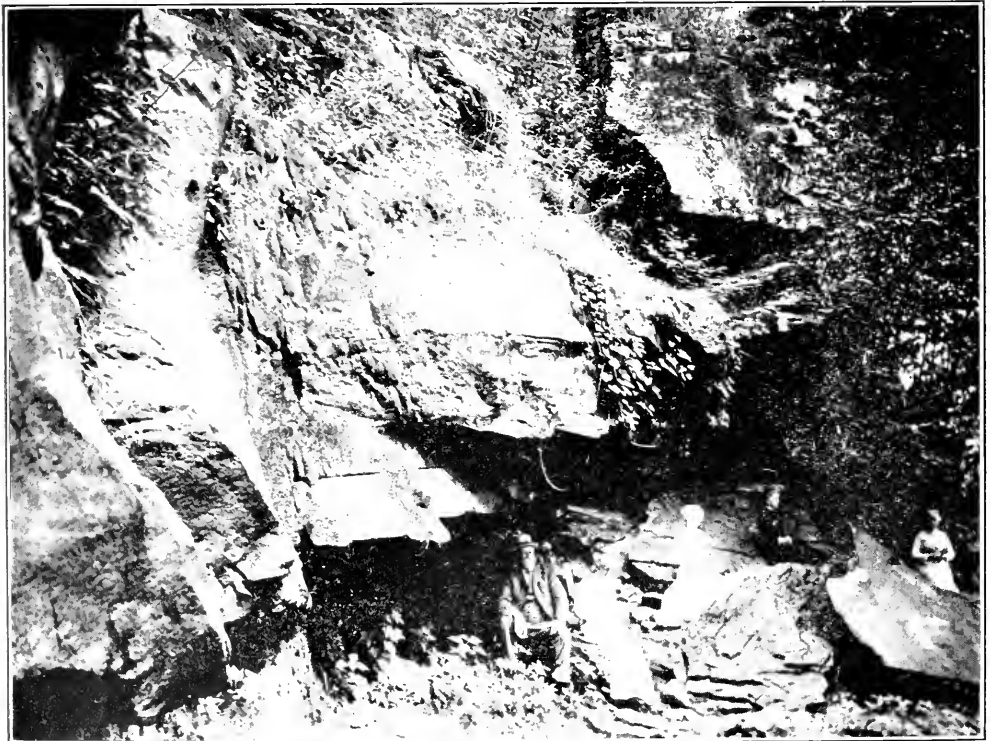
THE STEPS FROM "TREE TOPS" UP TO THE ROAD.



AT THE TOP OF THE STEPS GOING TO THE FALLS FROM WHICH SANTA CRUZ (OR HOLY CROSS) TAKES ITS NAME.



"HIGH ABOVE ONE'S HEAD WE SEE WHAT HAPPENED HUNDREDS OF YEARS AGO."



"THE OVERHANGING LEDGES IN ALL THEIR UNADORNED BEAUTY."

may observe the effects of the cataclysms of eons ago. Boulders and broken stones and the debris of rocks line the valley from hundreds of feet above the path to hundreds of feet below, down in the distant ravine. High above one's head we see what happened hundreds of years ago and may happen again in the years to come, for the work of making the picturesque and the beautiful among these rocks still continues with the changing seasons. The frosts heave and crack and break, and the waters now dash and wear, as in the years gone by. One may see in every direction the results of this fierce attack of water and change of temperature upon the natural fortress of the rocks. Even devastation here is beautiful because it is natural. One cannot but admire the ruin within the ravine, down which crashing boulders, carried by the mountain torrents, have thrown and tossed and torn many a tree that it took another part of nature years to build. As a result of this labor of the elements, and the struggle of vegetal life for existence, has come a grandeur and picturesqueness not excelled by any other scene in the United



IN THE COOL, PICTURESQUE CAVES OF OVERHANGING ROCKS.



BY THE ROADSIDE NOT FAR FROM "TREE TOPS."



REMARKABLE, OVERHANGING, FOLIATED ARCHES.

States. There are deeper gorges, greater streams and higher mountains, but in no other place is the combination so blended into a harmony so perfect as to form such tempting bits for the camera or the brush.



A VISTA UP THE RUIN OF BROKEN ROCKS.

Through the courtesies of Mr. Charles H. Lounsbury of Stamford, Connecticut, whose guest I was for several days, I had the privilege of wandering with my camera in these scenes that speak so emphatically of the work of ages past, and of the possibilities as a place of recreation for man now and in the future. One shares in the exhilaration of plant and animal growth on every hand. Mr. Lounsbury's home is rightly named "Tree



"APPEALS TO THE IMAGINATION EVEN IF NOT TO THE ACTUAL ACT OF CLIMBING."

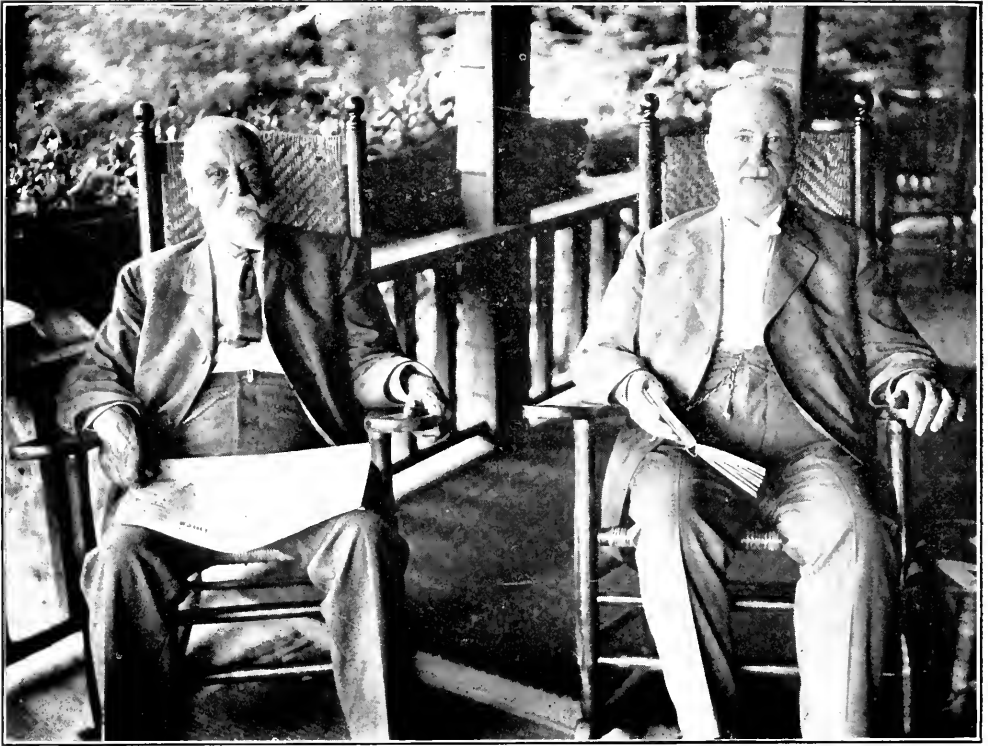
Top." From the veranda one may look east and like a bird see the valley, down, down, so far below that the tree tops are far beneath the observer, and so densely massed together that the eye cannot distinguish one tree from another, but blends them into one soft, deep, luxuriant canopy that covers in beautiful patterns of varying shades the entire valley, which slopes grandly upward toward the rounding mountain top. To the east, gleaming like a silver arrow, lies the Hudson River, and far beyond rises the Berkshire mountains. One who is fortunate enough to see



FROM THE ROAD UP TO THE SUMMER HOUSE.



THE SUMMER HOUSE IN THE DENSE FOLIAGE.



"THE CHUMS," OR PERHAPS BETTER "THE TWINS."
Mr. Charles H. Lounsbury at the left; Mr. Mathew Dean at the right.

this panorama of the valleys on a clear day, may see in the far distance the clusters of homes.

"Tree Tops" is at the very end of the road. Beyond that a path with overhanging boughs and foliated arches leads to a veritable jumping off place. This is the chasm of the gorge of the Santa Cruz or Holy Cross Falls. I visited these falls in the driest part of the past summer when no water was flowing over, and while I failed to see the curious formation that suggested the name, I had the advantage of seeing the rough and rugged rocks, the cragged precipice and the overhanging ledges in all their unadorned beauty.

Retracing one's way for some forty rods, one may descend a series of steps to the lower road and, standing on a beautiful rustic bridge, may gaze upward at the Santa Cruz precipice that towers above. No camera can do justice to the inspiring scene. It is in the sweep of the eye from the high to the low, from the right to the left, and the combined imprint upon the retina that gives all the grandeur of what has

taken place through ages to build this as a retiring and inspiring place.

At the north of Mr. Lounsbury's picturesque mountain cottage, is the Santa Cruz Inn, photographs of which were shown in the advertising department in the August number of this magazine. Here, as elsewhere throughout the Catskills, no single view of ninety or even a hundred and ten degrees as taken in by the ordinary wide angle lens of the camera can do the subject justice. Nor could a circuit camera fully do justice to it. It is in the effect of the whole that lies the chief charm, and not alone in the surroundings. Its interior with its perfect fittings, together with Mrs. French's grace and cordiality, are in their way no less pleasing. Santa Cruz Inn is the ideal place for rest and refreshment. There is no noise of carousal nor rattle and bang of passing teams. Here one may be alone, with an abundance of food for the mental and the spiritual as well as the physical nature. It is a place in which to dream, to find one's self; yes, even better, to understand one's self. The view from the northern

veranda is awe inspiring in extreme. It is so grand that it never tires, nor becomes monotonous. The petty things of life become irksome, but grander duties and grander scenes have other and different functions.

At the west of Santa Cruz Inn, is one of the prettiest cottages in Santa Cruz Park, that of Mr. Mathew Dean of Brooklyn. To me, as I walked along the road, it seemed that Santa Cruz Inn was the pivot on which swing the cottage of Mr. Lounsbury on the one hand, and of Mr. Dean on the other. The two men are so alike in appearance, in mental and physical qualities and business ability, that they are familiarly called "the chums." Indeed, they might even more fittingly be called the twins. To know the one is to know the other; when they are not together, it is not easy to distinguish the one from the other. They have been intimate friends for decades.

Though the roads are precipitous, Mr. Dean's powerful automobile carries these friends safely and enjoyably up and down the hills and valleys. It is a common sight to see them spinning through Onteora Park and on to

the village of Hunter, some fifteen or twenty miles northward. On the homeward journey from such tours a favorite stopping place is Haines Falls from which the locality takes its name. These are on the estate of the late Mr. Haines and have for many years been a center of interest to tourists, but Santa Cruz Falls, though not so large, are to my mind more picturesque. If the tourist likes to climb, here is a gigantic Jacob's ladder that appeals to the imagination even if not to the actual act of climbing. The best climbing is not that done with the muscles, but with the mind. If you would climb above the stress and strain of modern life, there is nowhere in the eastern United States a more attractive nor more restful and satisfactory resort than Haines Falls.

If I may be permitted to add a word of personal opinion, there are no better hosts than Mr. Charles H. Lounsbury and his wife and daughters. "Tree Tops" has placed some beautiful imprints upon the sensitive plates, has left a good taste in my mouth, and found a lodging in a warm corner of my heart.



"MR. DEAN'S POWERFUL AUTOMOBILE CARRIES THESE FRIENDS SAFELY AND ENJOYABLY UP AND DOWN THE HILLS AND VALLEYS."



THE WONDERFULLY PEACHTFUL FALLS ON THE ESTATE OF THE LATE MR. HAINES FROM WHICH HAINES FALLS TAKES ITS NAME.



THE HEAVENS IN OCTOBER

BY PROF. ERIC DOOLITTLE OF THE UNIVERSITY OF PENNSYLVANIA.

The Heavens in October.

The evenings of October are always noteworthy to those who watch the heavens, for it is in this month that we always witness the re-entrance of the

gion of the sky of such beauty that it attracts the attention even of those who are wholly unfamiliar with the heavens above them.

THE MOST CELEBRATED GROUP OF STARS.

The Pleiades and the Hyades are the two foremost groups of the great con-

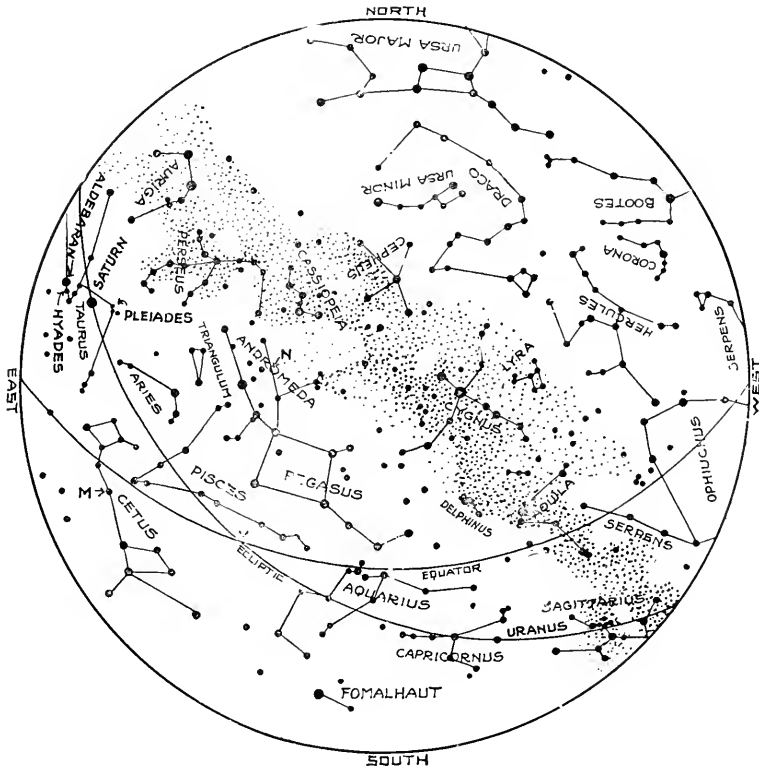


Figure 1. The Constellations on October 1, at 9 P. M. (If facing south hold the map upright. If facing east hold East below; if facing west hold West below. If facing north hold the map inverted).

too beautiful little groups of stars known as the Hyades and the Pleiades into the eastern sky. But this year this part of the heavens is even more interesting than usual, for the planet Saturn in its slow eastern journey is now passing these groups, and for many months we will see it shining out nearly midway between them. These three most striking objects form a little re-

stellation known as the Bull. Though they are well above the ground at 9 o'clock, the observer can study them to more advantage by waiting until an hour later. If he then turns a little way toward the north of the east point, his notice will at once be arrested by the delicate, filmy, dipper-shaped little group of bluish stars which form the Pleiades, while below this he will see

the V-shaped Hyades, with the great reddish Aldebaran at its lower end. To the eye the Pleiades may seem to consist of but six stars, though if the night is very clear two or three more may be

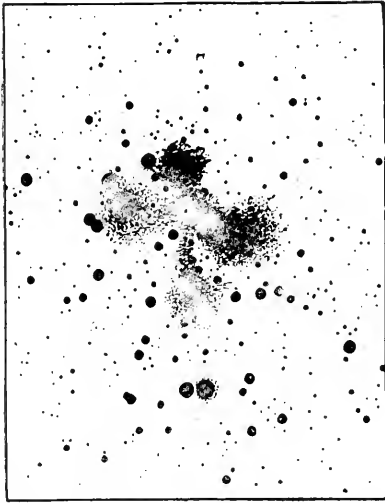


Figure 2. Photograph of the Pleiades, showing the remarkable clouds of nebulous matter.

detected, but in a pair of opera glasses a quite dense and most interesting cluster is at once revealed.

As he looks at this most interesting star group, every member of which is a sun, he may consider that this is almost the very earliest object about which human records have come down to us. It was watched and written of in China 4,300 years ago; the earliest sacred books of Egypt tell of the time when the Vernal Equinox was at these stars, and that year was known as the Great Year of the Pleiades. In all the centuries which have passed since this time of the very dawn of history, the steady westward motion of the equinox has now only carried it to the point V of Figure 1; it will not complete the circuit of the heavens until 26,000 years have passed away.

Numberless legends are associated with this beautiful little group, the peoples of almost all nations connecting them with the affairs of Earth for either good or evil. But of more importance is the modern discovery that the stars of the Pleiades are actually associated together as they seem to be, forming a little group in the depths of space. And delicate photographs show that throughout the group there exist

vast clouds of faintly shining nebulous matter which not only surround some of the larger stars but span with faint, straight lines the inconceivably great distances from star to star. Either we are witnessing here the last stages of the formation of a cluster of great suns from an original nebula, all of which has not yet been absorbed, or else these suns are ejecting radiant matter, just as matter is driven away from our sun to form its corona, but on an inconceivable vaster scale. We do not know whether what we see is a dissipation of matter or a building up of new worlds. But now as at the time of the earliest dawn of history the Pleiades attract us as one of the most wonderful of all the objects in the heavens.

The reddish star Aldebaran is so far distant that the light with which we view it started on its journey to us 28 years ago. This sun pours out nearly 200 times as much light as our own, and it is moving away from us at a speed of 30 miles a second. In the southeast at M, Figure 1, the observer should also note the remarkable variable star Mira, which is now only of about the fourth magnitude, while due south the royal star Fomalhaut has now reached its highest position in the sky.

The Eagle, the Dolphin and the beautiful Northern Cross shine out high in the northwest, while east of these the Great Square of Pegasus now forms the most conspicuous figure in the southern sky. The reader should not fail to examine the wonderful nebula of Andromeda at N, Figure 1, concerning which and other similar nebulas the question is again being discussed whether they may not each be a great universe of suns at an unimaginable distance away.

THE PLANETS IN OCTOBER.

Mercury passes to the east of the sun on October 4, but does not attain its greatest distance until November 19. It can be seen with difficulty toward the close of the month very near the ground in the southwest for a short time after sunset.

Venus is steadily moving outward from the sun's rays, setting slightly more than one hour after sunset on October 1, which time is increased to 1 hour and 45 minutes by October 31.

On October 11 Venus and Mercury will be close together in the sky, the former planet being north of the latter at a distance only one-third as great as the distance across the moon. They may be seen near the ground in the southwest shining out in the sunset glow before the bright stars of the sky become visible.

Mars is too near the sun to be observed this month. It passes to the west of the sun and becomes a morning star on November 4.

Jupiter is also steadily sinking in the southwest. The observer will notice the Venus is drawing nearer to Jupiter and that by the end of the month the first planet sets only 15 minutes after the second. They will not reach their

so near the earth that it will completely hide the sun for 1 minute and 50 seconds. If the skies are clear, excellent photographs of the sun's corona will doubtless be obtained from stations in this part of the path. The eclipse will not be visible from the United States except in the extreme southwestern part, where it will be seen as a small partial eclipse only.

THE SHOOTING STARS OF OCTOBER.

The observer who witnessed the beautiful August display of shooting stars may be interested to observe a somewhat fainter shower which will occur from the 18th to the 20th of the present month. This is known as the Geminid shower and is composed of many bluish, very swiftly moving me-

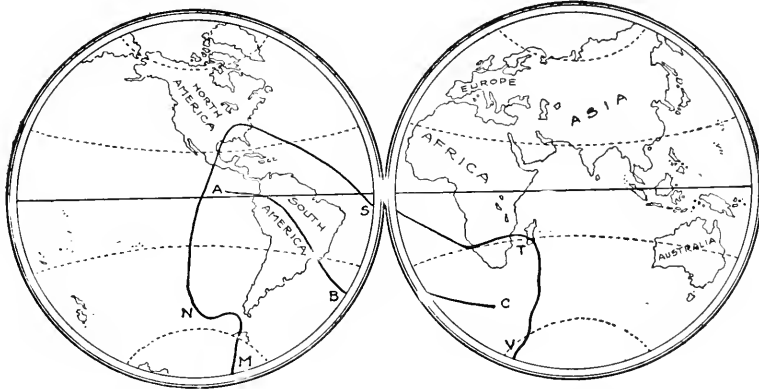


Figure 3. The total eclipse of the sun of October 10. The shadow of the moon will sweep over the earth along the path A B C; at points within this narrow strip only the sun will be seen completely hidden. Within the area, M N O S T V, the moon will be seen to partially cover the disc of the sun. Elsewhere on the earth the eclipse will be wholly invisible.

point of closest approach, however, until November 7.

Saturn throughout the month will be the most conspicuous object in the evening sky. Its rings are now well widened out, and for many months it will remain in excellent position for observation.

Uranus is now in Capricornus, in the position shown in Figure 1.

Neptune is at present in the constellation of the Twins. It rises at midnight, and is hence a morning star.

THE TOTAL ECLIPSE OF THE SUN.

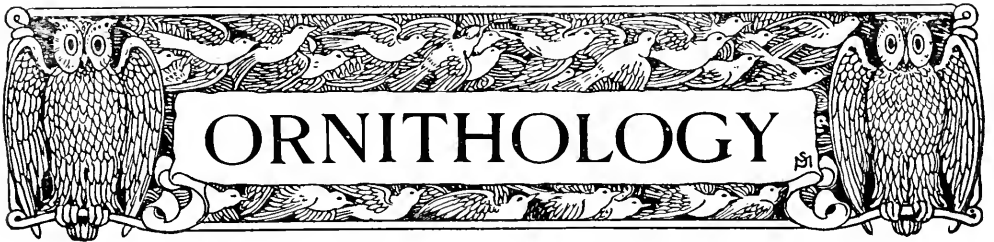
An important total eclipse of the sun will occur on the morning of October 10, the path of the shadow of the moon as it sweeps over the turning earth being that shown in Figure 3. When the shadow has reached the eastern part of Brazil the moon will be

tears which may best be seen by facing eastward on the evenings indicated a short while before midnight. The shooting stars will dart outward in all directions from the southwestern edge of the constellation Gemini, usually leaving a trail behind them.

A Remarkable Opportunity.

Mr. John H. Choate, of Salem, Massachusetts, sends us the following item as he expresses it, detailing a circumstance that occurred some time ago. It is illustrative of the knowledge possessed by some intelligent and presumably educated persons.

In a company of ladies, one remarked that she had seen in the paper that there were to be two full moons that month. "Oh, I am glad to hear that," exclaimed another. "I never have seen two full moons at once."



A Hawk Insisted on Attention.

Interest in ornithology is generally voluntary on the part of the student, but here is an example in which a bird demanded attention. Mrs. Harry Waterbury, of Stamford, Connecticut, was busily engaged in her household duties when suddenly there came a resounding crash of splintering wood and breaking glass. Imagine her surprise and terror when the greater part of a window sash, glass and all, was knocked inward. It appears that a red-tailed hawk had been in pursuit of a bird in the back yard, and in some unexplained manner its steering apparatus had failed to act properly, and the hawk had dashed against the window. The force of the impact stunned the hawk and threw it back to the ground some rod or more from the broken sash. As soon as Mrs. Waterbury had recovered her composure, she, with the assistance of some of the neighbors, put a crate over the reviving hawk that was then flopping around the yard.

A specialist on birds, Mr. George B. Bliss, was at once called to give expert opinion in the matter. Mr. Bliss is not only well versed in feathered creatures, but is a sportsman. The first thing that he thought of was his gun, and he bravely ran to the rescue both barrels loaded. But here was a new kind of shooting. But to shoot a hawk at short distance under a crate was contrary to all previous experiences. He decided that he could not "focus" the thing at that distance, or if he did, the hawk would be left in fragments. So he carried the bird home and determined to dispatch it by some other method. He put it in the yard and occasionally went to see it. It may be supposed that he consulted books and papers as to humane methods of killing a hawk. Should he chloroform it and then blow its head off, or should he decapitate it a la chicken? But the

more he interviewed that hawk the more his love for birds got the uppermost of his desire to kill. Days went by and he realized that something must be done. The thing was approaching a critical stage. He summoned all his courage and, with the necessary killing implements, he bravely started forth. That hawk must be killed. He looked around in every direction. He found a suitable chopping block and grabbed the hawk. But the hawk looked at him piteously. Mr. Bliss again looked about in every direction; it was the fitting moment; no one was in sight. Heart and hands opened simultaneously and away soared the hawk into the ethereal blue. Mr. Bliss went back into his store and reported, "That hawk got away from me."

"The Rat of The Air"!—The English Sparrow.

BY NIEL MORROW LADD, BELLE HAVEN,
GREENWICH, CONN.

There is only one bird we hate. There is only one bird we take pleasure in killing.

Bird lovers will doubtless recognize the English sparrow as the despised species. Bird lovers who have erected bird boxes to attract blue birds, flickers, wrens, tree swallows, woodpeckers, chickadees, robins and phoebes, will understand our hatred.

Last year we had five boxes in trees, and succeeded in having all occupied, two by wrens, two by blue birds and one by starlings.

Late last winter we put out ten more boxes—five being the ideal bird boxes made after the approved Baron von Berlepsh pattern. We expected great results, but alas, the sparrows upset our plans.

March 17th our diary reads: "English sparrows building in boxes, broke up three pairs by killing with a shotgun," and regularly since that date we have taken out nesting material and alto-

gether thirty eggs of this "rat of the air".

July first shows this sad situation—fifteen boxes, with varying entrance holes from wrens to flickers—ALL EMPTY.

From early Spring, we have carried on a crusade of sparrow extermination, by means of traps and shooting. The former we confess, were a failure, and

box was only nine feet away from the house, and had an entrance hole of but one inch, the sparrows were successful in driving the wrens away.

The next few days we noticed the same, or so we believe, pair of wrens still about the garden.

Hoping we might persuade these merry little birds to stay with us during the summer, we took a small wooden box of thin wood; nailed a shingle on top; a cleat on the back; cut a three-quarters of an inch hole in the front near the top, and nailed the box to the trunk of a maple about eight feet up—the entire work occupying about thirty five minutes.

The wrens built in this box, and now July 13th, are busily feeding their young with insects and grubs gleaned from the nearby garden.

Fifteen carefully made and properly placed boxes unoccupied, and one quickly and carelessly made, occupied almost immediately by the happiest of all birds—the house wren.

These photographs show the male wren about to enter his home. Had we known that this box would be the only one available for photographs, we would have placed it more advantageously with regard to proper lighting.

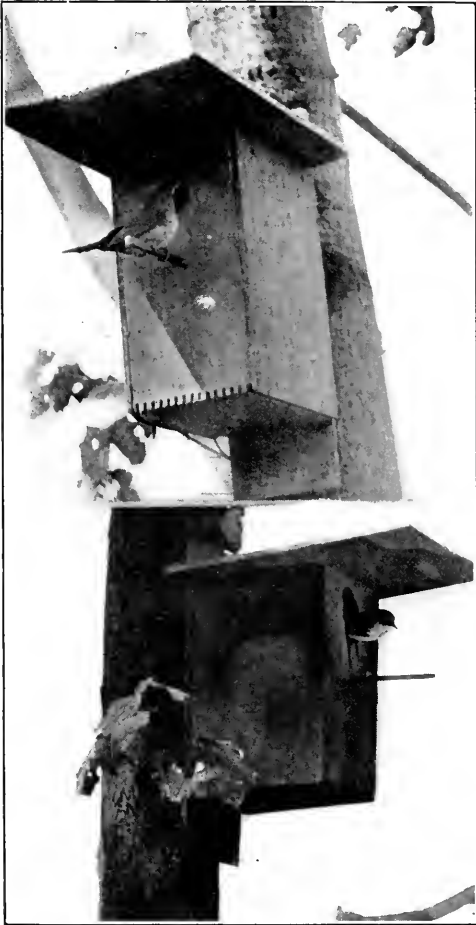
Is there any new discovery or invention which will assist us to exterminate the sparrow from our immediate vicinity? We do not want to go through another summer without the presence of a family of bluebirds.

Homes for Purple Martins.

Youngstown, Ohio.

To the Editor:

The efficiency of bird houses in increasing the number of birds even in thickly settled communities has been demonstrated in this locality. With the increasing population of the rural districts in northeastern Ohio, little attention has been paid to the birds, with the result that purple martins have become comparatively scarce. In the last three years, residents of Youngstown, of their own accord, and following no regular campaign or set plan, have been building bird houses in the yards. One of the largest is within a few feet of a city fire station. Beginning late in July, and for several weeks afterward, observers saw large flocks of purple



TWO STUDIES OF THE WREN HOUSE.

shooting but little better. We have killed over three hundred English sparrows in twelve months, but this has not discouraged those that have remained to raise big families.

One incident has helped to make us forget our disappointment. On May 3rd we noticed the English sparrows, half a dozen or more, chasing a pair of wrens that were examining a box used by wrens last year.

Notwithstanding the fact that the

martins hovering about the city, and apparently assembling for the fall migrations as is their custom. Each evening the cornice of a large business block on the principal street has sheltered hundreds of martins, and the handsome birds could be seen perched along the telephone wires before retiring to the cornice for the night.

The increased numbers of these useful insect gleaners is attributed directly to the bird houses in the city.

C. A. LEEDY.

Nest and Eggs of Sea Gull.

Berkeley, California.

To the Editor:

The accompanying print of sea gull nest and eggs was taken on Bare Island, one of the San Juan group located in Washington Sound, Washington.



NEST AND EGGS OF SEA GULL.

Great numbers of sea gulls nest on the island, that is really a large rock and, as the name indicates, quite bare. The gulls used to nest on the high cliff on the south end of Waldron Island seven miles south, but since man began to quarry the rock, the blasting has driven the gulls away, many now making their nests on Bare Island. The nest was found about forty feet above the water on a small projecting ledge.

The most interesting thing about the nest was the chick picking through the shell, as shown in the photograph.

Very truly yours,

JOHN E. DOREN.

"How I Made a Bird City."

This is the title of an interesting and well illustrated article by Mr. Edward A. McIlhenny in the first September number of "Country Life in America." We take especial pleasure in recommending to our readers his excellent portrayal of the snowy heron. The beautiful photographs are extremely effective and the text is sympathetic and interesting.

Nature Study in the Schools.

The schools must prepare the child to earn a living and to live his life. Nature-study makes its contribution to these aims and its contribution is no mean one. Man wins his livelihood from Nature and the study of her laws and methods of operation is essential to intelligent progress. The contemplation of Nature has always led men on into that thinking, that attitude of mind, that larger life and broader vision that make life worth the living.—*Dr. Elliot R. Downing, From an editorial in "The Nature-Study Review."*

Nature Versus Art in Color.

Has it ever struck you how hard it is to reconcile many man-made standards to God's great world of nature? For instance, the artists, the milliners, and the dressmakers tell us that certain colors do not harmonize: greens and blues do not "match," and purples and violets clash with both of them. Yet lupines grow side by side with a score of shades of green, and the blue sky overarches all and harmonizes perfectly. One of the most exquisite sights I have ever seen is the paloverde in bloom. It is a tree common on the deserts and elsewhere in this Great Southwest land. Its "leaves" are much like pale-green sticks, and the flowers are the richest purple the eye of man ever saw.—*George Wharton James, in May Life and Health, Washington, D. C.*

I often think, when working over my plants, of what Linnæus once said of the unfolding of a blossom: "I saw God in His glory passing near me, and bowed my head in worship."—*John Fiske.*

THE CAMERA



The Tilting Tripod.

As the tilting tripod is one of the most convenient and valuable accessories to a camera, I wonder why it is so seldom used, especially since it is



PHOTOGRAPHING DOWN A WELL.

The camera, vertical by aid of the tilting top, is reflected by the water.

so inexpensive. There are various devices of ball and socket for tilting the camera in any direction, but I have not found those nearly so convenient as the tilting top, made of two hinged boards, and supplied by the Folmer & Schwing Company, of Rochester, New York. In actual use their device is "worth its weight in gold." By it many things, otherwise totally inaccessible, may be readily obtained. Take for example the accompanying interesting study in the perspective of an old well. The camera and tripod, you will observe, are reflected in miniature at what appears to be an excessively remote distance from the surface, but is actually from the water at the bottom of the well; but the optical effect is such that the

camera appears to be as far below the reflecting surface as the distance from the water to the top of the ground. In doing similar work, one must be careful not to drop things down the well, and especially not to lose hold of the camera, or one may be compelled to make undesirable aquatic experiments. Small ant-hills, spiders' webs on the grass, beds of flowers and various other interesting objects on the ground, are readily photographed by the use of the tilting tripod. Then, too, such a tripod is as good for photographing upwards. By reversing the camera on the top, and putting on a telephoto or long focus lens, one may take views of birds' nests in the trees, of interesting



A PHOTOGRAPH OF A SMALL ANT-HILL BY VERTICAL CAMERA.

flowers on the trees, hornets' nests high on the bushes or on the peak of a house, and other things in mid-air. Our readers frequently call for practical suggestions, and we believe that the recommendation of the tilting tripod is worth a hundred times more than a new formula for another kind of developing solution, and many times more than the price of a year's subscription.

Some Helpful Suggestions.

Lincoln, Nebraska.

To the Editor:

At one time there appeared in *THE GUIDE TO NATURE* an article about large caladiums, which any reader can raise if he will add plenty of fertilizer and water to the soil from the time at which the bulbs start.

An article also appeared in your magazine about leaves of the calla lily which sometimes grow white, and then much resemble the flowers in form. Forcing callas by heat, fertilizer and water, will often produce such leaves.

As a food for ordinary "goldfish" in a house aquarium, I have found that the common breakfast food, "Quaker

puffed rice," is as good as any fish food yet tried. I allow each fish to have two grains well broken up, each day. Fifteen cents will buy about two quarts of this food.

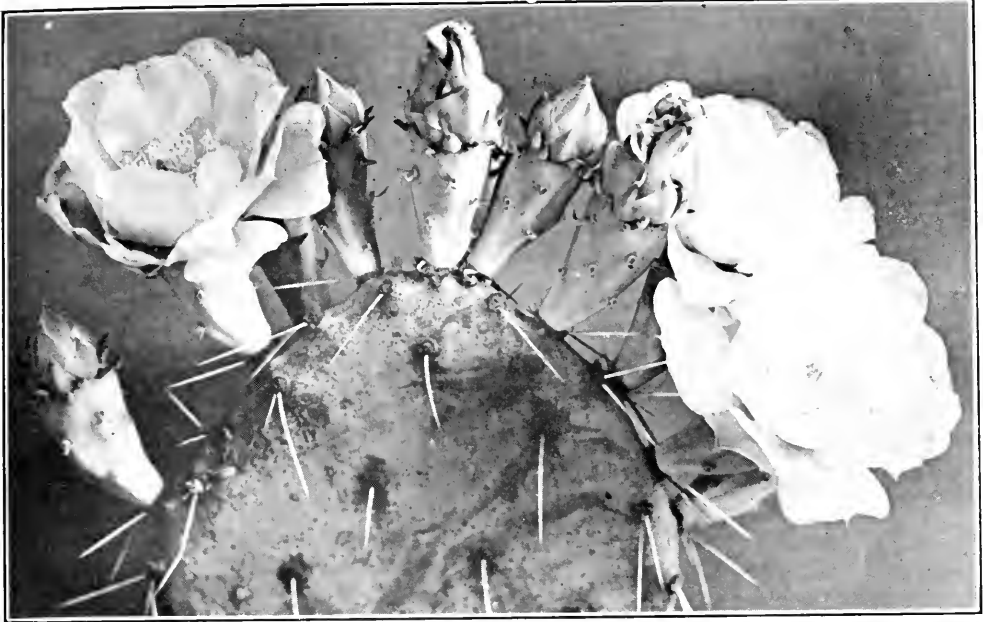
It has for some time been a matter of discussion among bee-keepers whether bees ever move their eggs from one hive to another. I was inclined to take the negative side of the question until the following incident occurred in my apiary.

One colony had been trying to swarm for some time but could not leave, because the queen's wings had been clipped. Being very busy I kept cutting out the queen cells and letting the bees try to swarm. They evidently got tired of making unsuccessful efforts, so one day they came out and went into an empty hive. I expected them to return to their original hive, as I did not think that they had a queen, but they disappointed me.

Upon examining them a day later, I found a large queen cell started with an egg in it. I could not find another egg in the hive. The combs had not been used before this year. That queen cell hatched out a nice large yellow queen, and the colony is now prospering.



A WELL BALANCED STUDY OF CACTUS BLOOM.



BUD AND BLOOM EFFECTIVELY SHOWN.

Where did that egg come from if not from some other hive?

I have seen many amateur photographers printing pictures by awkwardly holding their printing frames before an electric light bulb and guessing at the distance. I put on an extension cord, and bring the light bulb down into a small wooden box, whose depth is equal to the distance at which I want the light to be from my printing frame. I first press a white paper into the box to increase the light by reflection.

As it is awkward to use a clock to give the right exposure of the frame to the light, I count, using this expression, "Naught, one-half and one." To say this, as ordinarily spoken, takes about two seconds. With a little practice one can always repeat it in about the same time.

With the printing box above described and this method of counting, it is easy to expose each picture to the light for exactly the same length of time, and all prints will then be alike.

The counting method was suggested by "Camera Craft."

Hoping that these suggestions may be of some value to you I remain,

Yours fraternally,

C. ELMER FREY.

Approves of Long Focus.

BY LESLIE L. LONG, LLANO, TEXAS.

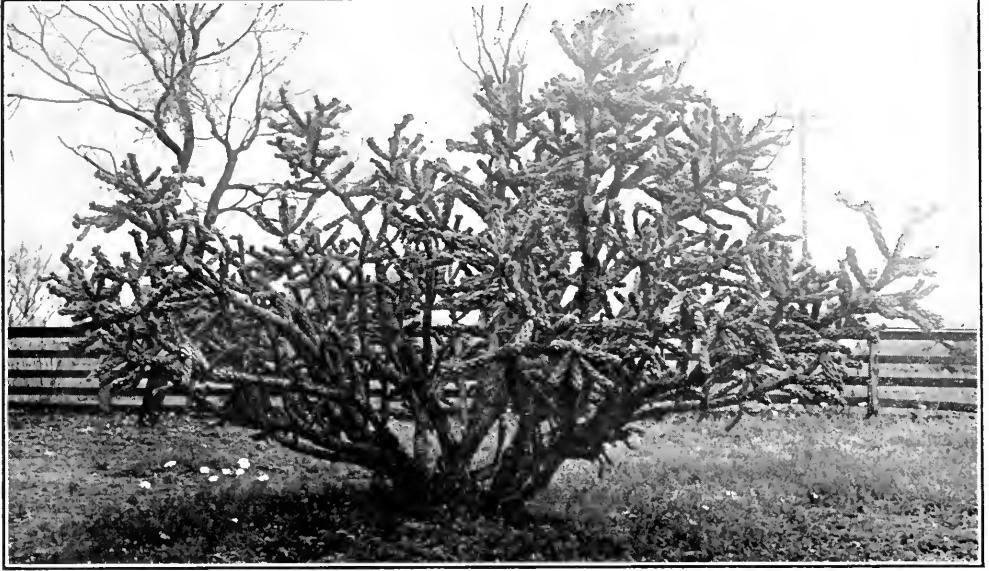
These pictures are samples of slow work with a fast lens. My lens is a Tessar Ic and non-convertible, of eight and a quarter inch equivalent focus, but both the blossoms of the cacti were taken with full bellows, being fourteen inches, producing a picture about two thirds the actual size. Had the lens been as described in the article, "Long Focus and Short Focus: Theoretical vs. Practical," in the March issue, I could have reproduced actual size.

The cactus which was eleven feet in diameter I had to get too close to fill the plate, while a single element would have allowed me to get back farther and gain in depth thereby.

Certainly one should have an extra copy of that March issue to pass along.

"Household Insects."

A series of articles by John J. Schoonhoven, on this topic, begins in the September 1st number of "Country Life in America." They should be interesting, and bid fare to be so, as Professor Schoonhoven is not only a learned biologist, but a skillful camerist. The several illustrations are beautiful. The articles will be instructive and valuable to all readers of "Country Life in America."



A CACTUS ELEVEN FEET IN DIAMETER.

The Truthfulness of Nature.

The rocks and shells, and the frogs and lilies always tell the absolute truth. Association with these, under right direction, will build up a habit of truthfulness, which the lying story of the cherry-tree is powerless to effect. If history is to be made an agency for moral training, it must become a nature study. It must be the study of original documents. When it is pursued in this way it has the value of other nature-studies. But it is carried on under great limitations. Its manuscripts are scarce, while every leaf on the tree is an original document in botany. When a thousand are used, or used up, the archives of nature are just as full as ever.

From the intimate affinity with the problems of life, the problems of nature-study derive a large part of their value. Because life deals with realities, the visible agencies of the overmastering fates, it is well that our children should study the real, rather than the conventional. Let them come in contact with the inevitable, instead of the made-up, with laws and forces that can be traced in objects and forms actually before them, rather than with those which seem arbitrary or which remain inscrutable. To use concrete illustrations, there is a greater moral value in the study of magnets than in the distinction between *shall* and *will*, in the study of birds or rocks than that of diacrit-

ical marks or postage-stamps, in the development of a frog than in the longer or shorter catechism, in the study of things than in the study of abstractions. There is doubtless a law underlying abstractions and conventionalities, a law of catechisms, or postage-stamps, or grammatical solecisms, but it does not appear to the student. Its consideration does not strengthen his impression of inevitable truth. There is the greatest normal value, as well as intellectual value, in the independence that comes from knowing, and knowing that one knows and why one knows. This gives spinal column to character, which is not found in the flabby goodness of imitation or the hysterical virtue of suggestion. Knowing what is right, and why it is right, before doing it is the basis of greatness of character.—*Nature-Study and Moral Culture*, by Pres. David Starr Jordan.

The Natural Scientist a Religious Teacher.

Truly, he who unfolds to us the way in which God works through the world of phenomena may well be called the best of religious teachers. In the study of the organic world, no less than in the study of the starry heavens, is it true that "day unto day uttereth speech, and night unto night showeth knowledge."—*John Fiske in a memorial lecture on Charles Darwin*.

With the Web Makers

The Study of Spiders.

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

There have lived naturalists who devoted their entire lives to the study of spiders; indeed, in the case of a few, their researches were confined to special groups of spiders. There are naturalists living now who are patiently pursuing similar studies; yet, with all the literature we have on this subject and the constant contributions which are being made to it, there still remains to be studied an almost endless number of these forms, while many spiders are not yet known to science, and we may say that but a very small part of their structure is known at all.

There is plenty of room here for the young naturalist to interest himself in; for, in many instances, the habits of our commonest species of spiders have never been carefully studied or described.

Unthinking people—or those who have never given the matter a thought—when asked what a spider is, are pretty sure to say that it is some kind of insect or other. This is a long way from the truth, for spiders are not insects at all, any more than crabs and crayfish are insects. As a matter of fact, they belong to a very well defined group designated as the *Aracina*, of which no fewer than seven Suborders are known. That is to say, we have the tunnel-weavers, the orb-weavers, the line-weavers, the tube-weavers, the crab spiders, the running spiders and the jumping spiders.

Spiders possess no antennæ as we find in insects, and the head and thorax are fused together forming a cephalothorax,—these two parts being separate in the Insecta. The abdomen is said to be "stalked" or joined to the cephalothorax by a constricted isthmus. At its distal end, we find the spinnerets or spinning tubercles, in which is stored the material for the making of the web or other habitation. Now, if

any one will take the trouble to capture any good-sized spider, and place it in some suitable receptacle for examination with a magnifying-glass, it will further be observed that near the mouth there occur a pair of appendages which terminate, at their free ends, in claws. These are called *cheli-*



Fig. 1. The garden-spider and its orb-web.

cera, and in some species their apices open externally, which openings lead to the poison-glands. The next pair of mouth-organs, called *pedipalps*, seem to correspond to the antennæ of insects.

Spiders have from two to four pairs of lungs, and the openings leading into these sacs are to be observed near the abdominal stalk on the under side. There is a whole lot to study on a spider with a good glass,—so much,

indeed, that it will be quite out of the question to touch upon it in as short an article as this.

At different times I have photographed quite a number of our various species of spiders, as the *Argiope* or garden spider, some of the vagrant spiders, tarantulas, the triangle-spider and several others. Two of these are

As we all know, spiders are noted for the webs or nests they build, some of which are very curious, while others are extremely beautiful. A spider's spinning apparatus is one of the most wonderful animal structures in all nature. As stated above, it consists of the spinnerets which occur ventrally at the extremity of the abdomen. The



Fig. 2. A vagabond spider with silk sac holding eggs or young. Figures reproduced from photographs from life by Dr. R. W. Shufeldt.

reproduced here with the view of showing what excellent subjects they make for the camera. In Figure 1, we have the well-known and common orb-web spinning garden spider *Argiope*, and in Figure 2, one of the vagabond or running spiders of the genus *Lycosa*. It is seen to be carrying its young in a ball spun from its web.

It will be noted that these spiders have four pairs of legs, whereas insects have but three; moreover, the eyes in these spiders are what we call simple,—they are compound in all true insects.

There are many differences between spiders and insects; yet they have some things in common. For example, both have two pairs of jaws with associated parts; both breathe through spiracles, and both have in their bodies their annular plan of structure. Spiders are hatched from eggs and so are many species of insects, and both moult at various stages during their growth.

receptacle holding the fluid silk is internal, and the latter hardens as soon as it comes in contact with the air. There may be one or two pairs of spinnerets, each being supplied at its end with sometimes as many as a couple of hundred minute tubes, through which the threads pass. By drawing them together, the spiders can spin a thread; or by having them diverge, spin a flat ribbon, such as we see zig-zagging down from the center of the orb-web of the garden spider, here shown in Figure 1. A single thread is sometimes so fine that it will require good eyes to see it, yet it is composed of some hundreds of fine silken threads, each requiring the use of a powerful microscope to discern.

One can take away from a spider its entire supply of silk; when this happens, and it is allowed to escape, it generally robs some weaker one of its already constructed web.

Spiders put their silk to various uses, as the making of their webs (Fig. 1); the lining of their tunnels or nests; to envelop their eggs, and, in some instances, to spin a device, by means of which some species are able to fly.

Spider poison is extremely active and in a few instances has been fatal to man; and, were such a spider as a tarantula as big in bulk as a rattlesnake, its poison would be fully fifty times more dangerous to life.

Most species of spiders live a solitary life; others sometimes live in pairs, and when they do, they are constantly fighting each other. When Mr. Kipling attempted to show that "the female of the species is more deadly than the male," he probably had cobwebs in his knowledge-box; for, while it is surely true of spiders, it is by no means true of the vast majority of animals now living in the world.

Female spiders are nearly always much bigger than the males of the same species, and are far more frequently seen by us. Male spiders are constantly being persecuted or killed by the female ones,—the latter amusing herself by biting off his legs, or slaying him outright for a meal. She is of an irritable, fickle and quarrelsome disposition; and, after only too brief a courtship—by her brought to a close—she will bite her lover to death and gobble him up.

Under normal conditions some spiders have kept alive for a year; others may live as long as three or four years, but that is about the limit of the longevity of any of them. If we constantly study them in nature, we may frequently meet with males in which several of the legs are missing. These have been, as a rule, snipped off by their voracious mates, and they never grow out again. This kind of spider-pecking seems to be borne most philosophically by the males, for they ignore their losses and start out merrily in the pursuit of other mates.

My limited space will not admit of it here, but later on I hope to describe, in another article for *THE GUIDE TO NATURE*, the many kinds and wonderfully interesting webs and nests that spiders construct, and to have something to say about flying-spiders; how they treat their young; and, finally,

touch on some of the remarkable habits of some species, illustrating much that I present with reproductions of my photographs.

Robbing a Spider of Its Silk.

In response to an inquiry as to how to rob a spider of its silk, Dr. Shufeldt writes as follows:

"It is an easy matter to rob a spider of its silk. When I was a boy, I performed the feat on one or two occasions.

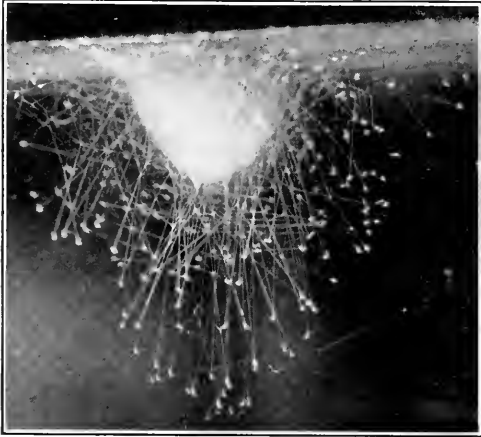
"One has to capture a specimen of any of the weavers of the group, at a time when it is producing its silk, so that the free end of the thread may be seized. The spider may be held in any convenient manner to keep its legs gently confined, so that they may not struggle and break the silken thread. With this in hand, it may be gently reeled off in any way that meets the end in view. The supply is never large, so the operation is not one of great length."

A Spider, a Carpenter Bee and a Wasp. New York City.

To the Editor:

I am sending you a photograph of a spider's nest, which I saw the spider spin on the inside of one of my bookcases. The webs, as you will notice, are fastened partly to the plate glass window, and partly to the woodwork of the bookcase. I think that the best constructive engineer could not have used better judgment than this little spider manifested, in making her nest absolutely secure with the least waste of material and of energy. The window glass was very slippery and highly polished. At first the spider stretched a web from one corner of the woodwork to the other, then let herself down from this "girder" to the glass, and deposited a drop of glutinous substance and, waiting patiently until that had hardened sufficiently to hold a thread strongly and tightly, she ran along this improvised tight rope back to the woodwork, and fastened the thread at the other end. After a skeleton web had been made, the little worker took down the original cross threads. Each fiber was tested by pulling hard on it, and if it seemed not strong enough, a reenforcing thread was fastened on it.

I also noticed that the basal threads, in every instance, were much thicker and stronger than those of the subsequent constructions. The little nest has given me, during its construction, many hours of solid amusement. Is there



THE INTERESTING SPIDER'S WEB ON THE INSIDE OF A BOOKCASE.

any characteristic or mechanical appliance which we big men follow which is not also used by small forms of animal life?

The other day I observed a carpenter bee at work on an old fence post. In two days she chiseled out a beautifully round hole seven inches long and about half an inch in diameter.

A week ago I watched a wasp sting a green caterpillar of probably eight times its own weight, then carry the burden for a distance of more than twenty feet over bushes two and three feet high, to a hole which it had previously dug in less than a day's time, and which, as I found upon digging, was more than twenty inches deep. In my hayloft are numerous purple wasps at work, making the cleverest little receptacles of mud. It will take a wasp hardly a day to make a beautifully shaped box, with four or five neat compartments, and plaster the whole thing inside with additional layers of mud, and do it in not more than an hour's work.

Here we have the three trades of plasterer, a carpenter and constructive engineer, practised by three different kinds of animals.

Yours very truly,

JOHN C. UHLAUB.

Interesting Experiments in Plant Circulation and in the Coloring of Flowers.

White pinks may be readily colored green, blue, red or pink by inserting the stems of the cut flowers in ink of the desired color, as they are usually put in water to keep them fresh. As soon as the petals begin to take the color, the stems should be transferred to clear water. The color will then continue to deepen for some time, because the water that the plant will take up will carry the ink already in the vessels of the stem, onward into the petals. If kept in the colored liquid until the petals assume the desired tint, the color will finally become so deep that it will spoil the daintiness of the effect. This is an interesting method by which to make decorations for special occasions, such as green pinks for St. Patrick's Day, and red, white and blue ones for the Fourth of July. It also affords an opportunity for studying the circulation of liquids in plants. It is said that lilies of the valley are specially susceptible to the influence of these coloring liquids, and it may naturally be inferred that any white flower will be equally favorable, if it holds its freshness for a long time, since the continued freshness of cut flowers is due to the presence of water within their cells and vessels. When a plant wilts soon after cutting, it shows us that the liquid current throughout the stem and the flower is exceedingly imperfect and that that particular flower will probably not take up a colored liquid, nor even water.

It is also said that ammonia taken into the plant in this manner will produce a variety of tints, and that the vapor of ammonia brought into contact with the flower under a bell glass will be the cause of especially novel effects. Pansies are capable of remarkable changes in color when they are brought in contact with these ammonia fumes.

The study of Nature is an intercourse with the highest mind. You should never trifle with Nature. At the lowest her works are the works of the highest powers, the highest something in whatever way we may look at it.—*Louis Agassiz.*



Established 1875

Incorporated, Massachusetts, 1892

Incorporated, Connecticut, 1910

To Form an Alumni Chapter.

Many of our school Chapters are prominent within the school, but steadily change in membership. The work is taken up by incoming classes and carried on as before.

This is not the best method. There is no reason for losing interest in nature after leaving school. The better method is for the students to take the Chapter with them, and let the incoming classes form another. We, therefore, especially recommend this good example of our Wendell Phillips High School Chapter. The secretary, Miss Milred Hamlin, writes as follows:

"Some time ago the charter was granted to The Agassiz Association Chapter of the Wendell Phillips School of this city. It is my pleasure, as secretary of the Alumni Chapter, which has been organized, to make application for a charter for it. The Chapter comprises graduates and those who have left the school and were paid up members of the Agassiz at the time of leaving.

On Monday evening June the 10th we held our first meeting at the home of Miss Stevens, 4401 St. Lawrence Avenue. Cards had been sent to seventeen persons that were eligible to membership, of whom seven attended. We held an election of officers with the following results:

President, Robert P. Vanderpoel; Vice-President and Treasurer, Grace Smith; Secretary, Mildred L. Hamlin.

The other members present were: Anna Eppen, Katherine Stevens, Margerate O'Connor, Lillian Tilske.

These seven are the charter members.

It was decided to hold two meetings monthly. At present we will convene on the second Saturday afternoon, and the following second Thursday evening of each month. We have put in our application for club rooms at Fuller

Park, Forty-sixth Street and Princeton Avenue, but until we obtain them we shall meet at the members' homes. Our field trips will be held on Saturdays, Sundays, and holidays.

We have planned an extensive nature study course for the summer and as we are all nature enthusiasts we anticipate encouraging results and a pleasant realization of the fact that we have pleased you.

If we can become members of your wonderful organization we will send the necessary funds as soon as we can collect them.

Trusting that we shall become one of your most active Chapters, we remain, The Wendell Phillips High School Alumni Chapter of The Agassiz Association.

An Appreciation of Arcadia.

BY JOHN SCHOONHOVEN, BROOKLYN, N. Y.

[My visit to Arcadia was so delightful an experience, that it gives me much pleasure to send you the enclosed little "appreciation," as a sort of summary of my impressions after thinking over the visit and the possibilities suggested by the place and its equipment.—J. S.]

We all have a dream of an Arcadia where every unspoken wish is gratified, and each, according to the measure of his nature, constructs that Arcadia as he builds his Castles in Spain. But who of us has found in very truth this land of fulfilled desires? On a summer day it was given to me to fare forth over sunlit, flower-lined, country roads, and to arrive, after many a bewildering hillside turning, at a gateway leading into an Arcadia ready built and waiting to receive me. I entered the doorway little dreaming how near I was to the land of which the naturalist dreams,—a rightly named Arcadia of the nature lover. If you belong to the band of the elect who have had the seal of nature worship placed upon your

life, I would commend to you this paradise where all things are intended to satisfy the mental hunger and thirst of those who seek to solve the enticing riddle of living things.

A small group of buildings make the outward seeming, on one of which we read the hopeful legend, "Botany Bungalow." Further on are the main office, and the "Three Kingdoms" entrance hall where plants and aquaria and curious shells, minerals, etc., greet the eye on every side. Still on beyond is the laboratory for the student and the microscope. Below stairs the young raccoon scolds you soundly for you have not brought the expected meal. The large tanks, cages and terraria all invite you to come and bring your specimens here and work. Above stairs the photographic outfit, a marvel of completeness and ingenuity in its mechanical arrangement, fills you with joy on account of its convenience and the work that it can do. Imagine further the books that line the walls of these rooms, all the books you have wanted on your own shelves, indeed, almost it gives the impression, all that have ever been published—on botany arranged on the one side, on biology on the other side, on general zoology upon the third side, and upon all sides apparatus of every description to supplement your reading and your study. Is it not the nature student's paradise for a summer holiday?

You go on to the bee bungalow. Bees and bees and bees, and lining these walls all the best works upon bees that have ever been published. Outside the buildings with their remarkable equipment of specimens and apparatus, the countryside invites the nature lover. The woods are at hand, the swamp, Nymphalia, beckons at your back door and for the collector there is no better stamping ground than just outside these open doorways. The seaside is just beyond the swamp thus giving the final touch to this Arcadia:—woodland, swamp, roadside and seaside—all furnishing their quota of specimens to entice the student. For anyone who longs to spend his summer days close to the heart of nature, no better place can be found. The energy and enthusiasm of Dr. Bigelow who has made possible this Arcadia, cannot be too highly commended. With an Assem-

bly Hall and a dormitory on the grounds for workers, Sound Beach should become the Mecca for nature lovers seeking inspiration in their work, as well as a playtime in their summer holiday.

The Influence of Nature.

BY BERTHA E. WALES, FORMERLY OF NATURE STUDY DEPARTMENT, STATE NORMAL SCHOOL, ATHENS, GEORGIA.

It is not necessary to enumerate the glories of any one phase of nature in order to show its influence in the world.

Nature really means *creation*, and the student of nature cannot but feel the close relationship existing between God and nature. In fact he will see that nature is God's fulfillment of His blessed Word.

Nature presents us with so many phenomena and these are to all rightly constituted minds so full of awe, beauty and charm that not to appreciate "the wonder and wealth of the Universe" means a great mental and spiritual loss, to the individual so unfortunate.

To me nothing can be more beautiful than the thought that "God is love" breathed to us by all nature's minstrelsy in deep swelling notes on earth, in air and upon the murmuring sea; it is His voice that inspires the day's dawn and gives us the glories of the sunrise; it is His love which is manifested to us in the quivering song of the care free bird, in the beauty of the blossoming flower, in the delight of the sun's golden beams, in the ecstasy of the rippling brook, in the grandeur of the lofty mountain; it is "He who walketh in His garden in the hush of the eve" and who giveth the soft twilight air the poetry of the eventide.

Many people are satisfied with the beauty of the picture in the margin or with the brightly colored vellum of the binding belonging to this treasure book called nature, and care not to or know not how to turn the golden leaves and learn the valuable lessons written therein.

Tell me of delight more keen or more real than that felt when the gentleness of heaven lies all around and fair nature answers the call of one who loves her. Who is he who comes most closely in communion with our loving Father, who forgets most readily the perplexing and harassing cares of the

busy world? He who understands the beauties and wonders around his daily path.

Then it is our duty to the Creator, to the neighbor, to ourselves to teach others the joy to be found in the simple things of life, the music in the stream, the secrets as we best translate them in the prairie, the mountain and the sea and all the wealth to be had for the asking. In this way can we aid in filling the world with the mighty peace called "contentment."

Ribbon Growth of Asparagus Stem.

Flemington, New Jersey.

To the Editor:

I send you by express an odd growth of asparagus. This is from a bed set

abnormal stem. Examples of fasciation are not uncommon, and are readily recognized in various forms of plants by the flattened, enlarged and usually curved stem. Fasciated stems produce a large number of leaves which are crowded or scattered so irregularly as not to maintain their original order as they develop on the stem in an ordinary growth. Sometimes different parts of the stem develop unequally and the result is a torsion commonly called "shepherd's crooks." A common example of fasciation is in the cockscomb or Celosia, where cultivation has developed it to an exaggerated degree. In this plant an abundance of manure is necessary in order to produce the desired result. This is one of many



THE FASCIATED STEM OF ASPARAGUS.

out in 1896. We did not notice this abnormal form until four or five years ago, though it may have appeared earlier. In cutting for table use, the shoots from this plant were discarded, begin rather woody. It is new to me and I hope may be so to you.

Very truly,

H. E. DEATS.

This is a remarkable and interesting example of fasciation, which is only another method of stating that it is an

signs that lead botanists to think that fasciation is produced by too much feeding. In animals overfeeding would make them stout, but it appears to flatten some plants.

Many theories have been suggested to explain fasciation, but it is sufficient to state that the change is undoubtedly due to a disturbance of the growth centers. Just what causes that disturbance, why some centers seem to grow weaker and others stronger, and why

peculiar growths result from too much food, is not known, but why should we discuss the causes of these abnormal growths when we do not know the cause of ordinary growth? DeVries, the well known botanist, has made extended experiments to show that, like the ordinary growth, these abnormal growths are hereditary.—E. F. B.

Perhaps in 1,000 Years!

When we note the successive surrender of one out-door magazine after another, we often wonder whether there ever will come a time when the general public will forsake nickel theaters and moving picture shows for the more satisfying pleasures of the study of nature. Meanwhile we continue doing what we can to awaken an interest in such things, being possessed of much of the spirit of the Irishman who hearing that parrots often live to be 200 years old bought a specimen with the intention of proving the matter by experiment.—*The American Botanist*.

Social Life in The Insect World. By J. H. Fabre. Translated by Bernard Miall. New York: The Century Company.

The author of this book has been called the Homer of the insect world, but I am inclined to think that the comparison goes unnecessarily far back. The author is evidently the French Seton-Long-Roberts. He belongs to the modern school that humanizes lower forms of life, and yet this statement does not necessarily declare that he has misrepresented insects, any more than it declares that the American writers referred to have misrepresented four-footed animals. He has brought them nearer to human sympathy and interest, and in our appreciation of the interesting book that he has produced, we may well excuse a little over-personification. The book is good reading, and in the main good entomology, but perhaps more than all that, a good mirror for seeing ourselves in the insect world.

Triumphs and Wonders of Modern Chemistry.

A popular treatise on modern chemistry and its marvels, written in non-technical language for general readers and students. By Geoffrey Martin. New York: D. Van Nostrand Company.

This is a readable and decidedly interesting book setting forth in popular language the latest researches in chemistry. It will also be useful to teachers of chemistry for supplementary reading in connection with their regular class work. In fact, the reviewer regards it as one of the most interesting of popular books that has come to his desk for a long time. It cannot fail to accomplish much good not only in the schools but with the general public.

The Harvester. By Gene Stratton-Porter. Garden City, New York: Doubleday, Page & Company.

A love story by a naturalist is really worth reading, if for no other reason, at least to see the kind of love story that a naturalist can write. The author is a really truly natural naturalist and a womanly woman. So intense is she on both points that, good as the nature study is, it sometimes intrudes where it should keep out, and the intense femininity makes men talk at times like women.

How vividly it recalls the memory of Richard Jefferies who thought himself a failure because he could not write love stories, but could (though he did not realize it) write the best of nature literature. But Mrs. Porter shows us that a naturalist can write a good love story. But she has a decided advantage over Jefferies, since she is a woman and married too.

The author seems to be a good Rambler. She has searched in many fields for medicinal plants—good for mind and body—and the book goes on and on and on, till there are 564 pages of it. It is "a good fair sized book."

Mars as the Abode of Life. By Percival Lowell, A. B., LL.D., New York: The Macmillan Company.

The author's arguments that there are intelligent beings on Mars are very interesting. He makes the claim that the Martians in long periods of years have dug canals for irrigating the planet from the melting snow and ice of the northern and southern poles. He claims that the life, cosmically speaking, on that planet is soon to pass away.

"To our eventual descendants life on Mars will no longer be something to scan and interpret. It will have lapsed beyond the hope of study or recall. Thus to us it takes on an added glamour from the fact that it has not long to last. For the process that brought it to its present pass must go on to the bitter end, until the last spark of Martian life goes out. The drying up of the planet is certain to proceed until its surface can support no life at all. Slowly but surely time will snuff it out. When the last ember is thus extinguished, the planet will roll a dead world through space, its evolutionary career forever ended."

Professor Lowell has diligently studied Mars and, though many astronomers will not agree with him, he surely is entitled to a respectful hearing especially because he makes some things he says very interesting, even if the reader cannot always agree with everything he says.

A list of trees and shrubs which bear fruit attractive to birds, how sea gulls won votes, and how 28,000 children have each been supplied with twenty-five colored plates of American birds and one-hundred pages of text, describing their habits and value to man, are among the more practical articles in "Bird-Lore" for August; a sixty-page number, with two colored plates and other illustrations.



THE GUIDE TO NATURE

Vol. V.

OCTOBER, 1912

No. 6

**“I BELIEVE IN STAMFORD”
ALL OF IT.**

See page x “Is the Slogan True?”

**And of Every Other Section of the Earth of
Which I Have Knowledge
All of It.**

In Fact I Also Believe in the Heavens Above.

* * * * *

**It's a great creed to effectively believe in
at least a part of God's Universe.**

EDWARD F. BIGELOW, Managing Editor

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What beautiful and useful knowledge the teaching of natural history might put into childish heads, if only science would consider the very young; if our barracks of universities would only combine the lifeless study of books with the living study of the fields; if only the red tape of the curriculum, so dear to bureaucrats, would not strangle all willing initiative. Little Paul and I will study as much as possible in the open country, among the rosemary bushes and arbutus. There we shall gain vigour of body and of mind; we shall find the true and the beautiful better than in school-books.—*J. H. Fabre, in "Social Life in the Insect World."*



Riverside and Sound Beach

A Neighboring Centenarian.

Not far from Arcadia in a beautiful section of the western part of Sound Beach, lives a lady who on October 15, 1912, celebrated her one hundredth birthday. Last Christmas I called at her home with my camera. Some of the results are here shown. Thinking that our readers would be interested in a sketch of her life, I requested Mrs. W. A. Wilmot of Riverside to give me some particulars. This she has kindly done in the following letter:

Riverside, Connecticut.

Dr. Bigelow, Dear Sir:

You have asked me for a history of my grandmother, Mrs. Jane Rushardt, Louden, who is a "dear old lady," living at the present time with her daughter, Mrs. Geo. Palmer, in Sound Beach, Connecticut. She was born in Stanwich, New York, October 15, 1812.

When she was about three years old, her parents moved to New York, where she first attended school in the old City Hall. In those days children were taught to make their letters and figures in sand.

When in her teens she married Obadiah Louden, a resident of Round Hill, Connecticut, and to them were born twelve children, eleven of whom lived to manhood and womanhood, and six of whom are still living, namely; William, a shoemaker of Middletown, New York; Thomas C., a retired butcher of Riverside, Connecticut; Cornelius, a jeweler of Phelps, New York; Mrs. George Palmer, of Sound Beach, Connecticut; Mrs. Richard Banks of New York City, and Mrs. Stephen Barnes of Shelton, Connecticut.

At the time of writing grandma has twenty-nine living grandchildren, forty-one great-grandchildren and three great, great-grandchildren.

My grandmother has been a widow for thirty years, and since her husband's death has made her home among her several children. She was always jolly and of a cheerful disposition. In



FIVE GENERATIONS.

Mrs. Jane Louden, Mr. Thomas Louden, Mrs. Susie Olmstead, Mrs. Anna Traband and Miss Helen Traband.



MRS. JANE RUSHARDT LOUDEN.

She proves that Sound Beach is a healthful locality, and celebrated her one hundredth birthday October 15th.

her ninety-eighth year and without the use of eye-glasses she pieced a quilt for a favorite great-grandchild.

During the past year my grandmother has been confined to her bed for most of the time, but that she may live to see many more birthdays is the wish of her granddaughter.

MRS. W. A. WILMOT.

A laboratory of natural history is a sanctuary where nothing profane should be tolerated. I feel less agony at improprieties in churches than in a scientific laboratory.—*Louis Agassiz.*

The more I see of politics, the better I like my honeybees, and the more I am reminded of them—some sweets and many stings.—*E. F. B.*

Pulling Riverside over to Sound Beach.

Photographically, I mean, but it was quite a pull, requiring a magnification of some ten times to show so clearly as is shown in the accompanying illustration, an example of telephotography of the shore of Riverside photographed from Sound Beach. The house at the right is Mr. Henry Shoemaker's and the one at the left is Mr. J. Langeloth's. The photograph appears to have been taken only a few rods from the shore.

Our readers will recall that in the number for May, 1912, were shown three telephotographs of Shippan Point from the east, optically pulled over to Sound Beach. Telephotography is a fascinating art. The process is familiar to all our readers who use a camera, but it is practically accomplished by the use of a telephoto lens attached to a high grade anastigmat. The pan-cratie telephoto is complete in itself that it is not attached to any other lens.



RIVERSIDE TELE-PHOTOGRAPHED FROM SOUND BEACH.

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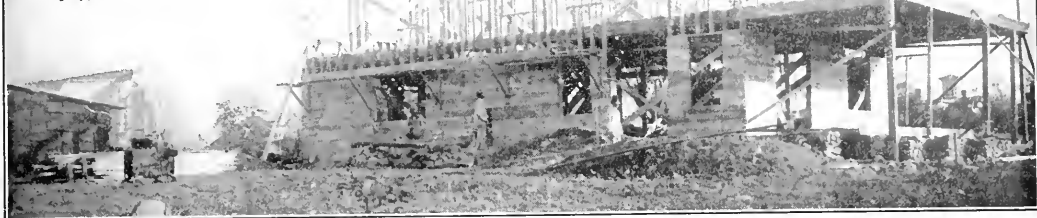
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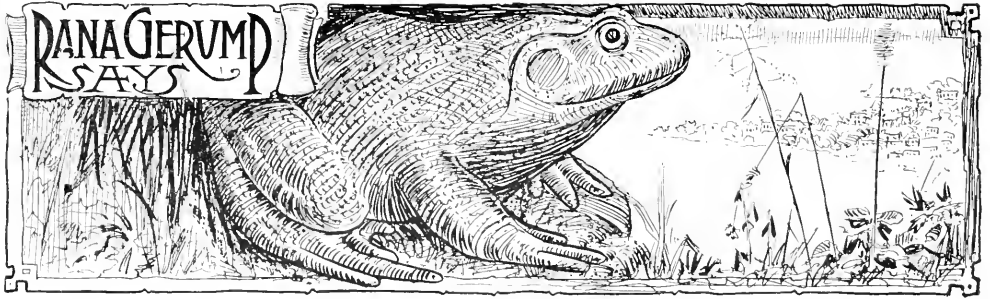
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Is the Slogan True?

Recently the business men of Stamford have made several days' campaign under the energetic management of President Beckley. Several soliciting committees have been contending in the good work of obtaining three years' members in the Board of Trade at \$25.00 a year. Headquarters were arranged, and a midday lunch was served to all the workers and friends of the cause. I followed the crowd and went to see what was going on. No sooner

in regard to the proposed project of exploiting Stamford. I became more and more impressed with the good work of the Board of Trade.

I suppose that most of us like to foster the feeling that we do things a little better than other people. I may be one of that kind. I am proud of that badge yet I might wear it without being conscious that I was not doing justice to the subject. I heard some of the speakers eulogize the harbor. I agree with that. Stamford's harbor is



"I BELIEVE IN STAMFORD."

was I within the doors than a friend pinned on my coat a badge on which were the words in bold letters, "I Believe in Stamford." Most of us retain some boyish traits. We like to carry a flag or wear a badge or some other kind of ornament. So I felt proud of my suddenly acquired decoration, and walked about with the feeling that I was not "it," but really quite "somebody," and "one of them." I partook of the excellent dinner and heard the speeches that eulogized Stamford, telling of its financial and business advantages, and also heard reports of the committees as to varying expressions

one of the most beautiful, valuable and advantageous sections of Long Island Sound. I heard others commend factory sites. Some referred to our beautiful streets, excellent water, electric lights, but I said to myself as I journeyed homeward, these things, all these things combined, are not Stamford. To believe in them only is not doing justice to the situation. Stamford is more than a place for manufacturing goods or getting money. Stamford is a large town possessing a great variety of natural attractions of which the harbor is only one. Here are the brooks. Not a soul mentioned them. Here are

the little ponds; the trees; the attractive fields, meadows, ravines, swamps, endless attractions. I asked myself repeatedly if "I Believe in Stamford." Of course, I believe in all these things because they are a part of Stamford, and if I did not believe in everything in Stamford I would throw away that badge, and get another which should read, "I believe in a few things pertaining to the business interests of Stamford." The question in my mind is, how many of the members of the Board of Trade believe all that that slogan connotes. Not merely to preach a sermon from the standpoint and the text of the naturalist, my contention is to take the thing literally. Every one who believes in Stamford should exploit Stamford in its entirety, and I know of nothing that can do that better than *THE GUIDE TO NATURE*. It has been doing it, and means to keep on doing it. We have heard that faith without works is dead. That saying is as good to-day as it was when it was written many hundreds of years ago, and it applies to matters of business, to exploiting a city, and to living in this world as well as to preparing for the other. If "I Believe in Stamford," then I believe in all of it. When the Board of Trade presents the attractions of Stamford to other people, I sincerely hope it will speak of the beauties of the wilds, of the picturesque features and attractions in the suburbs, as well as of harbor facilities and manufacturing sites. I make no reservation. "I Believe in Stamford," every bit of it, and I should like to tell everybody far and near of many of the commonly overlooked attractions of Stamford. If you do not believe in all of Stamford, take off that attractive badge. If you do not wear the badge, every one will know that you believe in none of Stamford. You cannot escape one or the other horn of the dilemma. "I believe in all of Stamford."

Increasing One's Pleasure.

The most interesting periodical that comes to my reading chair is our local daily, "The Stamford Advocate." Every evening my family and I have the pleasure of reading that interesting paper, and if by chance it is delayed or fails to come, we, for that evening, feel

lost,—there is something of happiness gone out of our lives.

But I recall that some sixteen years ago I thought "The Stamford Advocate" the dullest and driest publication that I had ever seen, but I now know that it was not because of its lack of good qualities, but because I was a stranger in this vicinity. I knew no one and the local paper therefore had no interest for me. But later I made acquaintances, and the people about whom the paper tells are my friends. I know of them and I want to know more about them, more of what they are doing, more of their daily lives and transactions. I had a similar, though not quite so decided an experience several years ago when as a young boy I, for the first time, visited New York. I saw everybody in the street cars and railroad trains reading the New York City papers. I proceeded at once to indulge in what seemed to me a great luxury, and bought half a dozen of the dailies. I then sought a good settee in one of the parks, and under the trees I thought I would enjoy myself as the other people were enjoying themselves. I began to pore over those papers, expecting to find the same joy and interest that were apparent on the part of the other readers. But imagine my astonishment and disgust when I discovered that they were the least interesting of all the combinations of words that I had ever seen. There was hardly a thing in them that appealed to me.

The trouble in each of these experiences is that I knew nothing about the subjects treated by the papers.

I believe that the explanation of the lack of interest shown by some persons in *THE GUIDE TO NATURE*, and the devotion of others, is that every one of us who are interested in this magazine are so because we are acquainted with the things of which it tells, and are vitally interested in them, the woods, the fields, the ravines, whose denizens are friends which we have known for many years and of which we like to hear frequently. The moral is evident. If you want to enjoy a daily newspaper you must get acquainted with the things whereof it treats. Get a speaking acquaintance with Mother Nature, and a magazine that tells of her doings

and changes from month to month will be of absorbing interest and will greatly increase your pleasure. Most persons can understand a reader's interest in any daily paper, because they can compare it with their own interest in the daily paper at home. But a magazine devoted to nature has not that comparative merit. If you are ignorant of all nature, you might as well try to understand what the people on Mars are doing as to comprehend the magazine's attraction. Every one who is not familiar with nature is always puzzled to know why nature students and lovers are interested in "such things," and every one who has received *The Divine Fire* is puzzled beyond the power of words to express, to understand why every one else does not show a similar enthusiastic interest. It may sound like a "bull," but the fact remains that we are interested in the things that interest us, and if we want to take an interest in things we must get interested in them.

"Big Tree" Tomato Vines in Glenbrook

In Mr. A. H. Emery's laboratory for testing-machines, etc., at Glenbrook, Connecticut, two workmen, Messrs. Elliott and Donahuh, are shown in the accompanying illustrations in the act of picking a tomato from a vine of the Ponderosa variety, that is fourteen feet in height. It will be observed that the man at the left is holding a pole ten feet in length from his right hand upward, and clasped to the end of that pole a jointed measure extends down four feet to the base of the vine, making a total of fourteen feet. If any one has produced a tomato vine taller than that we should like to have the particulars.

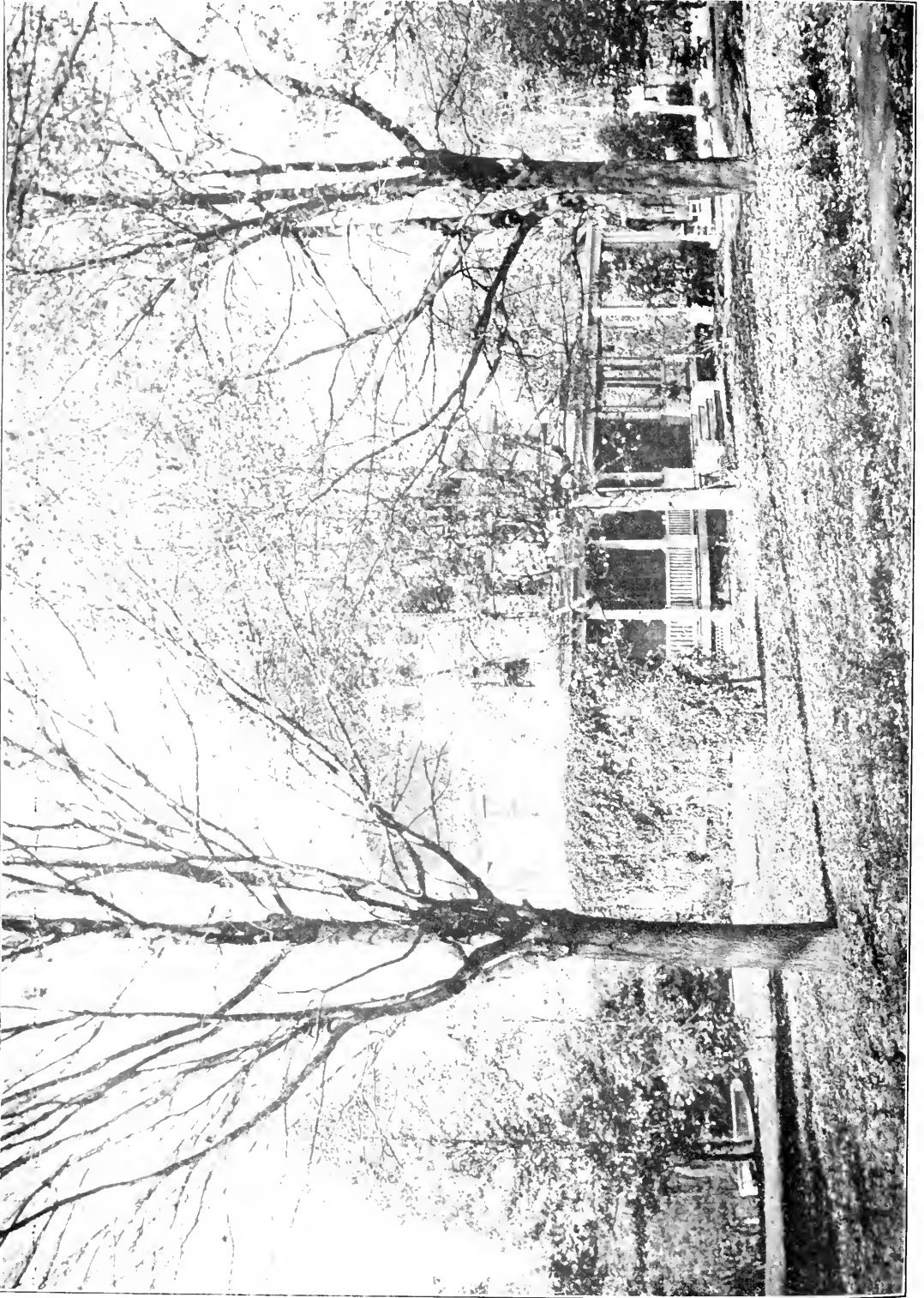


TOMATOES (FOURTEEN FEET TALL) GROWN IN GLENBROOK.

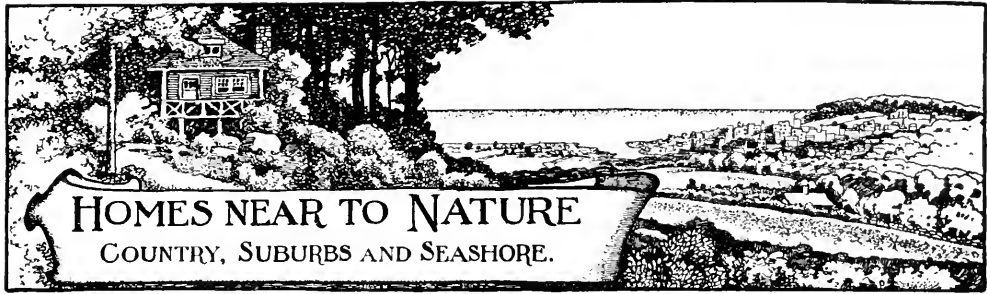
His private opinion is that the world belongs to those who enjoy it; and taking this view of the matter, he cannot help thinking that some of his more prosperous neighbors would do well, in legal phrase, to perfect their titles. He

ARC
DIA
ASA

would gladly be of service to them in this regard.....while all the inhabitants of the town are supplied with feet, comparatively few of them have eyes.—Bradford Torrey in "*A Rambler's Lease*"



WHEN THE LEAVES ARE FALLING IN THE INDIAN SUMMER.
The Home of M. William B. Beckley, Stamford, Connecticut.



Volume V

OCTOBER 1912

Number 6

“Beu-Wil-Ger-Mar”

By WILLIAM B. BECKLEY, President of the Stamford, Conn. Board of Trade.

“Build for yourselves nests of beautiful thoughts.”



HOW many of us know where or how to start this building? And when we find that the one place for our building is home, we wonder that our eyes have not revealed to us sooner the one place above all others that should express beauty. The how, then becomes the question. We may have only a small place and sometimes if we have a large place we say, we have not time to bother with flowers and such things. Time! Why, does it take time to be happy? Every one has an appreciation of beauty in one form or another. Every one has or should have a home and a happy home. To be a happy home it must be beautiful, gauged by some standard. Beauty lies hidden on every hand. The inventor and engineer see beauty in cold hard metal, the author in an essay, the artist in a statue or picture, and the naturalist in animals, insects, flowers, trees and stones, and not content with this earth the astronomer sees it in the stars.

Ex-President Dwight of Yale University gives as his rule for happiness —“The man is happiest who thinks the most interesting thoughts.” Our home, our nest, is the place to think interesting thoughts, whose expression are the touches our hand gives to nature. “Nature plus a soul,” means beauty of surroundings, whether it be the keeping of a box of flowers in a window, trimming a small grass plot, or the wider scope of landscaping, with roads,

paths, trees, flowers, and the proper placing of buildings and land marks.

Deep in every breast is hidden not only the desire for the beauties expressed in nature by the hand of man, but the ability to execute them. Retire to the innermost recesses of your own deep self, and in the quiet of the silent mid-night watches, plot and plan what you can do with your home surroundings to be happy. These are the interesting thoughts. Plan it all out in your mind and when you have decided, after weighing carefully the pros. and cons. of each step, upon a general plan. Work with this object in view. Do not expect to do it all at once, but with nature as a model, evolve gradually the entire scheme. Work with an object in view. A laborer directed to carry a pile of stones from one corner of a lot to the opposite corner, when his task was completed rebelled upon being then ordered to carry them back again. He had accomplished what he set out to do and could not bear the thought of immediately undoing the work he had just completed. Work with an object in view not simply for the sake of working, but to accomplish something. The pictures illustrating this article show a few of the things one man accomplished, who worked with an object in view. He thought interesting thoughts and was happy in working them out.

As each member of the family loves the beautiful home it seemed fitting that each of their names should appear as a part of its name. Beulah, mother,



A VIEW OF THE GARDEN IN THE EARLY SPRINGTIME WHEN THE BUDS ARE STARTING.

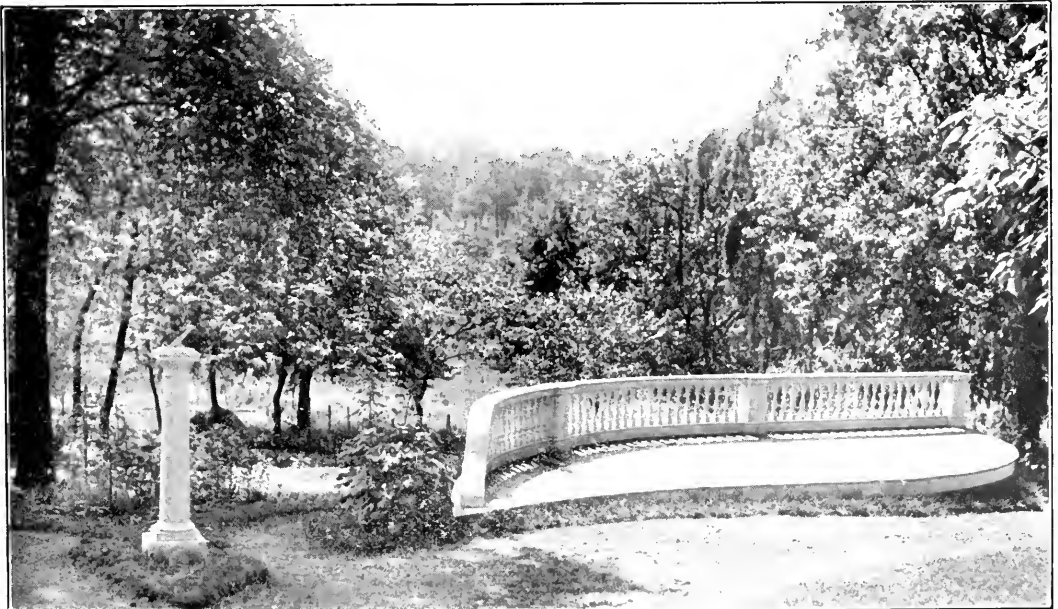


"THE APPROACH IS THROUGH THE SHADY LANE CALLED LAWN AVENUE."

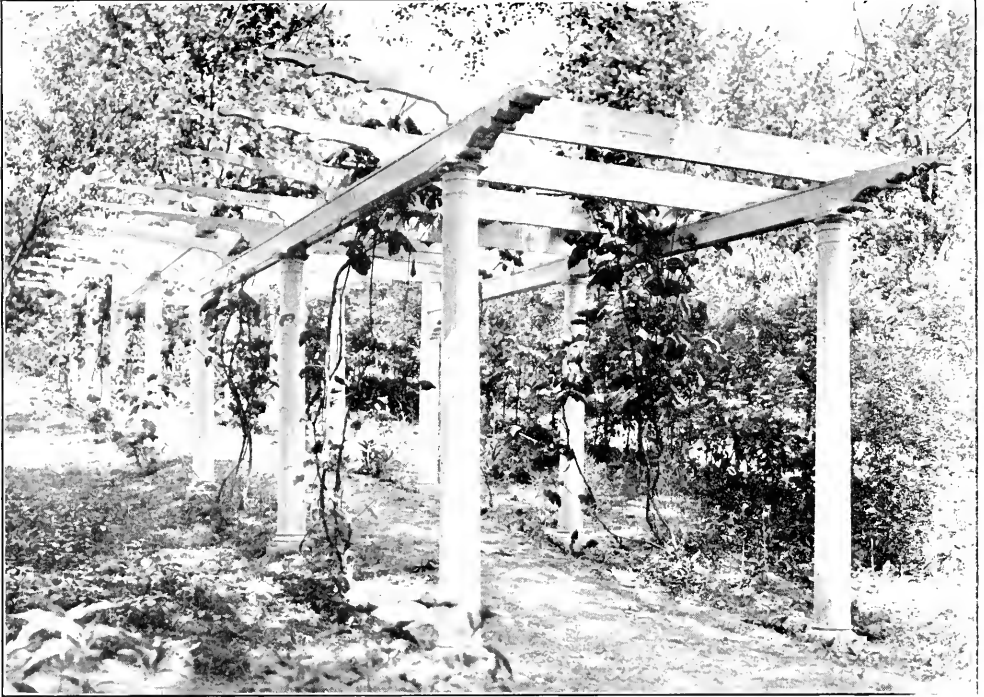
William, father, Gertrude and Margaret, daughters, contributed the first syllable of their name to form the name of the home, Ben-Wil-Ger-Mar.

The approach is through the shady

lane called Lawn Avenue which winds its way along the side of Roton hill to its highest part and there on the hillside is Ben-Wil-Ger-Mar. With the lights and shades of an autumn day



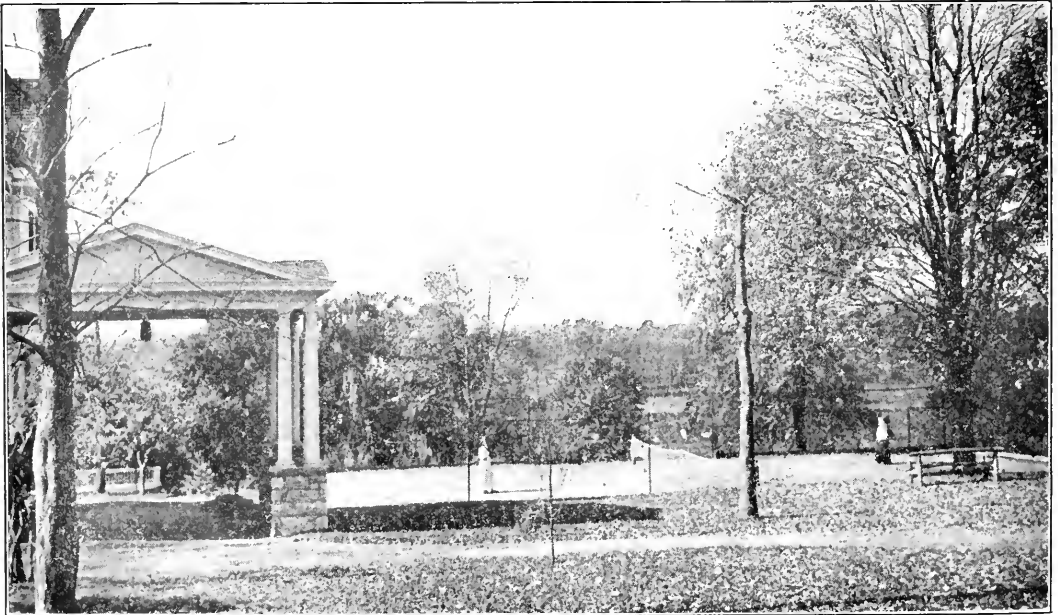
THE SUNDIAL AND ESPLANADE.



"THE PERGOLA BEING ON A SIDE HILL IS STEPPED AND THE EFFECT IS VERY PLEASING."

the picture seems ideal. Can you see the tulip tree shaped like a candelabrum, and the sun dial and esplanade in the back ground? The paths and drives originally were at right angles straight and severely regular. Easy

curves replaced these. A semi-oval drive swings through the lawn to the porte cochre and extends to the back of the house where a complete oval permits a vehicle to turn around. An off-shoot leads to the garage. The



A WESTERN VIEW ACROSS THE TENNIS GROUNDS.



"SURROUNDING YOURSELF WITH NATURAL BEAUTY MAKES HAPPINESS."

ovals are not regular geometrical curves, but curves fair and true adapted to the placing of the trees and shrubbery.

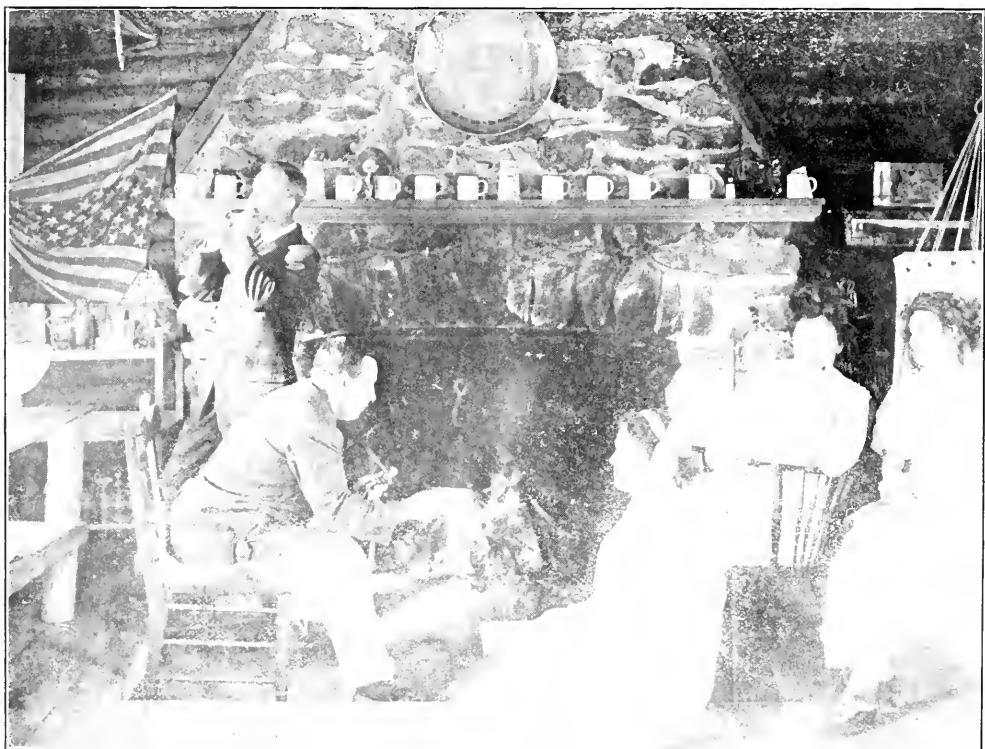
The tennis court is at the side of the house so placed that only one tree had to be moved. It is handy and invites you to play whereas a court farther away would often remain idle.

The general view of the garden

seems at a glance confusing and elaborate, but when you know that the left hand system of paths enclosing flower beds one roses and the other annuals, leads through the pergola to the garage, and the ones to the right to the vegetable garden, all seems graceful and plain. Each bed and path has its place and purpose. We have worked with an end in view.



"COME TO THE CABIN IN THE WILD WOOD."



"WE HAVE HAD MANY DELIGHTFUL TIMES AROUND THIS FIREPLACE."

The pergola being on a side hill is stepped and the effect is very pleasing. The horizontal lengthwise members are not perfectly level but incline slightly with the hill which removes the effect that some stepped pergolas have of seeming to be falling towards the hill.

The esplanade with its classic balustrade overlooks the scroll flower bed and you will note that its every turn is a graceful curve. There was a place for it and it fits that place. The sun

always out. We will pull it and enter. If it is at night when some one is having a birthday party you may hear an adaptation of an old song:

O then its Come Come Come Come
Come to the cabin in the wild wood,
Come to the cabin in the glen,
No spot is so dear in old Stamford,
As the little log cabin in the dale.

The hearth is a single stone about nine feet by nine feet, the half of a boulder split in twain by the glacial



EVEN "SCOTTY THE THIRD" IS PERFECTLY CONTENTED WITH THE BEAUTIFUL SURROUNDINGS.

dial with its golden gnomon tells the time on a sunny day.

In the valley below the flower garden just beyond what is shown in the picture is the vegetable garden. Here an enormous ellipse makes a path for all sides and corners of the garden. Let us walk down through the flower garden past the garage and through one side of this ellipse and across a flat space where at one time we had our tennis court to the bungalow which we call The Reservation. A genuine log cabin nestling between two protecting maples. The latch string is

forces in some far distant geological period. Rustic furniture and the log sides make you think that in reality you are in the wilds of some distant wood. We have had many delightful times around this fire place, and many a good meal has been cooked in it. Your name should be in the guest book.

The lesson we seek to impress is:— think interesting thoughts, work with an object in view; the natural sequence of events proclaim that by surrounding yourself with natural beauty makes happiness, not only now but at every



AN ENTHUSIASTIC PRESIDENT OF THE STAMFORD BOARD OF TRADE.

stage of your life. In the buzz and turmoil of an active business career how sweet are the smiles of the flowers which greet you as you rush from the house to the garage. In later years what a satisfaction to say I laid out that garden or I planted that tree, for we well know that during many years the beauty we have created will minister to some one.

Money and Scientific Pursuits.

There is one thing which a man of original scientific or philosophical genius in a rightly ordered world should never be called upon to do. He should never be called upon to "earn a living;" for that is a wretched waste of energy, in which the highest intellectual power is sure to suffer serious detriment, and runs the risk of being frittered away into hopeless ruin. Like his great predecessor and ally, Sir Charles Lyell, Mr. Darwin was so favored by fortune as to be free from this odious necessity. He was able to devote his whole life with a single mind to the pursuit of scientific truth, and to

ministering in the most exalted way to the welfare of his fellow-creatures.—
John Fiske in a memorial lecture on Charles Darwin.

WAITING.

By John Barroughs.

Serene, I fold my hands and wait,
Nor care for wind, or tide, or sea;
I rave no more 'gainst time or fate,
For lo! my own shall come to me.

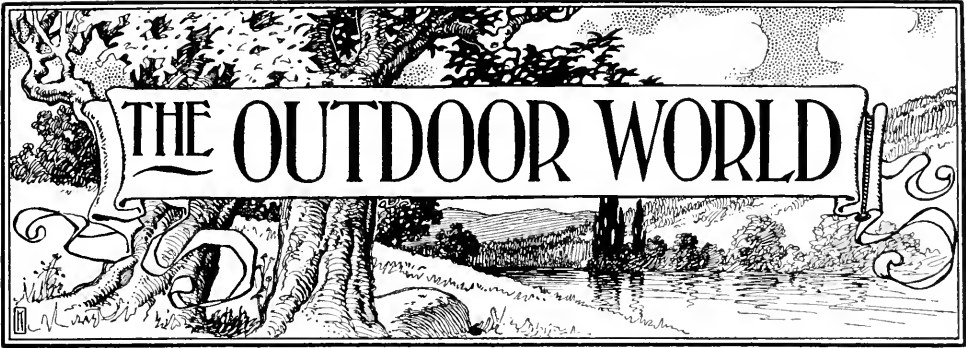
I stay my haste, I make delays,
For what avails this eager pace?
I stand amid the eternal ways,
And what is mine shall know my face.

Asleep, awake, by night or day,
The friends I seek are seeking me;
No wind can drive my bark astray,
Nor change the tide of destiny.

What matter if I stand alone?
I wait with joy the coming years;
My heart shall reap where it hath sown,
And garner up its fruits of tears.

The waters know their own, and draw
The brook that springs in yonder heights;
So flows the good with equal law
Unto the soul of pure delights.

The stars come nightly to the sky;
The tidal wave unto the sea;
Nor time, nor space, nor deep, nor high,
Can keep my own away from me.



The Picturesque Old Farmington Canal.

BY WELLS MCMASTER, CHESHIRE, CONNECTICUT.

Stimulated by the building of the Erie Canal in New York state many similar projects were proposed in this and adjoining states. In 1822 a charter was granted to the Farmington Canal Company for a canal to start at tide water in New Haven harbor and extend to the town of Colebrooke where it was to enter the Connecticut River. Prosperous communities in the upper Connecticut valley were sending a rich

stream of commerce down the river to Hartford, then a capitol of the state. The Farmington Canal it was planned would turn much of this commerce to New Haven, also a capitol of the state. The Connecticut River which in earlier years had probably been diverted from its original course, turning east, between Hartford and Middletown, by volcanic action at Berlin, would through the canal carry commerce to the Sound by its original path. A series of twenty locks were necessary to overcome an elevation of one hundred and eighty odd feet between New Haven and what



LOOKING SOUTHWARD AT THE OLD AND THE NEW—CANAL AND RAILROAD BY THE BROOKSVALE, CONNECTICUT, STATION.

is now Plainville. A town meeting held in New Haven in 1822 endorsed the canal and a few years later a stock subscription of \$100,000.00 was voted. Altogether the canal was an expensive project for New Haven. The story is told that the only stockholder to receive a dividend annually mowed a piece of the towpath and sold the hay. For nearly twenty years the canal was a popular route of travel. There were, however, many difficulties of maintenance and when in 1846 a charter was granted for a railroad the active existence of the canal ceased. Nature in reclaiming her own has touched this once famous highway of commerce with many beauties; water lilies add their beauty to its surface; cattle wade in the cool shade of overhanging boughs, and in some places a cautious peep will be rewarded by the glimpse of a trout as he flashes under a stone or the overhanging bank.

Lessons from a Storm, Regarding the Care of Trees.

BY F. R. GORTON, YPSILANTI, MICH.

The notoriously poor care that is given to shade trees throughout the country was forcibly brought out by a recent windstorm which passed over southern Michigan. Although the wind was merely a straight blow, and by no means a tornado, no one who gave the fallen trees even the most cursory examination could fail to be impressed with the large part played by lack of care in selecting, trimming, and repairing weaknesses in the case of trees destroyed or injured.

Fully one half of the trees which were seriously affected by the storm revealed large half-hidden cavities between the main branches, in which water was caught in every shower, thus creating there a mass of decay and growing roots. Many left standing have been split in this manner and demand immediate attention if they are ever to regain their former strength. The remedy of such a condition is well understood by the tree surgeon, who places bolts through the main branches, perhaps five feet or more above the break and ties them together by means of strong wires, which may be tightened by twisting, or joins them with a taut chain. In no case is it wise to

pass the chain or wire around the branches. Of course the crack should be filled with soft wax if necessary to prevent the entrance of water. A large elm in the vicinity of the writer's home was saved in this manner by treatment administered only a few days before the storm. Defects of this kind of long standing require a more thorough treatment of the decaying cavity, and should be turned over to the tree surgeon.

Another source of weakness that was unlooked for was revealed by a half dozen fine specimens of maple, around which the soil had been raised a foot or more in grading. The growth of the trunk at the former level of the ground appeared to have been greatly restricted, thus leaving the tree supported by a section no larger than the tree was at the time the grading was done. Of one tree examined, this section was of less than half the area of the present section of the trunk. A vivid lesson is here taught. In raising the level of the ground around a young tree provision should be made to prevent the earth from coming in contact with the trunk. This can be done by surrounding the tree with a cement ring or a substantial hoop of galvanized iron encircling the base at a distance of several inches from the trunk.

The evidence of weakness arising from faulty trimming and lack of attention to broken branches was manifest on every hand. Many large limbs which gave way to the force of the wind were inwardly decayed by the entrance of water through old scars. It was plainly obvious that many fine examples of elms and maples might have been preserved intact by a little careful attention. A break should in every case be cut as smooth as possible at a point where the wood is sound and then coated with a durable paint or asphaltum.

The most overwhelming evidence was probably against the selection of such trees as the ash maple or the Carolina poplar. Many enormous specimens of the latter were torn up by the roots and several dwellings narrowly escaped serious injury from their huge trunks. In one case the cornice was swept from a house and a porch badly wrecked. The ash maple is apparently too brittle to offer great resistance to

the wind. The branches lack in flexibility and therefore were easily broken off by the periodic gusts. It was shown to be absolutely dangerous to set such trees as these near dwelling houses. The trees that withstood the force of the storm best of all were the maples, elms, and the nuts of all kinds. Large spruces showed a fair amount of resistance, but many were broken off towards the top, and a few were uprooted.

There are some cities at least that will profit by these lessons taught by the storm. Their citizens have been forced to realize the value of the trees which line their streets and adorn their homes and will undoubtedly take steps at once to remedy in a measure the great amount of damage inflicted. While a tornado is rare and almost irresistible, the violent gale is of frequent occurrence, and thousands of the finest specimens of ornamental trees require immediate attention if they are to withstand the storms of a lifetime.

Impressions of Leaves.

BY JOHN COLLINS, PHILADELPHIA, PENNSYLVANIA.

(In looking over my botanical files I came across some excellent leaf prints sent to me by Mr. John Collins, of Philadelphia, Pennsylvania, together with an article published in "Popular Science," for January, 1900, during my editorship of that magazine. As several of the leaf prints have been unpublished I copied the article and sent it to Mr. Collins with the request that he would permit me to republish it in THE GUIDE TO NATURE. The following letter from Mrs. Carrie B. Aaron, 726 Stokes Avenue, Collingswood, New Jersey, was received in reply.

"Your letter of August 8th addressed to my father, Mr. John Collins, has been forwarded to me from his former address. My father has been dead several years, and up to the time of his death at eighty-nine years of age, he kept that love of nature and desire to help others. He would be very glad to have you reprint his article and I see nothing to correct in it."—E. F. B.)

This simple and inexpensive process is within the reach of every one. No previous knowledge of drawing is required, and with a small amount of practice, very good results may be attained.

The materials used are printer's ink, a dabber to press it on the leaf, good printing paper, not fully sized but

rather soft, common ink, or possibly a piece of India ink, a lithographic wax crayon and a crayon holder. These crayons can be had of any lithographer, costing about twenty cents per dozen. The French kind, marked Lencercier, are very good.

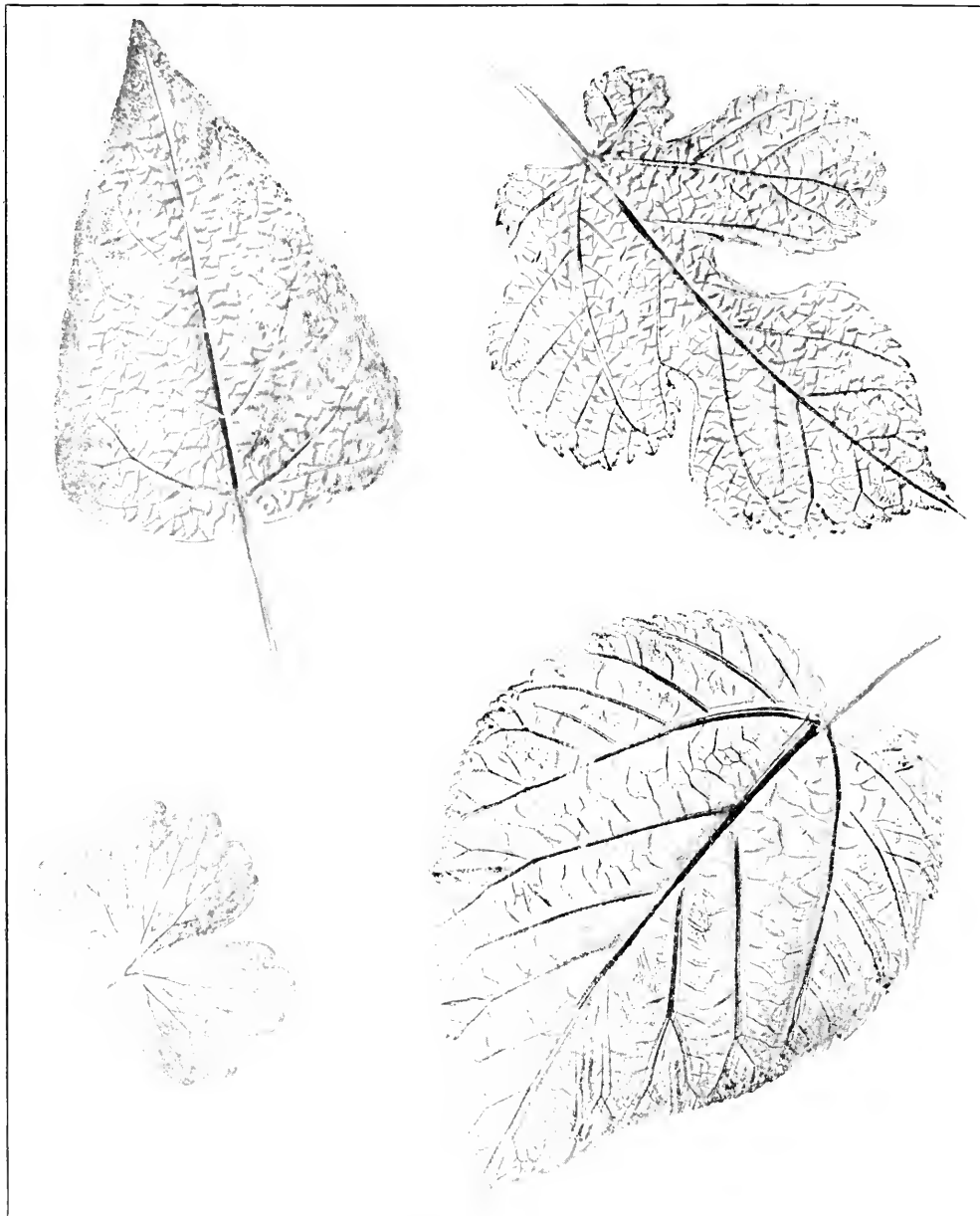
Leaves that show the veins prominently on the underside, will give the best impressions. Among these we may mention the oaks, chestnut, poplars and maples. Ferns, geraniums and many flowering plants are equally suitable. Those of a spongy, fleshy texture should not be used. Much depends upon the care and neatness of those who desire to make a collection of the various forms of leaves found in the garden, the forest or the field. They should be fully matured and free from imperfections.

It is best to cut off the stems close to the base of the leaf, and, if the mid rib is large, to pare it down a little with a sharp knife. Put some of the printer's ink upon a piece of window glass or on any hard and smooth surface that will not absorb the oil of the ink, and cover the end of the dabber very evenly with a small quantity. This dabber may be made by stuffing some curled hair into a piece of soft leather and fastening it to a short handle.

Having inked the veined side of the leaf, lay it carefully upon the printing paper, put another paper upon it, and press firmly upon all the parts. Lift the paper and leaf, and you have a facsimile. Then, with a pen and writing ink, complete the veining as nearly according to nature as possible. The shading and finishing are to be done with the wax crayon placed in a crayon holder and sharpened from the point towards the holder. Be careful to shade evenly, without showing any lines.

By using washes of India ink upon the white parts of the print, less time will be required in the shading. In case it is desirable to color the leaves, much less shading is necessary. Avoid blotches. If they should happen, scrape them away when thoroughly dry, with a sharp knife.

There may be some failures at first, but the beginner need not become discouraged. Practice for a few weeks will enable one to produce prints that look like fine engravings.



PRINTS OF LEAVES.

Simplicity and Truth.

Nature-studies have long been valued as a "means of grace," because they arouse the enthusiasm, the love of work which belongs to open-eyed youth. The child blasé with moral precepts and irregular conjugations turns with delight to the unrolling of ferns and the song of birds. There is a moral training in clearness and tangibility. An occult impulse to vice is hidden in all vagueness and in all teachings meant to be heard but not to be understood. Nature

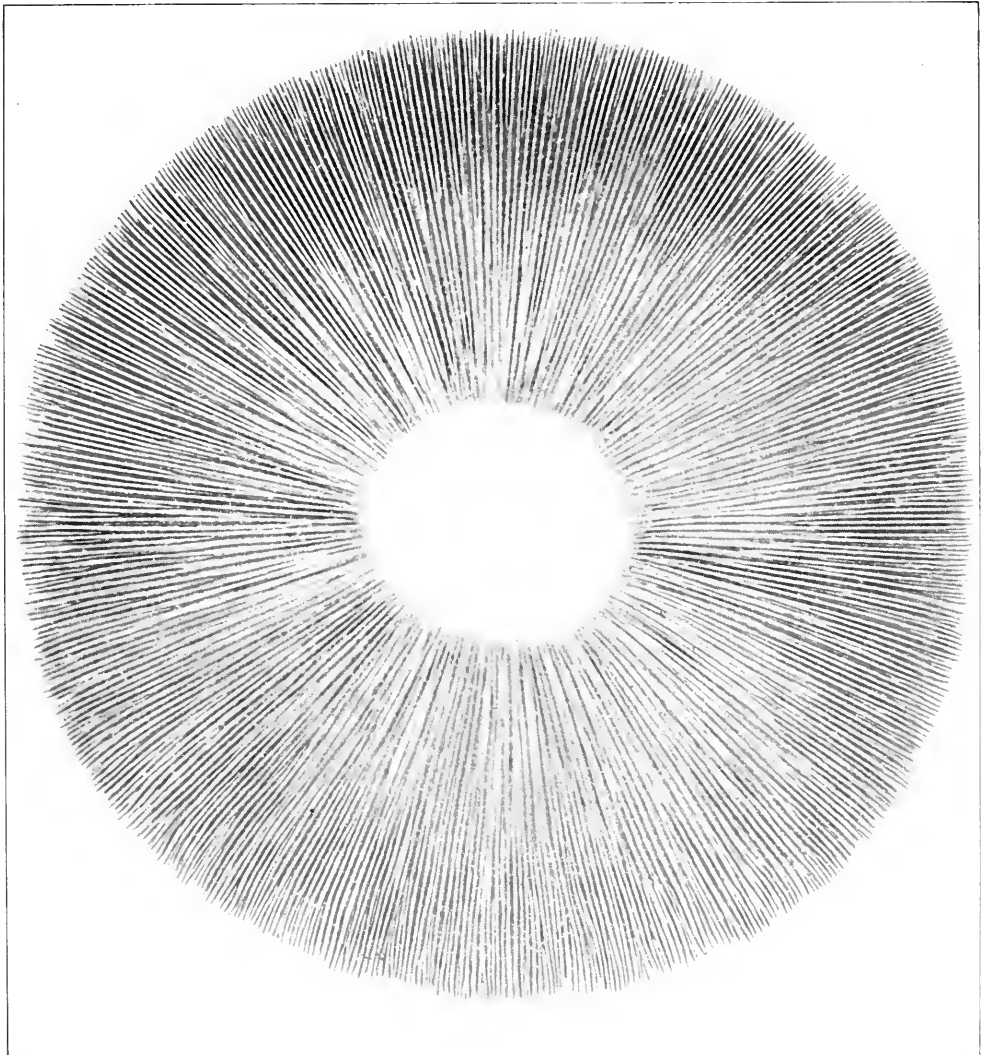
is never obscure, never occult, never esoteric. She must be questioned in earnest, else she will not reply. But to every serious question she returns a serious answer. "Simple, natural, and true" should make the impression of simplicity and truth. Truth and virtue are but opposite sides of the same shield. As leaves pass over into flowers, and flowers into fruit, so are wisdom, virtue and happiness inseparably related.—*Nature-Study and Moral Culture*, by Pres. David Starr Jordan.

How to Make A Spore Print of A Mushroom.

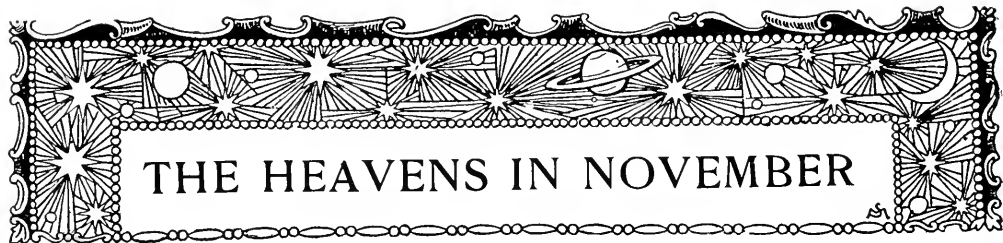
BY W. L. BEECROFT, CHESHIRE, MASS.

When a mushroom is mature, tiny bodies, called spores, are being continually shed, even as you hold it in your hand, though they are singly invisible to the naked eye. Their existence, however, may be shown by the following experiment. Select a mushroom of the type having gills or plates on the underside. The kind sold in the markets is excellent for this purpose, though there are many other kinds similarly useful that grow wild in the woods. Cut the cap from the stem, lay it right side up, that is, with the gills downward, on a sheet of white paper,

and cover it with a glass jar to keep out air currents. If the mushroom is shedding its spores freely, it will, in a few hours, make an exact copy of the underside of the cap—"writing its own autograph." If the spores are dropping slowly, it may take as long as ten hours to make a good print. The brown spored species are the best for this purpose, as they make a stronger print. If a permanent record is desired, dissolve a little gum arabic in water, brush it over a sheet of thick, white card, and put the cap on this before it is fully dry, but not while it is wet, as portions of the cap may then stick to it.



A SPORE PRINT OF A MUSHROOM.



The Heavens in November.

BY PROF. ERIC DOOLITTLE OF THE UNIVERSITY OF PENNSYLVANIA.

It is in this month that the most beautiful constellations of Orion and the Twins both enter our evening sky, and already the eastern part of the heavens begins to present the brilliant appearance which is characteristic of the winter stars. If the observer will face due east he will now see the wonderful Taurus with its Hyades and Pleiades, already mounted nearly half way to the zenith; to the left of these are the two stars which mark the extreme tips of the Bull's horns, of which the pure white star, at A, Figure 1, is a great double sun in almost the same condition as our two Dog Stars, while the second, at B, is a fainter, yellowish star whose influence in the days of astrology was for some reason believed to be particularly malign. It is at the point C, a very short distance above and to the left of this star, that there is found the singular Crab Nebula, often mistaken by amateur observers for a new comet.

THE NOVEMBER STARS.

To the right and above the tips of the horns we see the very brilliant Capella, while below there are the two bright Twin stars, Castor and Pollux, just emerging from the ground. But most interesting of all is the beautiful Orion, whose brightest star at H has now fairly entered our evening sky. This wonderful orange-red sun is one of the most interesting variable stars of the heavens. Seventy-six years ago Sir John Herschel discovered that its light was fluctuating; in the year 1849 another fluctuation began, its light increasing until in 1852 it was actually the brightest star in the northern heavens. A lesser brightening was witnessed in 1894. What is occurring in this great sun is wholly unknown to us, nor can we tell when a variation in its light is to be looked for.

The three nearly equidistant stars, D, E and F, which form the Belt of Orion and add so much to the beauty of this constellation, are now just arising from the ground. As might be expected, this striking line of bright stars has been noticed and named by people of all ages and in all countries. The Chinese called them a Weighing Beam; the Hindus, an Arrow; the Scandinavians, a Distaff, and the Greenlanders, three Seal Hunters who were lost at sea. To the native Australians they were young men, dancing before a group of maidens, who, represented by the Pleiades, were playing for them. The careful observer will notice that the star F is decidedly more yellow than those at D or E. The lower star is an interesting triple; the upper is not only a double star, but its brightness also varies irregularly.

SUNS WHICH VARY IN BRIGHTNESS.

It happens that one of the most remarkable and interesting variable stars of the heavens is expected to reach its greatest brightness during this month while it is in excellent position for observation in the evening sky. This star will be found at the point K in Figures 1 and 2, a very little to the left of the straight line passing through the stars L, N, P and S. It can readily be identified by its position a little below and to the left of the star at N.

This wonderful object is usually very much too faint to be seen with the naked eye, but at a somewhat irregular interval it begins to pour out more and more light until its brightness has increased many thousand fold. It usually remains thus bright for about two months and then it fades rapidly away.

It is predicted that this star will be brightest on November 5. It should then be more than twice as bright as the nearby star at M, Figure 2, and will probably so remain throughout the month. It will reach its greatest

faintness next May, when it will shine as a star of the 13.2 magnitude, only visible in the largest telescopes. Thus the changes in this distant sun are even more remarkable than those of the celebrated Mira, at R, Figure 1. We know that its wonderful blazes of light are partly caused by outpourings of luminous hydrogen, and its spectrum clearly indicates the agitation and

brated Demon Star, Algol, whose light is periodically cut off by the passage of its dimmer companion between itself and us. This star will reach its greatest faintness on November 2, at 7 hours 22 minutes P. M.; on November 20, at 0 hours 16 minutes A. M.; on November 22, at 9 hours 5 minutes P. M., and on November 25, at 5 hours 54 minutes P. M. The observer must

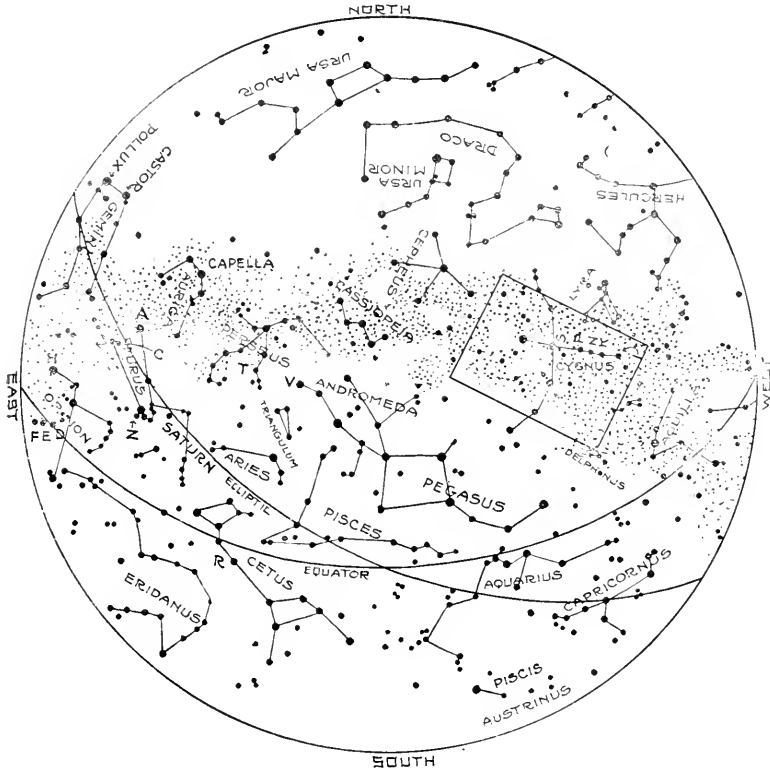


Figure 1. The Constellations at 9 P. M., November 1. (If facing south hold the map upright. If facing east hold "East" below; if facing west hold "West" below. If facing north hold the map inverted.)

violent motions of its heated materials at these times, but of the real cause of the periodic disturbances we are still ignorant.

Not only should the observer watch this star from time to time during the coming weeks, to observe its gradual fading away, but he may also be interested in examining the well-known Mira, at R, Figure 1, and the eclipsing variable at T. The former of these, which last May was nearly as bright as the North Star, is now barely visible to the eye, though it will not reach its greatest faintness of 9.6 magnitude until next December. The latter is the cele-

not expect to see the light of the star suddenly cut off; the companion moves before the brighter star so gradually that four and one-half hours elapse between time of greatest faintness. By looking at the star at intervals of perhaps an hour its light changes are, however, easily observed.

STARS LESS DENSE THAN AIR.

From a study of the stars of this kind we can not only ascertain the nature of these double sun systems but we can also find approximately how dense the two bodies are. And it is found that many of them are remarkably rare and tenuous—merely nebulous masses

which are still very far from having attained the compact condition of our sun. Thus the average density of all of the Algol variables is probably not far from one-third of that of our sun, while recent computations show that

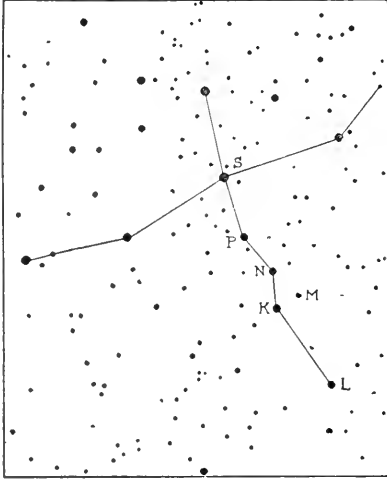


Figure 2. The square of Figure 1, enlarged to show the position of the variable star at K.

one of the fainter stars of this kind in the Southern Cross is actually less than one hundredth part as dense as our air. Yet this body appears to us as a bright and non-transparent star; when passing before its companion star it

remembered that the material of our own sun formed an equally rare cloud when this had not yet contracted far within the present orbit of the planet Venus.

THE PLANETS.

Mercury reaches its greatest distance east of the sun on the morning of November 19. The planet is then far below the Celestial Equator, and so if seen at all can only be detected in the extreme southwest for a short while after sunset.

Venus is rapidly moving out from the sun's rays, passing Jupiter in its eastward motion on the evening of November 7. By the end of the month it sets two and one-half hours after sunset and may readily be detected in the southwest, low in the twilight glow.

Mars enters the morning sky on November 4; Jupiter is drawing rapidly nearer the sun, though it does not pass to the east of this body and become a morning star until December 18. Both of these planets are in an unfavorable position for observation during this month.

Saturn is high in the east, nearly midway between the Hyades and the Pleiades, and presents a beautiful object for study in a telescope of moderate power. It is exactly opposite the sun (and so is due south at midnight) on November 23.

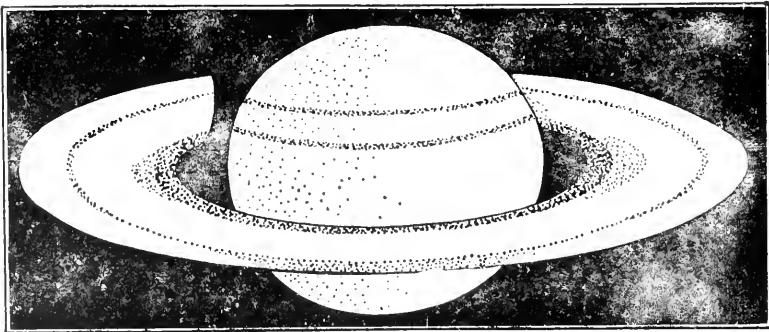


Figure 3. Appearance of Saturn and its rings. At present we see the ring even more widened than here shown, but there is little trace of the shadow of the ball on the rings because Saturn's shadow now extends almost directly away from the earth.

hides the light of this body from us exactly as if it were opaque, for the light of the hidden star is unable to penetrate the many millions of miles of tenuous matter of which its attendant star is composed. Remarkable and surprising as such a result is, it is to be re-

The November Shooting Stars may best be seen after midnight from the 14th to the 16th of the month. They dart outward in all directions across the sky from the constellation Leo, which is then well up from the ground in the east.

A fainter shower of reddish, very slowly moving stars, are to be looked for from November 17 to November 23. These are the Andromids, which move outward from near the star at V, Figure 1, usually leaving luminous trains

behind them. And toward the end of the month, the Taurids appear near the bright star Aldebaran, at Z, Figure 1. These also move but slowly over the sky, and fire-balls are said to occasionally appear among them.

THE CAMERA



Conyngham Valley, Pennsylvania.

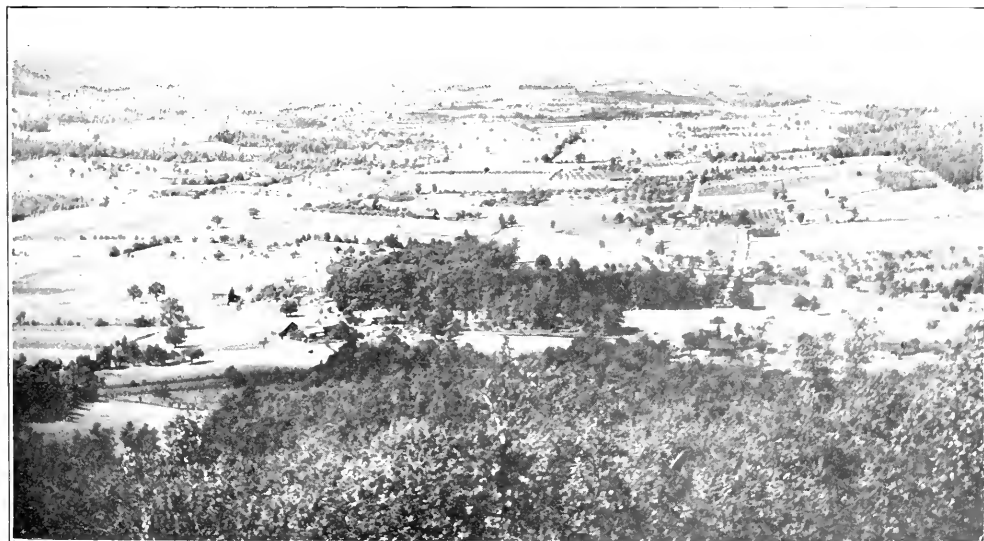
BY C. D. ROMIG, AUDENRIED, PENNSYLVANIA.

This photograph, taken by Stephen D. Engle, Jr., of Hazleton, Pennsylvania, shows the beautiful Conyngham Valley which lies a few miles north and west of the outskirts of the city of Hazleton, in Luzerne County, in the middle anthracite coal field.

It is a general view of the valley from the east to west, covering terri-

in height, with the little peaked Sugar Loaf conspicuous in the southwest. There is also a gap in the mountain in the far west where the Big Nescopeck creek flows through to the Susquehanna River at Nescopeck, Pennsylvania.

The well-kept farms within this valley, framed by nature's own rustic woods and mountains, when viewed from the latter, make an indelible picture on the mind of all who are for-



AN INTERESTING AND UNUSUALLY GOOD PHOTOGRAPHIC STUDY OF A VALLEY.

tory about five miles wide and more than fifteen miles long, and was photographed from Pulpit Rock in the east. This valley, which is like an oblong basin, is entirely surrounded by mountains ranging about five hundred feet

fortunate enough to see them. To the general public, this view is most attractive at Conyngham Pass, where is located the Wilkes-Barre and Hazleton railway station, also the public highway at this Point. The Hazleton

County Club house here is ideally situated for observing this valley.

Conyngnam Pass was the scene of a massacre of a small squad of soldiers by Indians in the year 1780. The exact spot is somewhat in doubt but the evidence at hand indicates the County Club grounds.

Within the past few years camping in tents and bungalows throughout this valley has been much in vogue and is well worth the attention of those so inclined. The Wilkes-Barre and Hazleton third-rail trolley-system running between Hazleton and Wilkes-Barre, a distance of thirty miles, passes through the middle of this grand scene, across the valleys and over the hills and mountains, thus affording to the general public a treat to the eye and a treasure for the memory at any season of the year.

Photographing a Woodcock on the Nest.

BY E. VANDERWERKEN, STAMFORD, CONN.

This woodcock's nest was found by my son and a companion in the first week of April. They did not know what bird could lay eggs in a place so open, and with so slight a nest. On their return they told me about the find and asked what bird I thought it could be. The woodcock is the only game bird that I know that breeds as early as March and April. I knew at once that they must be the woodcock's eggs.

At the next visit they found the bird on the nest, and continued to visit her every week, being careful not to let

the dogs go near her. The bird soon became used to them.

I went out to get the snapshots just before the eggs hatched. By careful movements I got within three feet. It was late and a little cloudy when the picture was taken, so I fear the bird will not show up well.

After exposing the plate I gently advanced near enough to touch her on the head with a little piece of dry golden rod about a foot long. I think I could have touched her as easily, and she would have remained on the nest. The boys found another nest near this one. I took three or four pictures of that, but owing to the lateness of the hour and a somewhat imperfect instrument, I did not succeed in getting good photographs.

I think there were more woodcock nests in this part of the country than usual this season, owing to the cold, late spring.

It is surprising how tame the old bird becomes if one is only gentle. She soon loses all fear, when setting. It seems too bad to educate them to the opposite by shooting at them. That large eye looks not unlike the deer's and it almost gives one a touch of what is called buck fever when one thinks of shooting at such a sight.

The Best Kind of Hawk Hunting.

Mulino, Oregon.

To the Editor:

Having read with interest Mr. Job's article in the August number, I am enclosing photographs showing my favorite method of hunting hawks and



MR. VANDERWERKEN'S TWO PHOTOGRAPHS OF THE WOODCOCK ON THE NEST.



CAMERA HUNTING ON THE MARSHES.

owls. My hawk studies in South Dakota have been confined mostly to the marsh hawk or harrier. This species may lack the dash and daring of the

sharp-shinned hawk, and its home is on the ground, not in the tallest trees as with the red-tailed, but nevertheless it is fully as interesting. From an economical standpoint it is one of the most desirable of birds.

The greatest interest in the study of marsh hawks centers around their home life. It seems strange that this species should choose for its nesting site a marsh inhabited by bitterns and coots, instead of nesting in trees like most of its cousins. In 1911, having previously located a nest several miles out in the country, I walked to it, equipped with cameras and accompanied by two companions. In the course of our visit we secured a number of interesting photographs. The one enclosed gives an idea of the nest and its surroundings, as well as the attitude towards us of the young hawks, which were about three week old.

ALEXANDER WALKER.



A GOOD CAMERA SHOT AT AN OWL.

We find *THE GUIDE TO NATURE* one of our best read papers in the library and the Nature Study classes get many of their lesson plans from it, in the line of field studies.—*Carric E. Ludden, B. Ed., Department of Biological Sciences, State Normal School, Kearney, Nebraska, October 2, 1912.*

Strange Growth of an Elm Tree.

Sidney, Ohio.

To the Editor:

In this letter I enclose the picture of an elm tree that is growing about a mile west of Sidney. The height of the arch in the highest place is about six feet. The tree



THE ELM TREE OF CURIOUS GROWTH.

is about two feet in diameter. Several attempts have been made to explain the peculiar shape. The one that seems most satisfactory is that at one time the tree was growing in a swamp, and as the water was drained away the ground subsided, exposing the roots, which then took on the life of the trunk.

Under a separate cover I am sending you the peculiar work of an insect. The leaf and twig are from the cottonwood. If not asking too much will you identify the insect which does the work. The man that brought it to me insisted that the large spongy growth is an enlargement of the spherical formation on the leaf stem.

Lee A. Dollinger.

This is an interesting growth. It may be that your explanation is right, but photographs of similar forms have reached me from other places where there has been no drainage of a swamp, because the tree has grown on a hill.

The other objects are the galls of a

plant louse known as *Pemphigus vagabundus* Walsh. Your man was correct in his explanation.

Snake's Eggs.

BY H. E. RANSIER, MANLIUS, NEW YORK.

No matter how "queer" you may have once been considered, nor how much your sanity may have been questioned, nor how foolish you may have been rated, when the rest of the community is in doubt, isn't it funny that they will turn to you for information and a helping hand?

I have long been known to be interested in Nature's ways, so it happens that much of my material is brought to me.

In the later part of June, 1911, a man brought me a curiosity which he said he had noticed while working around a compost heap, about a hundred feet from a small pond. The "find" consisted of nine or ten cream white, oblong, leathery objects, finely wrinkled lengthwise, from one-half to five-eighths inch wide, and one and one-quarter to one and one-half inches long, each attached to its neighbors, the whole forming a cluster of what at first sight I thought was a fungus. It was suggested that they were eggs of some kind, so we opened one. It had developed a spiral, nearly transparent form of some length which was unquestionably an embryo snake!

As I thought it would be worth while to watch them hatch, I placed them in a tray of sand, and left it in a warm, dry, second-story storeroom, where the sun could stream in on them. The eggs shrunk rapidly and soon dried up. From this experience, I think the snake knew what she was about when she selected a compost heap in which to leave them, for there they would have both warmth and moisture, and doubtless one is as essential as the other.

The size of the eggs and their location would indicate that they were either those of the common black snake, or the water snake. A boy from the country told me that he frequently found them in manure piles around the barns at home, so I invited him to bring me some, and while more than a year has elapsed, he has not done so yet, so perhaps he was mistaken as to

the frequency of his finding them, or this may be an off year for snakes.

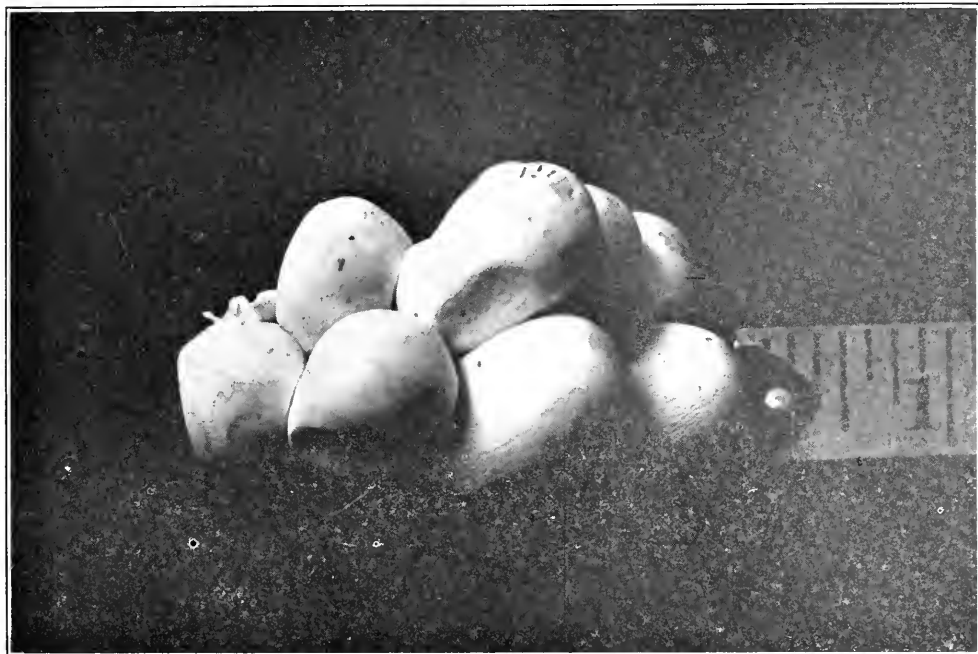
There was a time when I killed all snakes on sight, but the following experience, which occurred several years ago, cured me of the habit.

Passing down a woods road alone late one summer afternoon, with my mind on things far away, I was startled by a large snake which was lying directly across my path. It was perfectly quiet, and one might have thought it dead but for the brightness of its eyes. I killed it and examined the contents of its stomach. You may

Gouverneur Morris Mansion, Willow Avenue and 132d Street.

Every fall I have had ten or more baby snakes, which I took to the wilder parts of one of our larger parks and set free. Not knowing how to keep the larger ones through the winter, I also set them free; so that each fall I have an empty cage. Will you please tell me how to keep them over winter? Mr. Mellen's railroad is making such changes in the district referred to, I very much fear there will be few live things next spring.

JAMES J. CLEARY.



THE SNAKE'S EGGS.

imagine my astonishment when I found that its stomach contained a number of partly grown wood rats, one behind the other, in single file as it were. My recollection is that there were seven young rats. A cat that had done as well would be proclaimed a wonder.

Snakes Hardy in New York City.

New York City.

To the Editor:

For the past five years I have every summer picked up from eight to twenty snakes—garter and DeKay's—almost in the heart of this city; on the site of Jonas Bronck's farmhouse, and the

It is interesting to learn that you have found so many snakes right in the heart of the city. Snakes may be kept during the winter in any cool place in almost any box made over into a vivarium. Have some wire netting for ventilation and keep earth and a little water in a part of it. It should be in a cool place but not freeze, preferably in some good location in the cellar. They lie semi-dormant all winter and need not be fed.—Ed.

It is possible to keep a snake in a room with a temperature around 70°, when they may be fed upon earthworms.—*Raymond J. Ditmars.*



THE AGASSIZ ASSOCIATION

Established 1875

Incorporated, Massachusetts, 1892

Incorporated, Connecticut, 1910

Our Names and their Significance.

The Agassiz Association: This name was selected by our first President, Mr. Harlan H. Ballard of Pittsfield, Massachusetts, at the founding in 1875. He states in the AA's handbook, "Three Kingdoms," as follows:

"Not many of you need be told why we have named our Society THE AGASSIZ ASSOCIATION. There are few that have not heard something of the life and work of that famous man—so universally honored and beloved—Professor Louis Agassiz. In 1846 the great Naturalist left his native Switzerland, made America his home, accepted a Professorship at Harvard College, and built up the greatest school of Natural History in this country. Though one of the most learned, he was also one of the most devout and gentle of men.

"Mrs. Agassiz, the widow of Louis Agassiz, and Professor Alexander Agassiz, his son, lend their cordial approval to our society and its work, and have very kindly given us permission to use the father's name."

So our Agassiz Association means the enthusiastic, sincere, reverential observation and study of nature—both popular and technical—in all of which we are the followers of the great Agassiz himself.

The AA: This is the "pet" name—not a mere abbreviation—applied to the Association by the present President. He urges all Members and friends to write and print it AA, without space or periods, because of its emblematic significance. As A is the first letter, so The Agassiz Association is the first organization in this country (patterned on a similar one in Switzerland, Professor Agassiz's native land) to study nature in this wide, embracing enthusiastic manner. The

doubling of a letter always means, as a title of designation extra quality. But chiefly we value and commend the AA because of its monogramic use in the word Arcadia—the name of The Agassiz Association's Home.

Arcadia: This takes its name from the Grecian Arcadia (not the Nova Scotian Arcadie, as some persist in thinking). The term has always been a favorite one with pastoral poets and writers, and signifies all nature. Originally it was pervaded by the spirit of Pan, who was so named by the other gods because he was the god of all nature, "the child of heaven and earth." The Agassiz Association is for the study of all nature, and Arcadia is the Home of all nature. Our beloved AA is the beginning and the center, the center and the end, and the beginning and the end of ArcADiA. In fact, the principle of The Agassiz Association, "Study nature, not books," is the corner stone of Arcadia. To study nature is our constant aim and end; it penetrates through essentials to the center of all our work.

Nymphalia is the name given to a part of our new Arcadia. It designates a delightful meadow, marsh and pool, gift-leas'd by the New York, New Haven and Hartford Railroad Company to The Agassiz Association for the purpose of a park and for general nature study. The Grecian Arcadia was the home of the water nymphs and the wood nymphs, and *Nymphæa* is the name of the white water lily, the floral emblem of The Agassiz Association. The *Nymphææ* are proverbial for their beauty and fragrance, and have long been regarded as an emblem of purity. So Nymphalia may mean equally well the home of the water nymphs and of the water lilies. The water lilies (*Nymphææ*) are to be cultivated in the

pool in this recently acquired territory. *Nymphalia* abounds in an abundance of widely varied forms of plant and animal life. The real nymphs of the place may be found by any one who will seek them in the right spirit. Their names are Love, Study, Enthusiasm, Interest and Beauty. If you start with the first as a Guide you will find all the others. "We love things not because they are beautiful, but they are beautiful because we love them."

The colors of The Agassiz Association are gold and green—the golden sunshine on the green fields.

The floral emblem is the white water lily (*Nymphaea*).

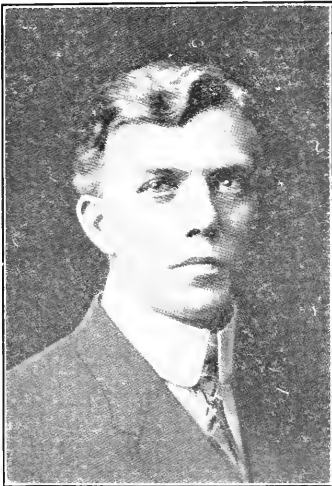
The motto is, "Per naturam ad Deum"—through nature to God.

The sign and seal are the Swiss cross.

The pennant is of green felt with "The AA" in golden letters.

A Faithful Worker in Behalf of Schools

Mr. Ossian Lang, after an extended experience with the *Teachers Magazine*, has resigned his position, and is to pub-



MR. OSSIAN LANG.

successful whatever he undertakes, because he is a thorough lover of schools and of all educational interests, and is a diligent worker in their behalf. His successors on the *Teachers Magazine* publish an open letter of appreciation, telling of his prolonged and faithful work, and extending to him the best of good wishes.

"Why do You go Back?"

Two ladies recently called at Arcadia, and the first thing that attracted their attention as they wandered into the garden was some primitive husk corn. "Why do you grow that?" was their surprised inquiry. It was explained that this kind of corn is nearer to the primitive original than any other of which we have knowledge, that some of it grows the kernels in the tassel and other specimens show the kernel first appearing at the modern place—that is alongside of the stalk. The corn has not yet learned how to discard an individual husk for each kernel, and to use one husk for the whole ear.

"But why do you go back to that, why don't you experiment with the best modern kinds?" was the inquiry. It is self-evident to our scientific friends, that to understand a subject one must go to the very beginning and study it in all its phases. But the point of view that most surprised us was the persistent inquiry about bringing in wild nature. "Why do you go back to wildness, why don't you study modern things?"

Here was a marked example of a person who could think of nature only as it is adapted to human utilitarian needs. It occurs to us that there may be other would be lovers of nature who ask the same question, and the reply would be, "When you would understand any object in nature, study it in all its phases and in its allied forms." That seems self-evident.

lish *The Social Center*, meaning the schoolhouse, which he thinks should be used by adults as well as by children. Mr. Lang has an extended reputation as a lecturer on various educational and political topics. He has many friends in all parts of the country who will aid him in his new venture. We are sure that he will make

But we wonder if there is not here a good suggestion for studying yourself. Go back over the course to the most primitive forms of life, and therein we may better understand what human nature is. The race has climbed the hill to what we call modernism and it is, indeed, refreshing to be able to congratulate ourselves on the accom-

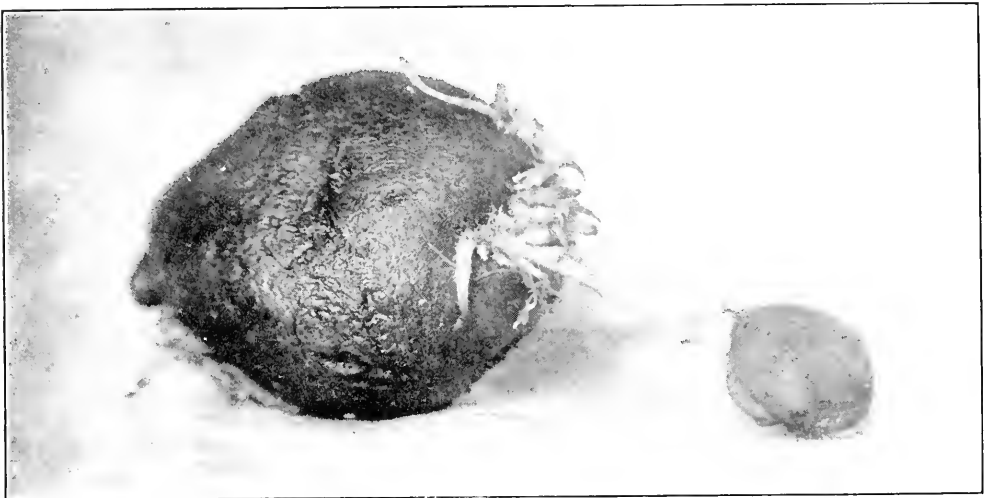
plishments of mankind, and to survey our present position from the almost dazzling heights of attainment. Then the problem arises, how shall we progress still further. It is carefully to go back over the course and ascertain how we reached the present high vantage ground—in other words, to go back so that we may go forward more effectively.

A Noble Sacrifice.

BY ELMER TROTZIG HOWARD, SOUTH DAKOTA.

The illustration shows an ordinary potato of last year's growth, and a

that, with the aid of the monthly article on the constellations, "my eyes have been peering as never before into the depths of the heavens." She has learned a large number of constellations of which she gives a list. In addition to all this, she is making some careful studies of the milky way, with observations of Saturn. Our member says she joined the AA not because of any special scientific knowledge, but because she had a general love for all nature. That is the right attitude. A real love of nature will produce the knowledge. We are pleased with the spirit of this report. The AA has evi-



THE NEW POTATO GROWING DIRECTLY FROM THE OLD.

tached to it by a short sprout, another new potato. The old potato is utterly devoid of any other larger sprouts with leaves or roots than those shown in the photograph. This specimen was found in the first part of June on a cement floor, in a cellar where it is dark and dry; yet the generous "Murohy" sacrificed a large part of its bulk to reproduce a potato like itself, but much finer in quality. The large potato is four inches long; the little one is one and one-quarter inches long and three inches in circumference.

Learning Wild Flowers and Constellations.

Mrs. E. F. Jenner of Farmington, Connecticut, a new member, sends us an interesting list of thirty wild flowers that she has learned, and also states

dently been helpful in stimulating and producing it.

Danger from Rats.

Miss Harriet E. Wilson, Stormstown Pennsylvania a member of The Agassiz Association reports that she was twice seriously bitten by an infuriated rat and that it is astonishing what sharp teeth a rat has. She very naturally adds that under the circumstances she would like to know what rats are good for.

Perhaps, like some other evils in this world, they are intended to test our ingenuity, or our ability in overcoming obstacles. One who has tried to raise little chickens, will agree that there is nothing that more severely tests one's ingenuity than to protect them from rats.

The Arcadia 'Coon.

We have a mascot—a young raccoon that we found at Brooksvale, Connecticut, while exploring the roaring brook for photographic purposes. She had



opened her eyes only a few days before. She was very small. We found her snugly curled up among the stones. We brought her home in our hands, and fed her with milk from a bottle. Just now she is somewhat past the bottle stage, and has entered on the gingerbread era. Nothing is quite so heartily welcomed as a piece of gingerbread, though for steady diet bread will do when the gingerbread desert has been eaten first.

No other wild animal makes so interesting a pet as a raccoon. If taken when very young it loses its wild ways and even becomes affectionate. The endless curiosity is always entertaining, and the manner in which our 'coon comes out of her cage at night, walks around the lantern carried by the one who brings the food and then explores the tin pans and dishes in that vicinity, is, indeed, almost human-like. Usually it results in knocking some tin from the table to the floor, followed by a scamper to the 'coon home. But soon forgetting the fright out she comes again for another exploring tour.

Perhaps we may later have occasion to say more about this 'coon. She is now developing rapidly, and new traits are manifested almost every day, but we want our readers to share the interest in the bottle stage before that era is too long past, hence the accompanying pictures.



"POSITION'S EVERYTHING"—TWO FAVORITE VARIATIONS.

An Assembly Hall is Really on Its Way to Arcadia

It appears now very small in perspective (and prospective) on the distant financial horizon—several hundreds of dollars away.

Please apply at least One Dollar (as a "lens") and bring it out a little clearer.

Ten Dollars would show motion (and emotion).

Twenty-five Dollars would make it jump hitherward with joy.

One Thousand Dollars would land it on the foundation.

Eighteen Hundred Dollars would complete it and furnish some chairs for you and your friends to use in enjoyment of some things new to you, that are entertaining and instructive.

This building will be under the control of the following Board of Trustees for free instruction to the public:

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\$249.84



THE GUIDE TO NATURE

Vol. V.

NOVEMBER, 1912

No. 7

DO YOU NEED A "GRINDSTONE?"

The Principal of a large private school writes:

"This year we have quite a number of younger ones, who, I am glad to say, have not had **THE EDGE** taken off their love of the "**REAL THING.**"

Some of us older ones might well sharpen up "the edge" a little!

EDWARD F. BIGELOW, Managing Editor

PUBLISHED MONTHLY BY

THE AGASSIZ ASSOCIATION, Arcadia; Sound Beach, Conn.

Subscription, \$1.00 a Year; Single Copy, 10c

Entered as Second-Class Matter June 12, 1909, at Sound Beach Post Office, under Act of March 3, 1879



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Mineral Waters

ESTABLISHED 1882

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Deep Rock Artesian Well Water Used

THE PUREST AND BEST

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NEW CANAAN, CT.

P. O. Box 794

Telephone Call 120

or inquire of your grocer

Guaranteed under the Food and

Drug Act, June 30, 1906

Serial No. 4755



GREENWICH, CONN.

Did it ever occur to you how accessible (with fast electric trains) we are to N. Y. and that you could buy or rent to advantage and enjoy living here on the water or among the hills to the utmost satisfaction?

I have for Sale

Elegant Country Estates, Shore and Inland Residences, Farms, Acreage, Cottages and Building Sites. Also a number of selected Furnished Residences and Cottages to Rent in all locations.

Would be pleased to have you call or write

Laurence Timmons

Opposite Depot

Tel. 456

Greenwich, Conn.

BEST NURSERY STOCK EVER GROWN

We carry a general line of Nursery Stock, such as; Evergreens, Ornamental Shade trees, weeping trees, all kinds of flowering shrubs, privet, berberry and other hedge plants, trailing and climbing vines, hardy Herb. plants, fruit trees, berry bushes, grape vines, etc. Our stock is grown far apart in Nursery rows, so that each plant gets the full benefit of rain, sunshine, nourishment, etc. Our soil is excellent for growing nursery stock and is under high cultivation. We thus insure plants with excellent fibrous roots, strong and healthy, which transplant and grow with ease when properly treated.

We shall be glad to show intending purchasers through our nursery, as we think it the proper way to see the stock in nursery rows.

Our nursery is located on North Street near the Greenwich Country Club.

We have made a specialty of laying out new places and remodeling old ones, as our records from both sides of the Atlantic will show. Training and long experience have taught us to do this work in the most artistic and effective way. Trees, shrubs, flowers and specimens in lawns must be placed so that they will harmonize, give shade where wanted, hiding unsightly places, but leaving vistas and making display of flowers and foliage and other worthy objects.

We may here mention our connection with the World's Columbian Exposition, the Brooklyn Park Department, the Arnold Arboretum, Boston, and many private parks in and around Greenwich.

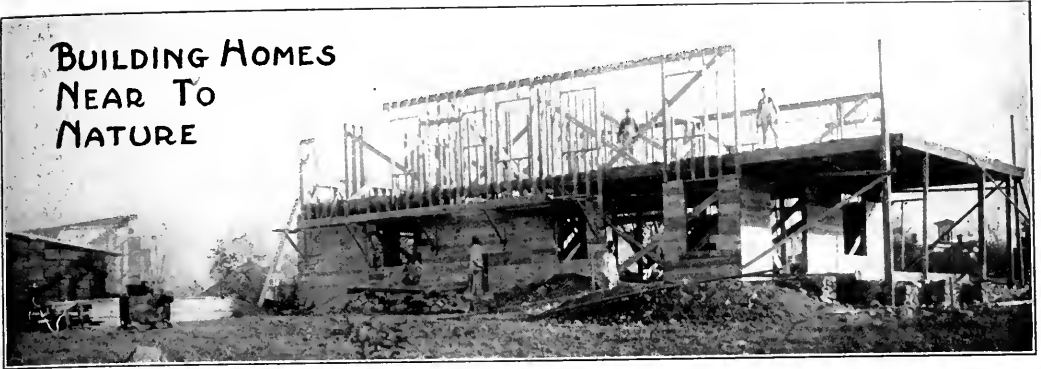
GREENWICH NURSERIES

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LANDSCAPE GARDENERS AND NURSERYMEN

GREENWICH, CONN.

**BUILDING HOMES
NEAR TO
NATURE**



ESTABLISHED 1853

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Lumber and Timber of all Kinds

SPECIALTY: High-Grade HARDWOOD FLOORING

thoroughly KilnDried and stored in Steam heated building until delivered to our customers. Our steadily increasing trade in this specialty proves the fact that the country home is not complete until fitted out with this beautiful and sanitary furnishing. Old residences may be greatly improved by laying thin floors over the old ones.

CANAL DOCKS, STAMFORD, CONN.

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Homes Near to Nature

Should be so constructed as to give lasting satisfaction. Our method of manufacturing dependable Interior and Exterior house trim from thoroughly kiln dried material by skilled mechanics insures such satisfaction.

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**SPECIFYING THE USE OF SATINA
INTERIOR WALL FINISH ON ALL
BUILDINGS UNDER ITS JURISDIC-
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The Boards of Education of New York and many other cities specify that Satina be used on their buildings.

Reasons why you should use Satina: color cards and literature gladly sent.

The Chas. H. Brown Paint Co.
188 Montague St., Brooklyn, N. Y.

THE STAMFORD LUMBER CO.

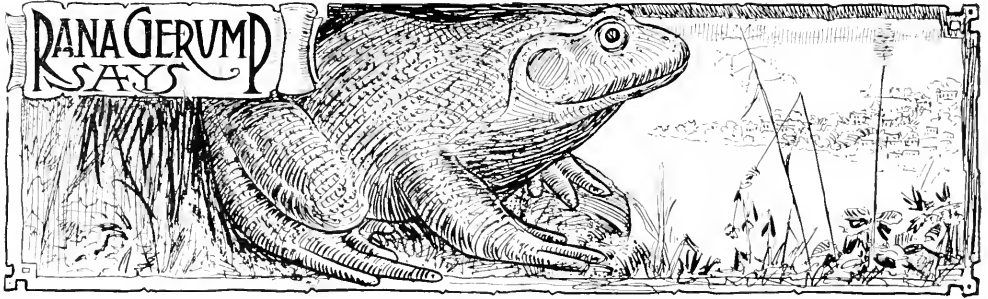
LUMBER

SASH, DOORS, BLINDS AND WINDOW-FRAMES

WHOLESALE AND RETAIL

OFFICE AND YARD, 297 PACIFIC STREET.

STAMFORD, CONN.



**A Local Department of Observations and Suggestions, with the "wisdom,"
not of an owl but of a frog.**

Appliances for Nature Work and Pleasures.

Perhaps the most important function in the mission of this magazine is to disseminate a correct understanding of what nature work is, and secondarily to be a guide in the better performance of the work. Certain errors are deeply imbedded in the general public mind. I recently read in a journal devoted to the keeping of honeybees about the error in reference to artificial honeycomb with honey sealed in it, a blunder that originated some thirty years ago in a newspaper article, that said that a process for placing honey in such comb had been discovered, as well as a method of sealing the cells with a hot flatiron, so as to give the product the appearance of honeycomb perfected in the hive. That journal stated that this erroneous, pernicious statement had cost thousands of dollars in attempts to correct the wrong impression. One of our national bee associations offered a prize of a thousand dollars for a sample of such honeycomb.

That this error was deeply imbedded in the human mind and generally believed, is a trifle when compared with that older and more strongly entrenched error as to the meaning of studying nature. It appears that centuries ago certain members of the insect world were used by certain queer people in uncanny experiments in magic, and since that time the study of nature in general popular estimation means the study of bugs. During more recent years, in the renaissance of natural science in our larger institutions of learning, there has been disseminated another error not quite so prominent but equally difficult to eradicate. This is that to study nature

means to peer through a microscope and to dissect some plant or animal with a scalpel.

Nature has waited many centuries and met with many difficulties in coming into her own, but within the last few decades, perhaps within a score of years, she has been steadily and successfully doing that. Free yourself, O reader, from the traditional errors of the past, and let us tell you plainly and pointedly that what this magazine stands for is not to lead you to become an expert in any department of entomology, not an expert with the tools of the laboratory, but to guide you sympathetically to nature in all her charms, attractions and helpfulness.

Go to her in your own way, but if you go to her through the chicken yard, you are as much studying birds as you are if you go to her through the field glass, with the object a scarlet tanager at the topmost tip of a tree.

Go to her in your garden, and watch that annual marvel of the unfolding of the plant through the germinating seed till it comes in late year to full mystery of a joyous crop.

Go to her through your greenhouse. Enjoy the esthetics of the varying colors and delicious perfumes offered by the triumphs of the modern florist's art.

Go to her if you please in the larger forms of cultivated plants that we call agriculture. A cornfield is, if rightly used and rightly viewed and rightly studied, as much a place of inspiration as the tangled thicket.

Why in the name of common sense, have we relegated the daisy to the botanist and forgotten the cornstalk? No one who rightly views them does that, but in this clinging, cobwebby

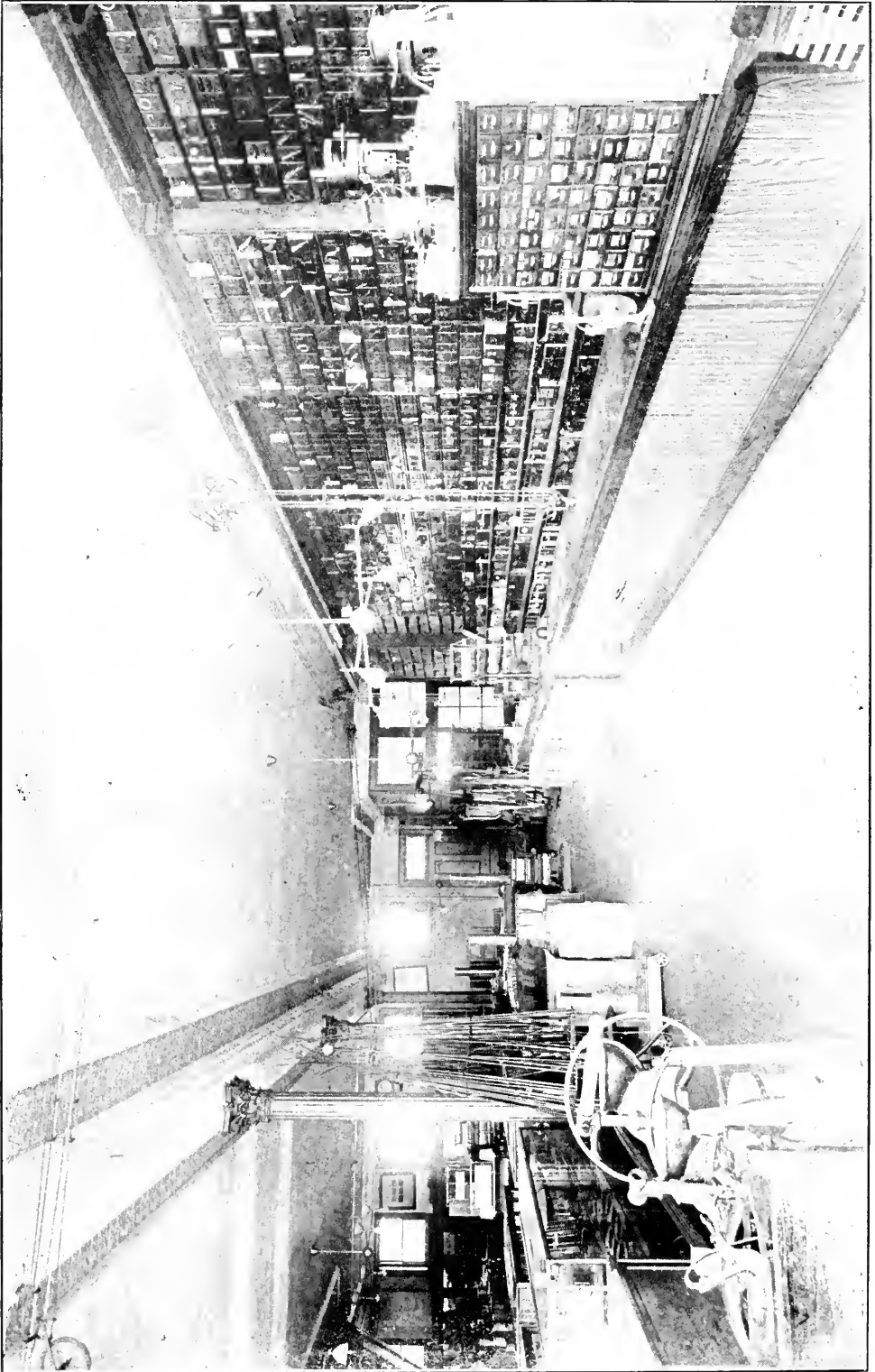
superstition of the past there seems to be a popular impression that botany means some rare floweret in some hidden cranny as it does not. There is no reason why botany should not be studied in the potato field. Isn't that *Solanum tuberosum* as interesting as the bittersweet, the *Solanum nigrum* or any other member of that family? Is there any plant in all the domains of nature more interesting than the many varieties of Brassica? Perhaps you know it under the name of cabbage, turnip, Brussels sprouts, kohlrabi, rape or cauliflower. The last mentioned member of the Brassica family has perhaps excited more intellectual interest than its plebian brothers and sisters, because it has been so aptly defined as cabbage with a college education. So if you want to study or to revel in the beauties of plants or animals, by whatever name you may call it, if it is only your garden or your field or your conservatory, or the equipment of your suburban home, then the Mecca of all your interests is the well-equipped store that deals in the various appliances that you will need. Of that kind in this vicinity I know of none more extensive or more attractive and efficient than that of Lockwood & Palmer, Stamford, Connecticut. Would you have a better garden, would you better know your garden's interests? Look at the long list of apparatus that you will need, plows, harrows, wheelbarrows, farm wagons, hoes, rakes, trowels, dibbles, in fact no end of attractive appliances to open up the charms of the plant world under cultivation and observation. Would you revel in beautiful ornithology? Here are innumerable appliances for keeping your feathered pets that we know under the common name of poultry. Do your fourfooted friends comprise pet rabbits, cavies, cats, dogs, cows, oxen, bulls or horses, why of course you will find everything you need at this great and well-equipped hardware store. Do you like to tinker around, build buildings and equip them? What better place for every form of tool to delight the worker in wood? If you are building a barn you need an assortment of tools, and do not forget that you are going as directly to nature in building a barn as in building a laboratory, only you are

dealing with a different form of animal life and have a different point of view. In your barn you will study the balanced relations of the cows, you know what is best adapted to your draft horse or to your trotter. If you are building a laboratory, it will be for the study of the habits and the traits of smaller forms of life.

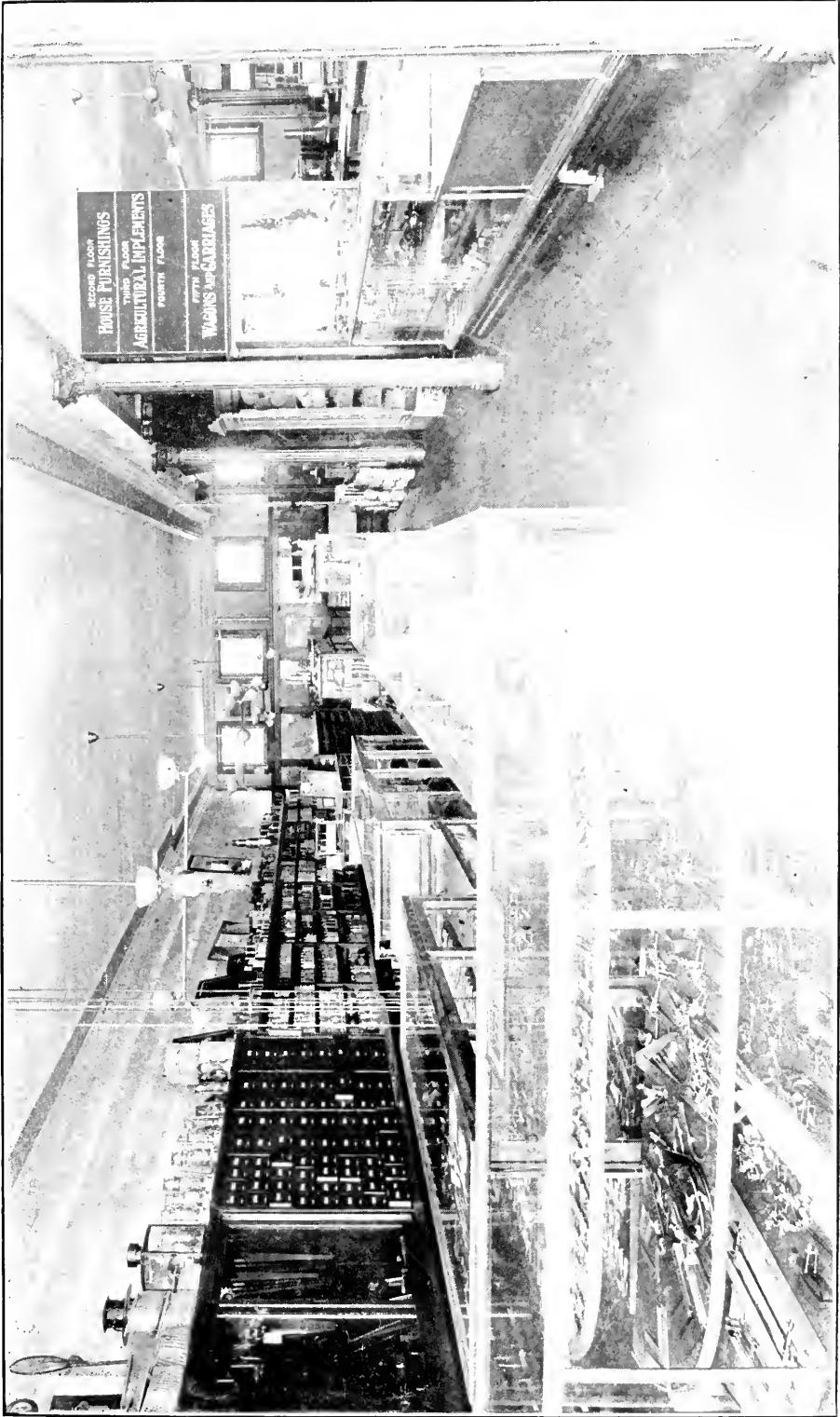
Lockwood & Palmer's well-equipped store is an emporium for better and more effective living near to the heart of nature. In fact you can find here not only the equipments for living near to the heart of nature, but for getting there. Probably there is no other store in all eastern Connecticut better supplied with good, comfortable carriages and all sorts of vehicles than is this store. Merely to walk through their carriage department makes one long to take a ride into the suburbs of Long Ridge, or High Ridge, and to seek the wilds of New Canaan or Quaker Ridge. To tell you all this comes within our guidance into the deep recesses of old Mother Nature as much as would the telling where you might buy a telescope. Perhaps some one to whom still cling those cobwebs of erroneous tradition will ask, Why does a natural history magazine recommend a hardware store? Why not, when from the roof to the cellar what one finds in these many stories are but helps to take you to nature in the way in which you like to go. If you like nature best in the cornfield and the potato patch, you will certainly find here as much to delight your eye as will the one who admires nature through the vasculum and collecting case.

Good, intensely good is this modern movement of taking people out of the crowded cities to the country or even to the suburbs. There is more room there, no longer are you crowded into the tiny rooms of a flat, nor in some little section of a home in the city, but here you have plenty of space in which to spread, and in which you can have the conveniences of a home. If you want to furnish the kitchen, the pantry, the cellar or the back workshop, you go first of all to Lockwood & Palmer's for your supply of good things. That these enterprising proprietors have well served their fellow-men is shown in the

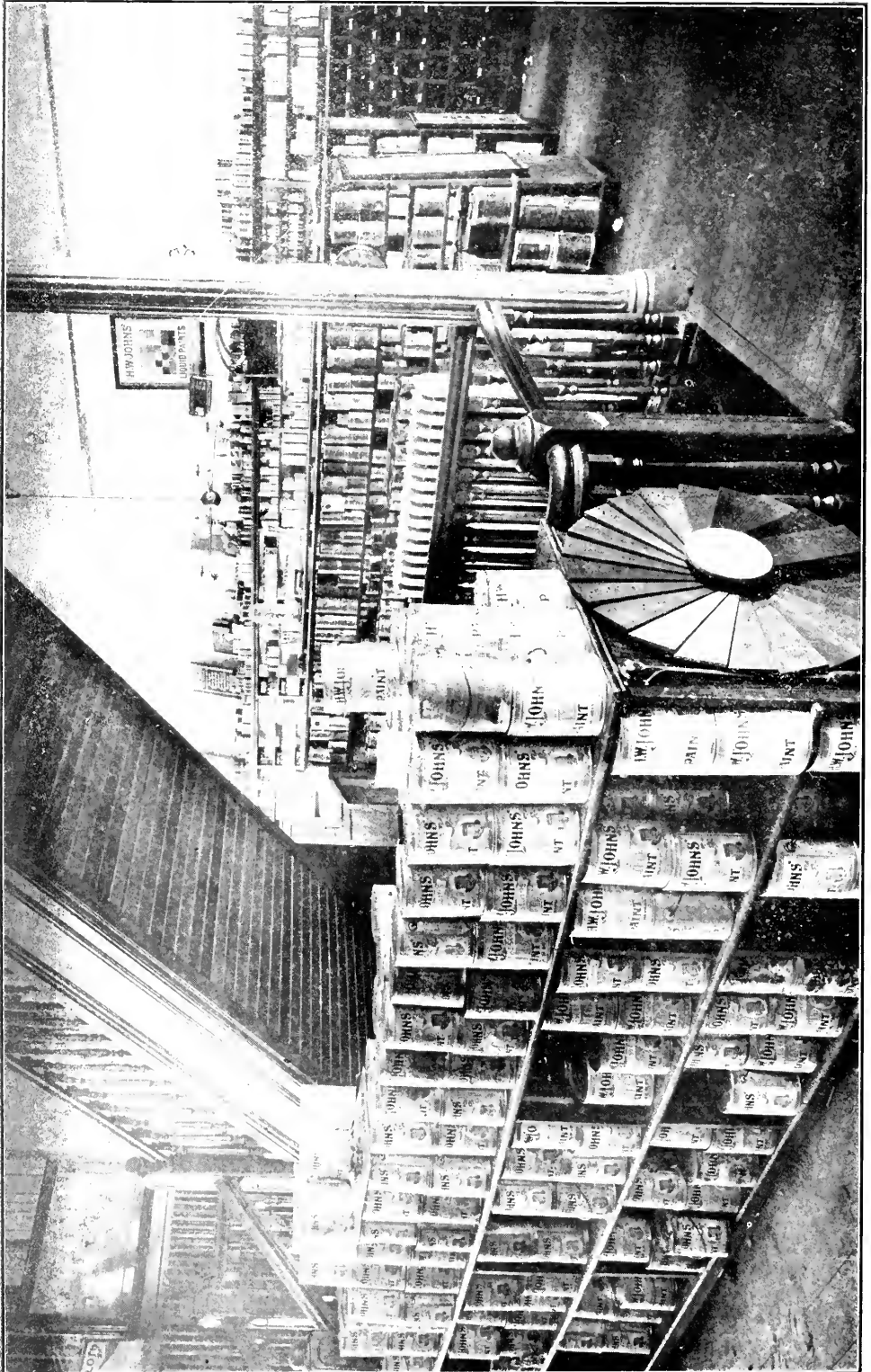
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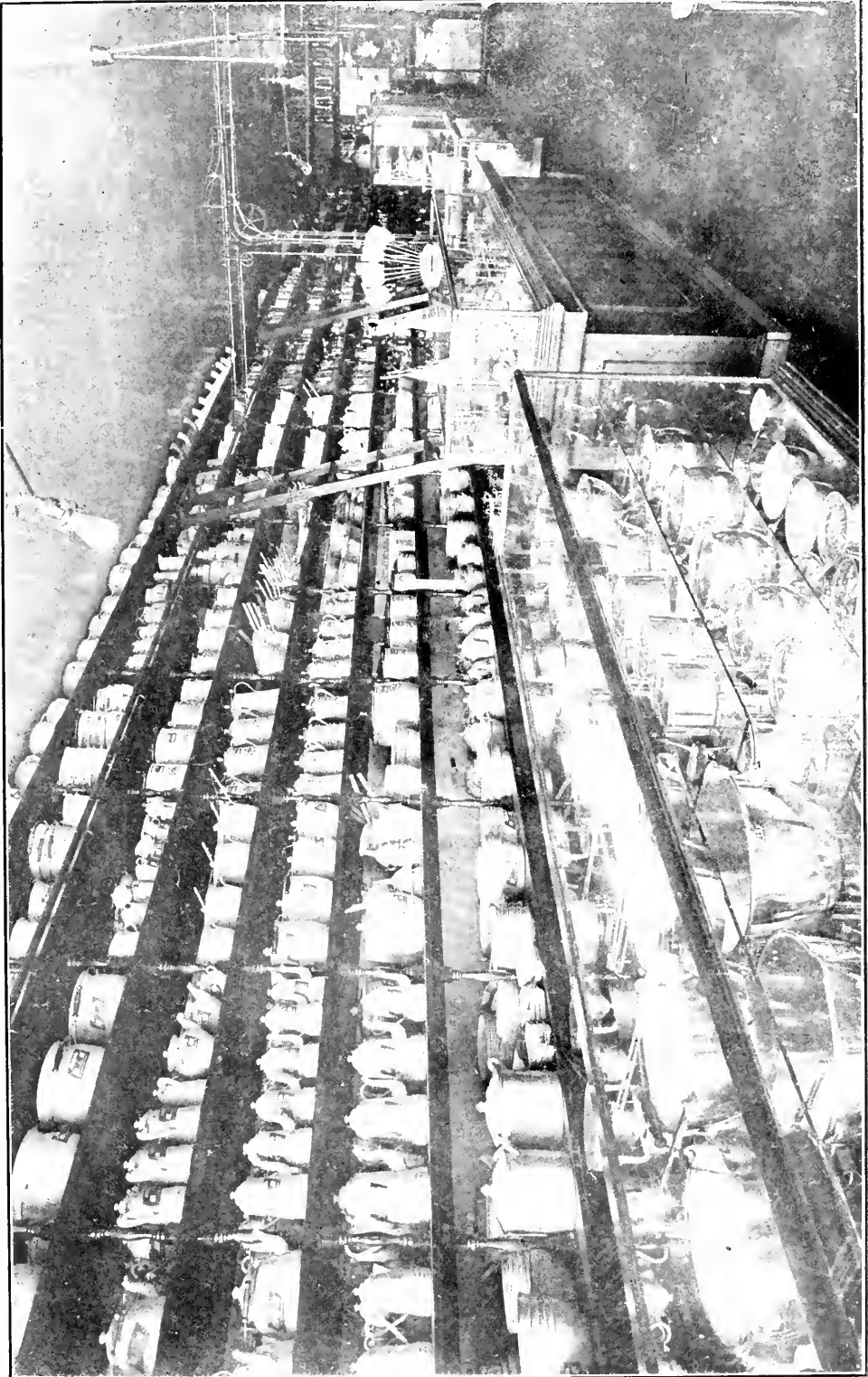
THE RIGHT SIDE OF THE GROUND FLOOR OF LOCKWOOD & PALMER'S STORE.



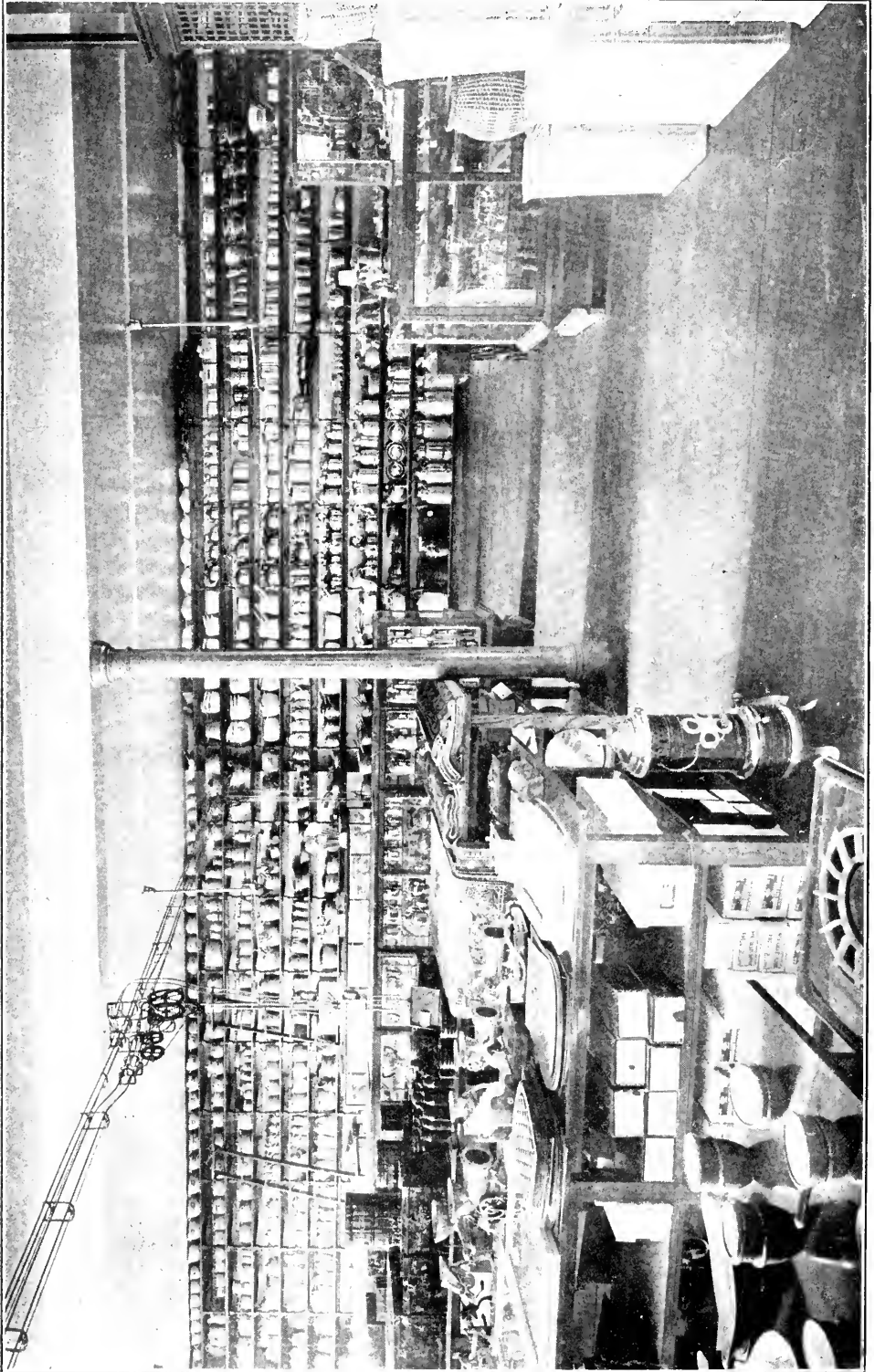
THE LEFT SIDE OF THE GROUND FLOOR OF LOCKWOOD & PALMER'S STORE.



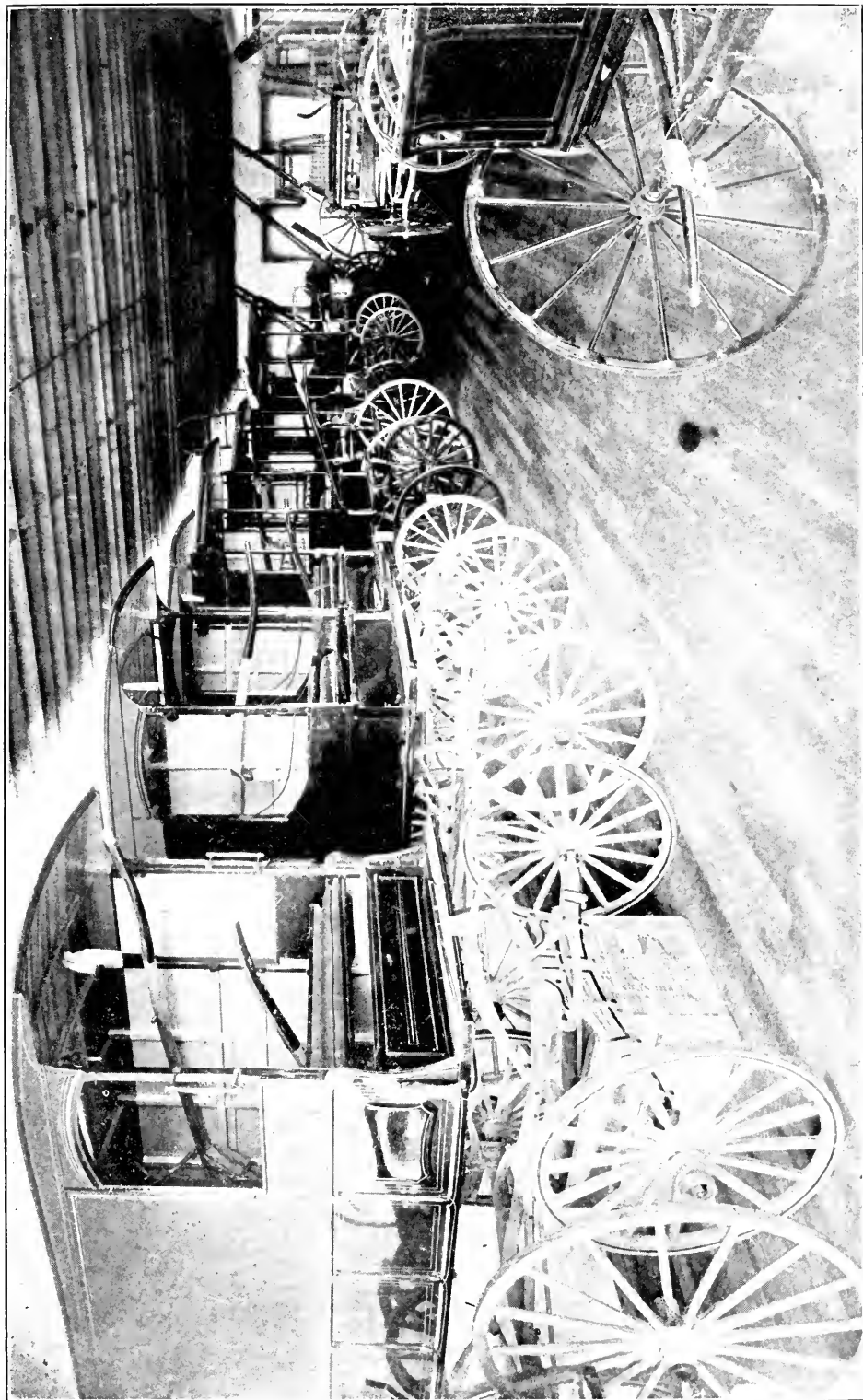
FOR PAINTING YOUR HOME OR OTHER BUILDINGS NEAR TO NATURE.



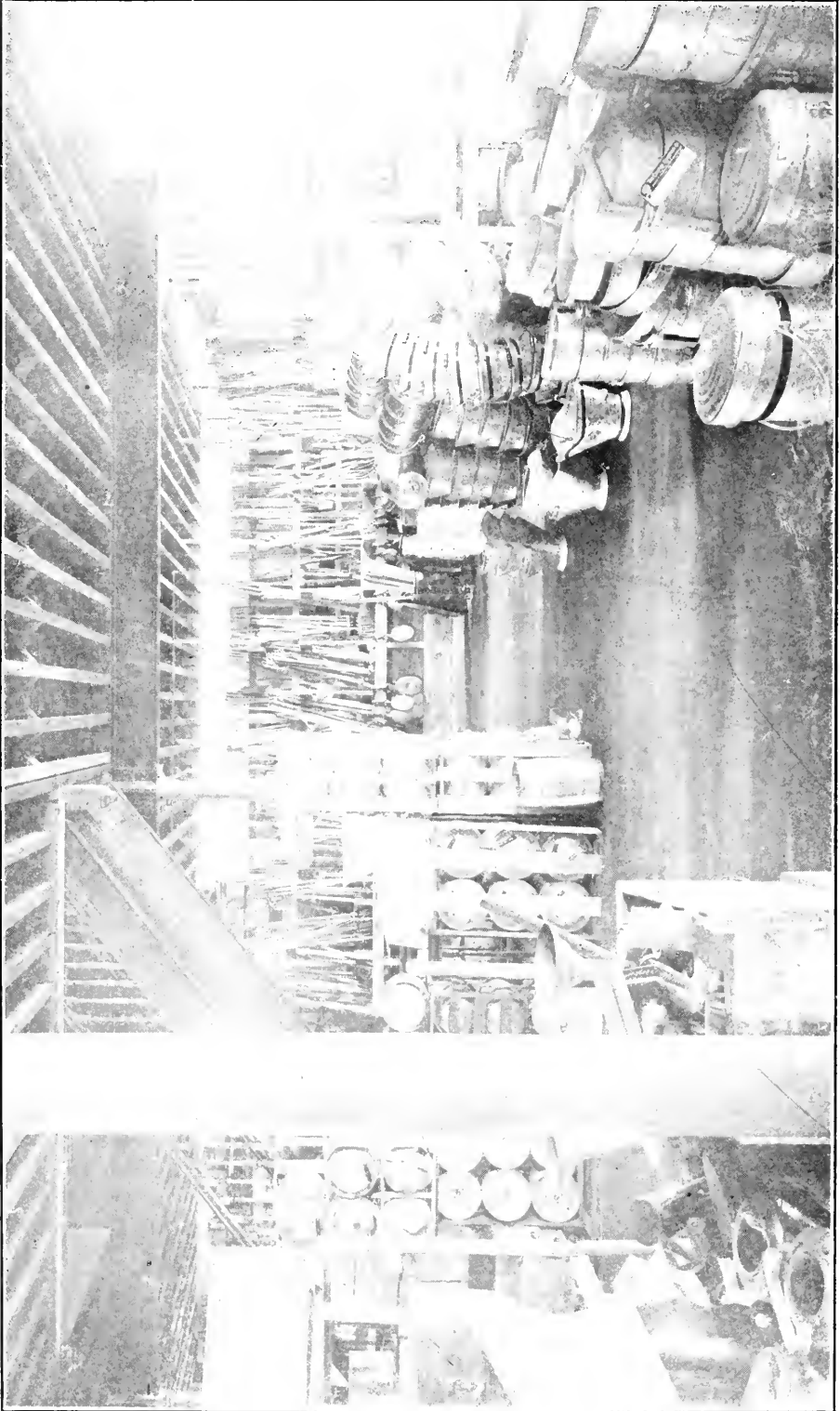
UNLIMITED ASSORTMENT FOR FURNISHING THE KITCHEN.



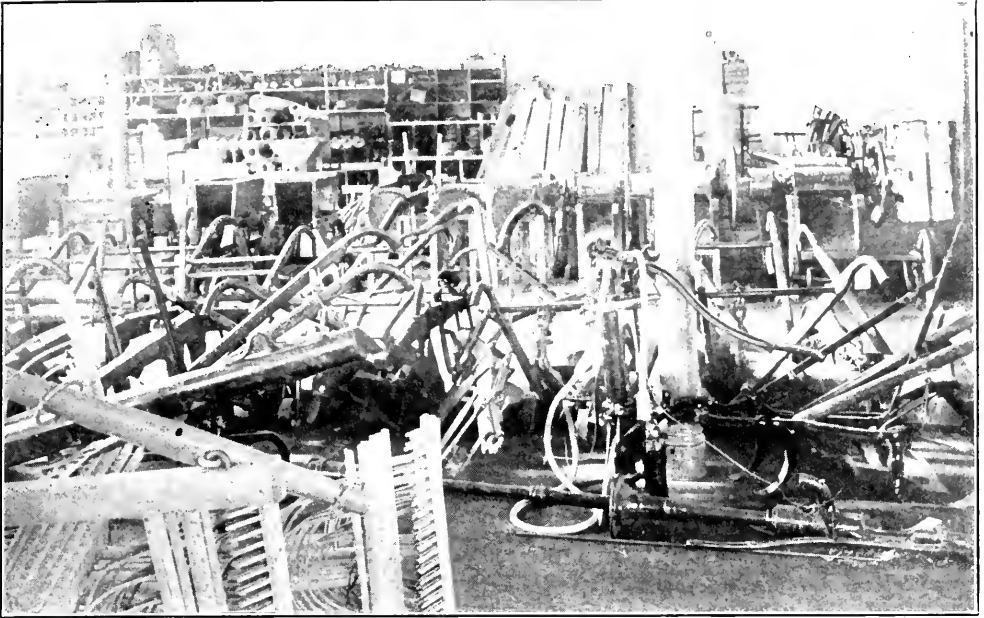
A VERY ATTRACTIVE DISPLAY.



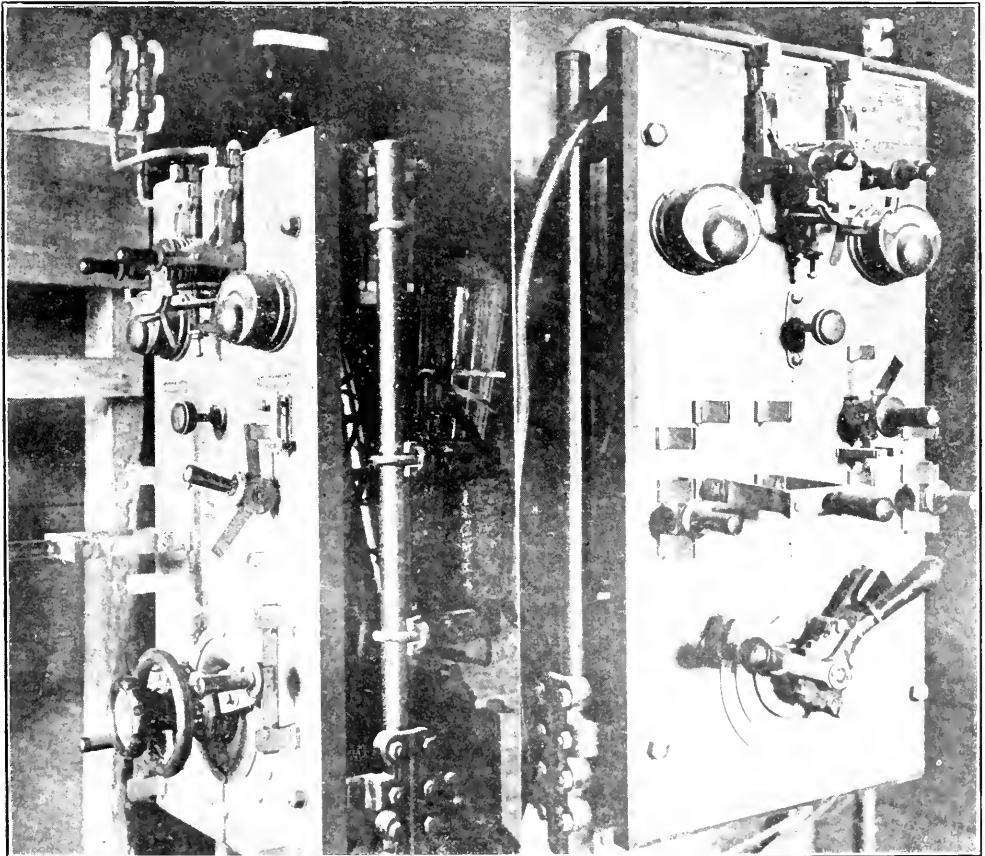
FOR THE DELIVERY OF NATURE'S PRODUCTS



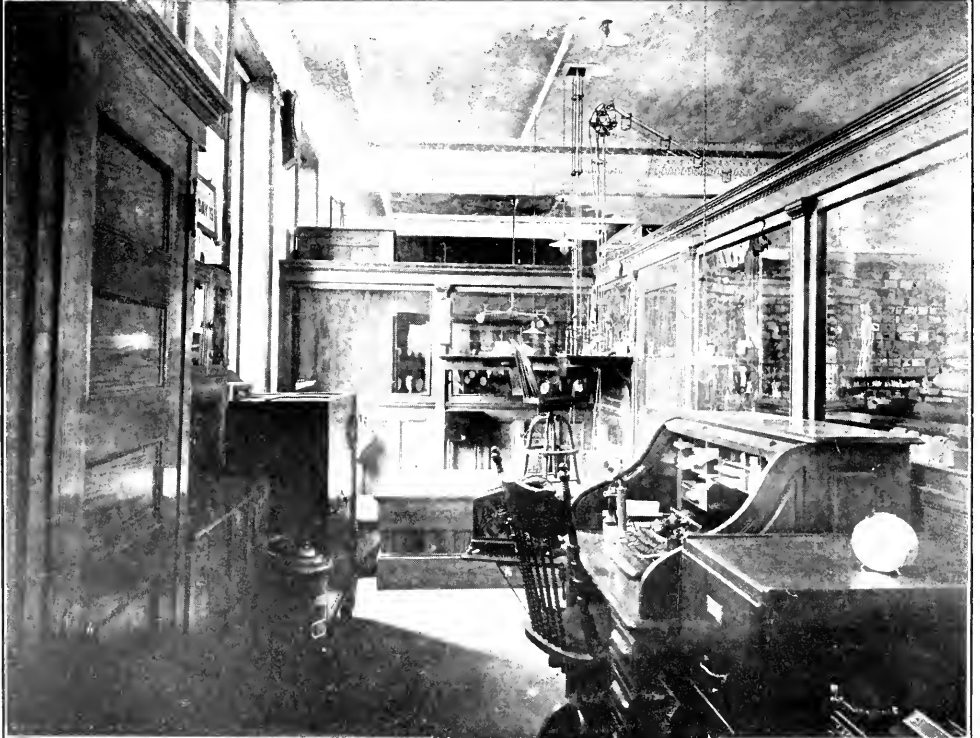
A CORNER IN THE STORAGE DEPARTMENT.
Goods are received by the carload.



A SECTION IN THE DEPARTMENT OF MACHINERY AND TOOLS FOR THE FARMER.



GOODS ARE DELIVERED QUICKLY BY ELECTRICAL POWER.



IN THE WELL EQUIPPED OFFICES



WE ARE IN READINESS TO TRANSPORT THE GOODS.

remarkable growth of their headquarters. Only a few years ago, I am told on good authority, they were doing less business in the entire year than they now do in a single month. What does that mean? It is merely another way of stating that they have been of so good service to so many people who are seeking to better equip their homes or their workshop, their farm, their garden or their greenhouse, that those who have been benefitted by their increased activity have spread the welcome news so that these proprietors must go on and do more and still better work. This magazine joins with them in its expression of admiration, and says, all hail to such glorious work! The more plows and hoes and tools they sell, inasmuch as they are

good ones and a joy to use, the more enthusiastically will our people go into realms of nature, and the more frequently our people do that the healthier, happier, wiser and more enthusiastic they will be.

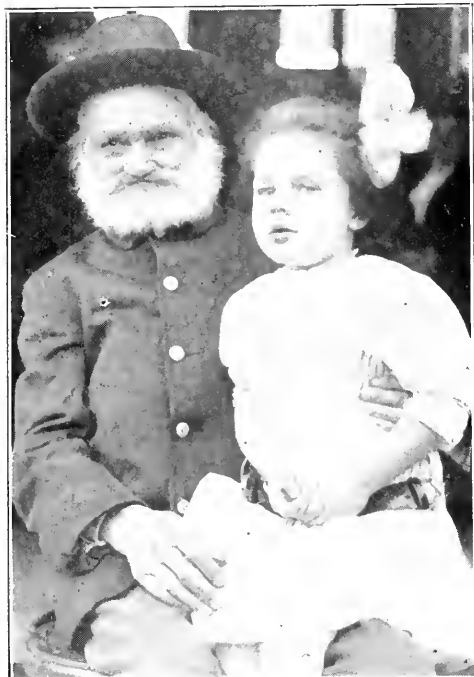
Cultivate the habit of out-of-doors. It will bring health to your cheek, zest to your occupations, vigor to your soul.

Nature never palls never disappoints. She will rest you, interest you, invigorate you, inspire you. Her breath is balm, her presence healing. You need take no long journey across the sea, or across the continent, for she is always at hand—often at your very door—awaiting recognition.



Aged One Hundred and Two Years.

In our number for January, 1911, we published an account of Captain William H. Davidson's celebration of his one



THE OLDEST AND YOUNGEST AT THE SOLDIER'S HOME TWO YEARS AGO.

hundredth birthday. We reproduce herewith the illustrations that accompanied that article. Captain Davidson died October 24, in the hospital at Meriden, Connecticut. He would have been one hundred and two years old had he lived until November 26. On the occasion of the celebration of his

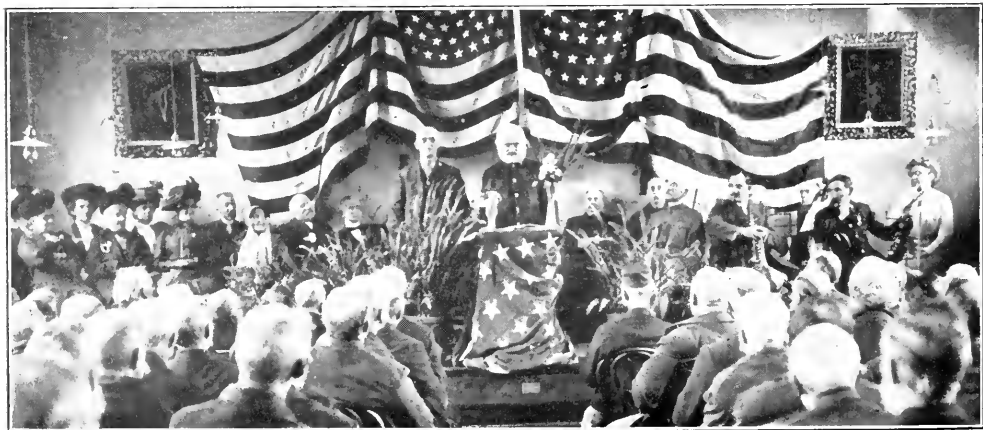
hundredth anniversary, he preached a sermon in the chapel of the Soldiers' Home at Noroton as shown in the accompanying illustration. He had served in the Mexican and the Civil war and was formerly a missionary to the Sandwich Islands. He was five feet, nine inches in height, had a flowing beard, was of impressive appearance, and on his birthday seemed to be in perfect health. The officials at the home said that he never complained and practically gave them no trouble. He had been strictly temperate all his life.

Education of Boys and Girls.

BY PROFESSOR B. J. HORCHEM, "PARK LIFE," DUBUQUE, IOWA.

It is indeed a clamoring indictment of our educational system that in nine cases out of ten, the education of the modern schoolgirl does not prove to her the boon it should; too often, it is a detriment to her in the life that every woman must or should take up. It is amazing how small a percentage of high school girls study domestic science—I believe it is about three. Yet almost every girl, if she does not cook, must at least supervise the process.

Education is life and the boys and girls should be together as much as they must be in later life. Much of the good in boys is inspired by their admiration for girls, and in healthful environment and proper safeguard such as "Park Life" affords, the girl has it in her power to do a great work for good.



HE PREACHED A SERMON WHEN HE WAS ONE HUNDRED YEARS OLD.



Volume V

NOVEMBER, 1912

Number 7

The Greatest Plant Value from the Least Land.

I have been informed that a pound of iron made into watch-hair springs becomes, in proportion to the weight,



THE GINSENG LEAVES AND FRUITING.

more valuable than any other thing in the world. This suggested the inquiry as to what plant is the most valuable in proportion to the space that it occupies. Perhaps the first premium

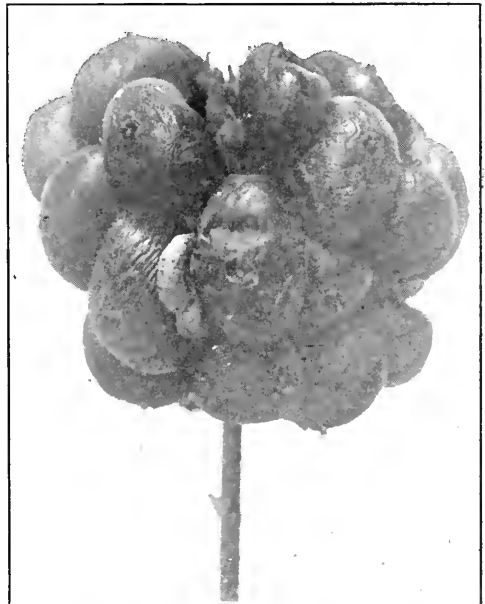
Elgin, Ill., Sept. 30, 1912.

Dear Sir:

The number of hairsprings required to weigh a pound varies according to the size of the watch for which they are intended, from 9882 to 125500, the latter figure being the number in a pound of the hairsprings we use in our 10/0-size movement, the diameter of which movement is the same as that of a nickel 5-cent piece.

The value of a pound of these hairsprings is \$50,200.00.—Elgin National Watch Company, Geo. E. Hunter, Superintendent.

would be given to orchids if we are to allow greenhouses to compete. Probably no other plant was ever sold for so high a price as the white *Cattleya*, an orchid, grown by Lager and Hurrell of Summit, New Jersey, and described in the June number of this magazine, and for which the florists received \$10,000. If one takes into consideration the fabulous prices that have been paid for various tulips these bulbs would come well toward the front. But leaving out things that we import and grow in greenhouses, undoubtedly the first premium must be given to ginseng. But whether this value depends upon



A NEARER VIEW OF THE FRUITING.

the plant's benefit to mankind, or whether it is an outcome of superstition, has not yet been demonstrated. Probably the truth as with many other questions, lies in the middle ground.

Ginseng may have some medicinal value, and it is a good condiment for those who like it, as do the Chinese. But it appears that the Chinese value the plant chiefly on the doctrine of

following in the advertising pages in the early part of 1910:

Mr. J. K. Bramer, of Otsego Co., N. Y., sold \$4,937.52 worth of dry Ginseng. This was grown on one-eighth of an acre, and had



MR. H. R. SMITH OF STAMFORD, CONNECTICUT, IN HIS LITTLE PLOT OF GINSENG.

likeness—an optical version of *similia, similibus curantur*. It is stated that they grade the root in proportion to its likeness to the nude human being. Some of the roots in outline resemble the human figure, but many do not. It is, therefore evident that the Chinese do not depend wholly upon this resemblance, although it is said that eighteen dollars per pound are given for those which closely resemble the human body.

In our advertising pages some remarkable statements have been made which, while true, undoubtedly refer to exceptional cases. As, for example, the

been from four to eight years under cultivation. The beds that were dug, as Mr. Bramer expressed it, "were not doing as well as they might" and were not the best beds in his garden, and were not dug for the purpose of making a record. The small roots and sets which he cut from the tops of the roots were worth, at the same price per pound a little over \$1,000.00. These were set back in the beds which he dug. This makes the total value from one-eighth acre \$6,000.00 in round numbers, or \$18,000.00 from one acre for the dry root.

This statement has been severely criticised by some of our correspondents who do not claim that it is untrue, but that it was an exceptional case. We cannot blame an advertiser

for publishing a record of one of the best sales. It is natural to put the best story at the front. But leaving out all exceptional sales and all exaggeration by unprincipled dealers, the fact remains that ginseng as a money-producing crop is remarkable.

Knowing the commercial as well as the botanical interest in the plant when we first began to work in the grounds of the present Arcadia last spring, one of the first things to be sowed was ginseng seed in Arcadia Grove. Some of these have succeeded well, perhaps as well as could be expected from a somewhat unfavorable location and from inexperience in ginseng culture.

In order to get the facts at first-hand from some one with actual, practical experience, I called upon Mr. H. R. Smith, who resides at the corner of Bedford and Oak Streets, in the thickly settled portion of Stamford, Connecticut. He has furnished the specimens from which the accompanying illustrations were made. I also show Mr. Smith hoeing his crop of ginseng in its limited quarters by his back door. The houses in that part of the town are near together, and the back yards are of the handkerchief kind, but he has shown what can be done in so very restricted an area. From a patch about fifteen feet square, he states that he has sold some two hundred dollars' worth of roots, but this is not an annual

income. It takes about six years to produce a crop. But it is a satisfaction to care for the plant around which there is so much mystery and so much botanical interest, and which, if successfully grown, brings a fabulous price. In the limits of this article, I do not intend to enter into the details of the culture, because these may be readily obtained from the many booklets of the many growers. There seems to be no immediate danger that the price will fall, even if the number of producers be doubled. The demand being so large from China, and the crop being of so slow a growth, it would take a long time to overstock the market. Now that China has become a Republic, perhaps her wealth will so increase, and the Chinese will come so closely in touch with America, that the market will be even better. At any rate, it is a satisfaction for a nature lover to have at least a small bed of ginseng in the back yard. The plant has its intrinsic interest, and it is from that point of view that we call our readers' attention to it.

Plenty of Interest in Nature.

I was very much interested in your suggestion upon nature study at our Institute and have tried some and find plenty of interest.—*Clyde L. Voress, Sidney, Ohio.*



A ROOT OF GINSENG, HIGHLY PRIZED BY THE CHINESE.

The Partridge Vine.

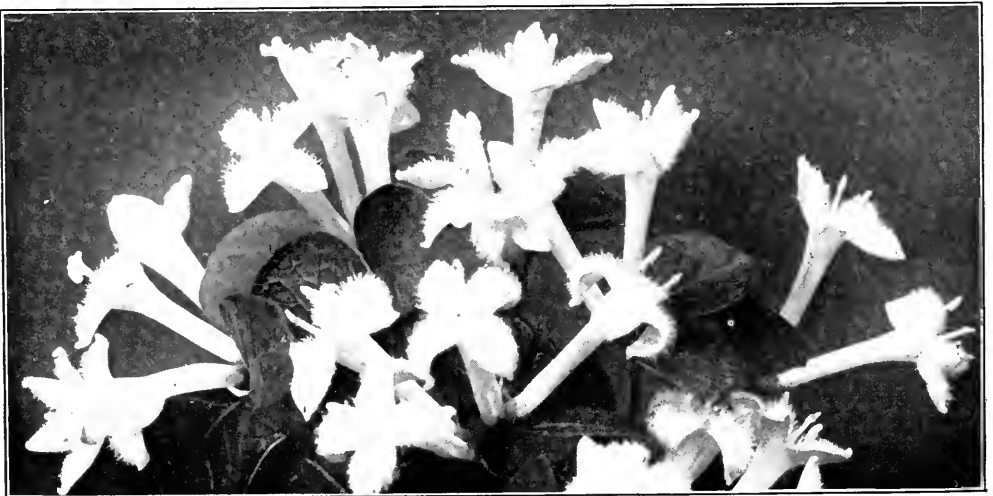
Here is a plant that is unique in the floral world—our little wild wood friend, the partridge vine. In its flowers we see a double floral union to produce one household.



THE PARTRIDGE VINE IN BLOOM.

Those familiar with plant biology know that cross fertilization, which most plants strive for, requires the flowers of two separate plants for the production of seed. This has been called the marriage of the flowers. But here in the partridge vine two complete flowers enter into partnership on the same plant to produce fruit and seed, and the result is our pretty red berry with its double scar in the "blow end." It is a Siamese twin, the offspring of two pairs of parents, and so fused together that even the most skillful botanist cannot distinguish the individual children, or discern the double parentage save by the twin scar referred to. It is thus a colony of two and suggests the aggregate colonies of polyps in the animal world.

The plant here pictured was found in the deep recesses of a hemlock grove in Ulster County, New York. Under the swaying branches, shut away from the sun, among the brown needles and tiny cones of repeated harvests, is the typical home of the partridge vine. Nestling close to the ground it forms a carpet of exquisite verdure exactly in keeping with the dark canopy of the hemlocks, and the berries, a vivid and living red, lie among the glossy leaves like jewels, often so thickly set as fairly to crowd and jostle one another in a riotous effort to add brightness and cheer to the forest's austere and sombre grandeur. Our little plant was taken up by loving hands with enough of its own soil to



THE TWIN FLOWERS OF THE PARTRIDGE VINE.

nourish it, and was transported to Arcadia. Here in a disused aquarium it goes on living its brave, cheerful life, marking the seasons with bloom and fruitage.

A New Example of Sympodial Growth.

BY EMILY PALMER CAPE, STAMFORD, CONN.

I was once taking a walk along Summer Street, Stamford, Connecticut, and turning the first country road to the west, I found a bridge under which ran a winding stream. Noticing a narrow footpath by the water's edge, I wandered along to see where it might lead. Walking slowly I saw many beautiful birds and wild flowers, then a great bed of sumac (*Rhus glabra*) stopped my path, it grew so thickly. Studying it as I pushed my way along, I suddenly stood still for I saw that this sumac was *sympodial*.

The depth of enthusiasm I felt in my discovery will be explained, when I mention that as long ago as 1907 Dr. Lester F. Ward wrote to *Science* asking for the names of plants, other than the vine and the linden, having the sympodial mode of growth. In all these years the scientific world had never mentioned having found any. Thus to find this new example was a real delight to me.

A few words as to the meaning of sympodial growth will be appreciated by those who may not be familiar with it.

The development of life in all its forms has interested thinking minds for ages. Darwin's law of evolution often means to the masses only the rising from a lower to a higher stage of existence, but the *how* is seldom thought much about. To those who have the prevailing idea that evolution signifies a *monopodial* or simply arborescent, development, this subject may have a special interest. The science of botany gives the general conception of monopodial growth or that in which the main trunk gives subordinate stems or branches and thus diminishing in size till it terminates in a slender twig. This is the type that all are acquainted with, and of which they think when the arborescent character of organic development is mentioned. Now *sympodial* branching shows us the main trunk rising to a certain height and then giv-

ing off a branch into which nearly all the fibro-vascular bundles enter, *thus causing the branch truly to become the trunk*, and the original trunk to atrophy



A SPECIMEN OF SUMAC SHOWING SYMPODIAL DEVELOPMENT.

Drawing by Emily Palmer Cape.

and disappear all but a small end. This large branch at length in turn sends off another branch, and the first one is

sacrificed as was the original trunk before, to the fuller development of the tree, or vine, or bush. The examples usually given illustrating sympodial development are: the grapevine, and the linden tree for the zigzag or cinnate type, and the forget-me-not and other borage plants for the bostrycoid type.

Thus walking through the country, and discovering that the sumac is sympodial, made me feel that joy and enthusiasm with which the knowledge of a new fact in any department of nature always fills the happy finder.

I have made a drawing of a specimen collected on the above mentioned occasion, of *Rhus glabra*, the only species to be found about Stamford, Connecticut, illustrating the sympodial mode of growth.

When I informed Dr. Ward of my discovery he was greatly interested and desired to know whether other species of the genus *Rhus* had the same habit, and he has since visited Washington, D. C., in order to study the sumac in that vicinity, his old stamping ground for botany for so many years. He has found that all the three other species there, *Rhus typhina*, *R. Copallina*, and *R. vernix*, grow according to the sympodial law.

I quote an interesting paragraph from Dr. Ward's *Pure Sociology*, p. 75, "Each successive sympode possesses attributes which enable it better to resist the environment and therefore constitutes a form of development of structural advance so that the entire process is one of true evolution, and has culminated in the great class of dicotyledonous exogenous plants which now dominate the vegetable kingdom."

It is most interesting to follow Dr. Ward's splendid application of this law into human history. Here we find a parallel. "We may look upon human races as so many trunks and branches of what may be called the sociological tree." *Pure Sociology*, p. 76.

The sumac seems to offer the finest

example of sympodial growth known. So strong and well developed is each sympode that it can be very quickly determined. Those who wish to look further into the study of sympodial development, I refer to Lester F. Ward's *Pure Sociology*, pp. 71-79.

If any reader of *THE GUIDE TO NATURE* should happen to discover any other examples of sympodial development in nature, during their walks, I hope they will send an account of it to the managing editor, Dr. Bigelow, who is doing so much to spread knowledge that is worth while.

The Columbine for National Flower. Pittsfield, Massachusetts.

To the Editor:

"Suburban Life" has this about the columbine: "It is derived from the Latin, *columba*, a dove, and is emblematic of peace. Another account says it is from *aquila*, an eagle, the symbolic crest of America."

I find that, "The claim of the columbine to become the national flower has been pressed since 1896 by the Columbine Association of Boston; for these reasons: (1) it is wild; (2) it is commonly diffused; (3) it has decorative value; (4) it suggests Columbus; (5) it symbolizes the dove, or peace; (6) also, the eagle, or power; (7) its spurs, the Liberty Cap; (8) its compound leaves exemplify the Federal motto, *E pluribus unum*."

Its scientific name is *Aguilegia vulgaris*, and it comes to me (what I have not seen mentioned elsewhere) that it combines most beautifully the ideas of peace and power represented on the obverse of our democratic American coins—the eagle, bearing in its beak the legend, *E pluribus unum*, and in one of its talons the sheaf of arrows, and the other the olive branch of peace.

Truly yours, and with congratulations on the growing excellence of *THE GUIDE TO NATURE*,

ADDISON BALLARD.





THE HEAVENS IN DECEMBER

The Heavens in December.

BY PROF. ERIC DOOLITTLE OF THE UNIVERSITY OF PENNSYLVANIA.

The most interesting object in the heavens this month is undoubtedly the beautiful planet Venus, which with its extraordinary brightness and the rapidity with which it climbs up through the evening sky, will at once attract the attention of every observer. For many weeks we have seen this silvery-white world shining out in the southwest just after sunset, and throughout this time it was easy to see that it was drawing rapidly eastward from the sun. On November 7 it passed Jupiter in its eastward motion; in less than a week the apparent distance between the two worlds had increased to eight degrees and by the end of the month they were not less than twenty-five degrees apart. But all this time the brighter planet was moving rapidly southward among the stars, so that we saw it set continually farther and farther toward the south point of the horizon. On November 20 it had reached a position more than twenty-five degrees below the celestial equator, which is nearly two degrees lower than our sun ever gets in the sky, but after this date it began to move slowly northward again.

THE PLANET VENUS.

During the first days of December Venus will be seen shining in the southwest for more than two hours after sunset, while by the end of the month it will not set until three and one-half hours after sunset. At this time during the early evening hours it will be high in the evening sky, where it will pour out 25 times as much light as the planet Saturn and exceed by more than 23 times the brightness of Vega, which is our brightest northern star.

In the telescope Venus now has the appearance of a bright little moon, slightly more than half full. The round edge of the ball is very brilliant;

as we approach the line which separates the day side from the night side of the planet the surface becomes much darker. Yet it is universally recognized that this world is always surrounded by so dense an atmosphere that we have never been able to penetrate with our telescopes to the solid ground below. If there are any living creatures on this world it is doubtful whether they ever see the sun or stars, for their skies are always cloudy.

All apparent markings which have hitherto been observed on Venus are almost certainly merely cloud formations. Yet Venus is of the highest interest to us because it is more nearly in the condition of our earth than any other heavenly body of which we have any knowledge. It is of almost exactly the same size, it is nearly of the same weight, and most important of all, it has a heavy and wet atmosphere, which it is reasonable to suppose is warmer than our own. It is not impossible that the seas and lands of this tropic world are swarming with life, but of this we are, of course, by no means certain.

THE DECEMBER STARS.

Though the presence of the beautiful Venus leads us to turn first to the western heavens, there is much in the opposite part of the sky to attract our attention. Here, for the first time since last winter, we see the bright Dog Stars just emerging from the ground, while the very brilliant winter groups of Orion, the Twins and the Bull are shining high above them. The Greater Dog Star, Sirius, a winter star and the brightest star of the entire heavens, always enters our sky just as the bright summer star, Vega, is leaving it. This month for a few weeks we may see both of these stars in the evening heavens together.

The Lesser Dog Star, Procyon, is farther away from us than Sirius, and nearly twice as large; the light of

Sirius occupies sixteen years in making its long journey to us, while that with which we view Procyon left the surface of that distant sun no less than twenty-six years ago. Each of the Dog Stars is attended by a darker sun which revolves around it. From the study of the motions of these we learn that Sirius is three times as large and forty times brighter than our own sun, while Procyon is nearly twice as large as Sirius. When we remember that our earth is only one-millionth part as large as our sun, we realize that the stupendous size of these wonderful sys-

tologers it was known as the Dark Sign, and its influence was considered particularly unfortunate. To the Chaldeans it was known as the Gate of Men,—the region of the stars through which when men were born their souls descended in their passage from Heaven to the earth. Its most interesting object in a small telescope is the striking cluster of stars at A, Figures 1 and 2, which appears to the eye as a faint cloud of light, but in a very small telescope is readily seen to be composed of about 150 stars crowded closely together.

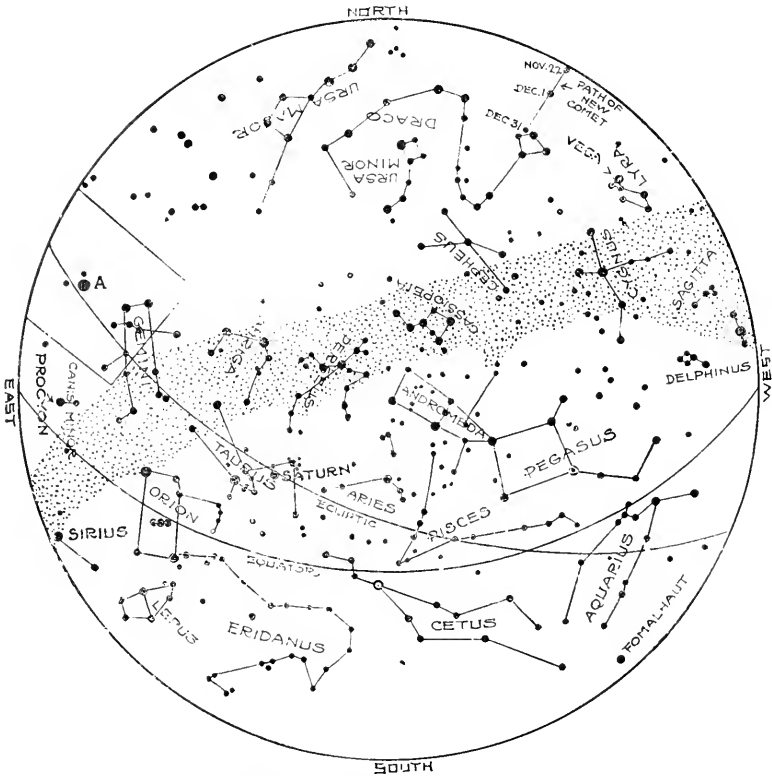


Figure 1. The Constellations at 9 P.M., December 1. (If facing east, hold "East" below; if facing west, hold "West" below. If facing south, hold the map upright; if facing north, hold the map inverted.)

tems is truly inconceivable. It should be added that both of the darker attendants to the Dog Stars were discovered from a mathematical discussion of the positions of their primaries many years before they were ever seen in any telescope.

North of Procyon and below the twins there may now be seen the most interesting constellation of the zodiac, so that to the as-

The very slowly moving, far-distant planet Neptune is now just entering the borders of Cancer and has therefore again been brought into our evening sky. As this outermost known member of our sun's family of worlds occupies 165 of our years in passing around the heavens, its motion among the stars is very slow. As will be seen from Figure 2, it has during the past three years moved but a short distance toward the border of Gemini. Nep-

tune is too faint to be seen with the naked eye. In the telescope it appears as a small, greenish disc on which no markings can be seen, attended by a single satellite which is of almost exactly the same size as our own moon and at almost the same distance away from its planet. But the planet itself is a ball of heated vapor no less than 35,000 miles in diameter and is therefore a very different world from our.

THE NEW COMETS.

The first comet of the year was discovered toward the close of September, at which time it was far below the

was discovered in the constellation Sextans, a little west of the brightest star of the Lion, which is now a constellation of the morning sky. This object is moving rapidly southward and is not now visible in northern latitudes. Computations indicate that it is identical with a comet first seen in 1790 and again discovered in 1858, and whose return was looked for toward the close of the present year. These are the only new comets of the present year. It is quite unusual for so many months to pass without our being favored with at least a few of these celestial visitors.

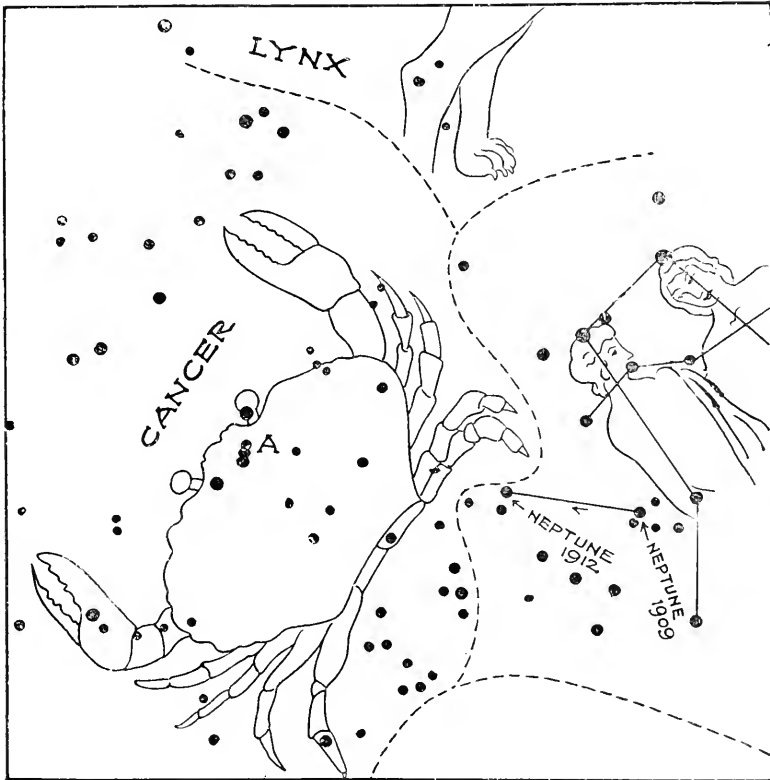


Figure 2. The square of Figure 1 enlarged to show the motion and present position of the planet Neptune.

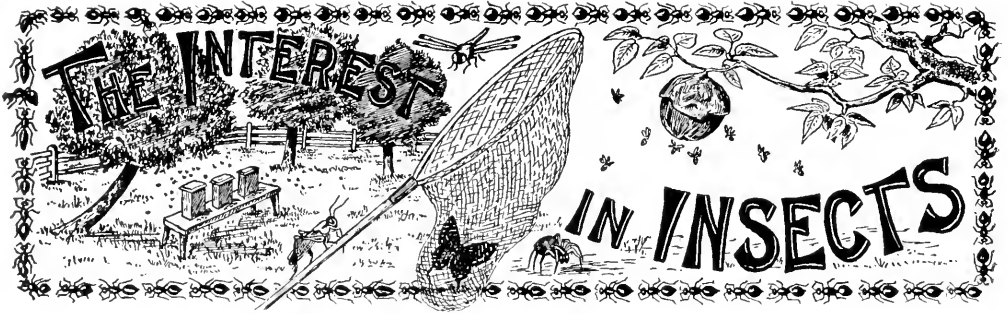
equator in the southern sky. Since this time it has been moving almost exactly northward among the stars, and throughout December will be visible low in the northwest. The comet is a faint, telescopic object and it will continually grow fainter because it is receding both from the sun and from the earth. When brightest it was seen to have a diffuse head, of an apparent diameter about one-sixth that of the moon, and a faint, slender tail.

On October 18 a second faint comet

THE PLANETS IN DECEMBER.

Mercury enters the morning sky on December 8 and reaches its greatest distance west of the sun on December 28. At the latter date an unusually favorable opportunity will be afforded for viewing it, for it will then rise in the east more than one hour and a half before sunrise.

Venus will be seen shining most conspicuously in the southwestern sky in the early evenings throughout the month.



The Western Harvesting Ants.

BY EARL LYND JOHNSTON, FORT LUPTON,
COLORADO.

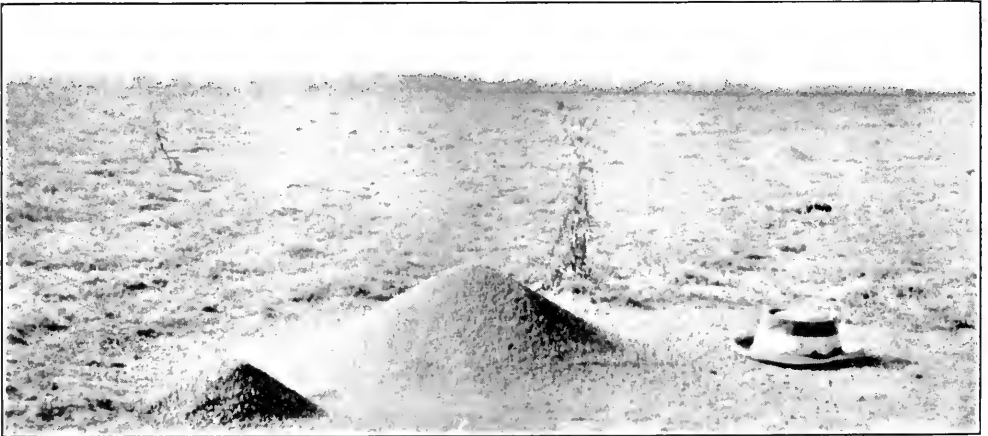
On the dry and level treeless plains, whose monotony is seldom broken, the sight of which seems to so many people tiresome, the hills of these ants dot the landscape so abundantly in many places that the most inattentive person's eye must stop and rest upon them if only just for a glance. My first glimpse of the western prairies also brought to me my first view of the homes of these ants.

With the piles of earth our eastern species of ants threw up I was familiar; but such ant hills I had never seen be-

circumference and cleared of all vegetation.

The hills are from eighteen to thirty inches high and perfect cones save on one side where, frequently, the base is elongated making an ellipse, or where a small depression as though a saucer had been sunk in it and the imprint had remained. In the center of this, which is one to four inches deep, is the entrance to the nest. In looking at one hundred of these nests I found all of them shaped like the above and ninety-nine of them with the entrance on the south, east or southeast.

When the cold days of fall arrive one may see the ants busily engaged in



A PHOTOGRAPHIC STUDY OF ANT MOUNDS.

fore. They were large and prominent and all looked white from the car window.

As soon as I could, after arriving near Greeley, Colorado, I examined one of these hills more closely and found that their prominence was due to the fact that they were a graveled covered hill in the midst of a circular piece of ground, eight to fifteen feet in

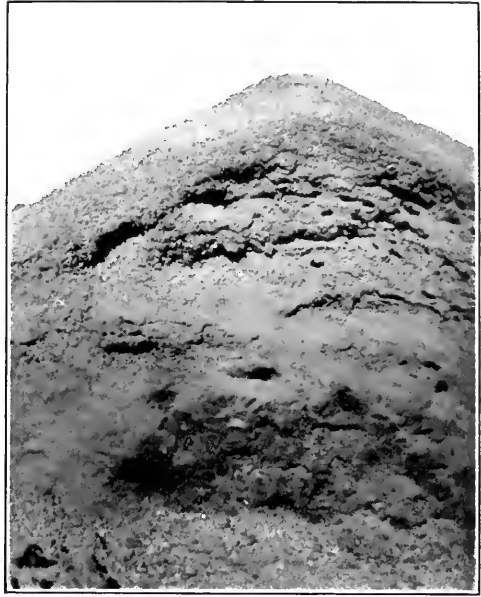
inspecting their nests. They carry gravel and otherwise fix it up for the winter. At this season of the year, frequently, near the base one may see a layer of chaff which is the refuse from seeds stored for the winter.

The hills are more numerous in some sections than in others. I do not know what governs this. I can venture a guess that the lower level portions of

our plains will have more than the higher lands. I have been out in the sand hills and have only seen a few ant hills. Not far from the Platte river in one spot of about an acre I counted two hundred of them.

Their conical shapes, quite pointed on the top are rather remarkable in looks. However, I have seen one or two where evidently two colonies have built so closely together that their homes united and made a long nest. The one in the photograph being nearly six feet long and thirty six inches wide at the base the crest being a thin edge and twenty eight inches from the ground.

What memorials these are to industry! What monuments are they to ceaseless toil! What evolutionary history is hidden within these quartz covered mounds! Could we but pull aside the veil and glance back across the eons of the past we would in all probability see the time when the lineage of these ants lived individually and in holes in the ground and not in mounds. Each one of these mounds with its six to twelve thousand inhabitants is a question mark beckoning every nature student on to fields unknown where only meager answers can be had. Yet, may we not allow ourselves great freedom in our conjectures? We cannot put it aside and say it just happened. The "why" must be answered and a conjecture or two will perhaps be interesting. The cone-shaped hills of course are to shed water which we don't have much of out here. It also serves to keep the nest thoroughly warm and dry. The fact that the entrance is found where it



A SECTION OF THE INTERIOR OF AN ANT MOUND.

is and seldom on the north or west is to secure the rays of the early morning sun to warm up the eggs, larvae and pupae which are regularly brought near the surface by the caretakers of the ant nursery. The gravel covering of the hill enables it to withstand the heavy winds of our semi-arid plains. The cleared portion around the nest is for further protection against enemies or perhaps to allow the sun a better chance to get to the nests.

More interesting than their homes are the ants themselves. I have sat and watched them build their homes, remove weeds, carry seeds and have



A HUGE AND LONG ANT HILL.

wondered how they accomplished so much. Never have I seen any concerted action among them. One ant picks up a piece of gravel too large to carry; does another come to help? Not he. Everyone works individually and yet they all live in a communistic colony. What a mecca for an anarchist, everyone does as he pleases. No ruler to rule; no boss to give orders. Yet everything goes on toward the one great end; a substantial home and an abundant storehouse. I have, as I sat, wondered what master mind planned it all. Can we really be sure there are no overseers? May not each worker get "sealed orders" at night for the day's work? A hundred ants may be near the entrance when a worker comes home dragging a load too big to carry up the side to the door. Yet there is no one that feels enough responsibility to help, much less to give a command. The load carrier may lay it down for a moment, either to rest or to look around and then comes the funny part, another ant grabs hold and starts away but by this time the original owner returns and if he finds it, grabs hold too and then begins a tug-of-war, neither getting any where for they pull in opposite directions. Nothing is accomplished until one or the other gives up. The two ants could take the load up to the entrance with ease but it has to be done by one if at all.

Down deep in these tunnels in the earth has, somehow, been worked out a plan of housekeeping unequalled anywhere else in the animal world. Little beings from one-eighth to three-eighths of an inch long by sheer manual labor have made a house of colossal proportion to their size. I say by manual labor alone for it seems to me that there is no brain work. Of course the plan of the nest represents great ingenuity and brain work if it was made at one time. It was probably done in the remote past through an evolutionary rather than a thought process. I cannot conceive of any animal great or small which now shows such a lack of brains, making a plan for a dwelling containing rooms and halls with arched ceilings and winding stairways connecting floor with floor. Yet that is what we find in these nests and below the surface for some eight feet. An ant picks up a pebble, starts, perhaps in the

direction of his home but quite often in an opposite direction. If he comes to a weed, stick, stone or other hindrance instead of going around it he simply climbs over it load and all. When he gets it to the base of the nest he frequently has to stop, if it is large, leave it there for there is no one to help him take it up the steep sides. Again he may drop it along the side of the nest and then, I have seen what seems to me to be gleams of intelligence. He looks the load over carefully, walks around it and then, in many cases, grasps it and goes to the top and puts it there to roll down and find its own resting place. I believe their hills are covered, in the main, in this manner.

When they are carrying seeds to their homes they will pick up a seed, covering and all and carry it home and then hull it after it has been placed in the graneries and bring the hulls out again. More brain work would mean less labor here.

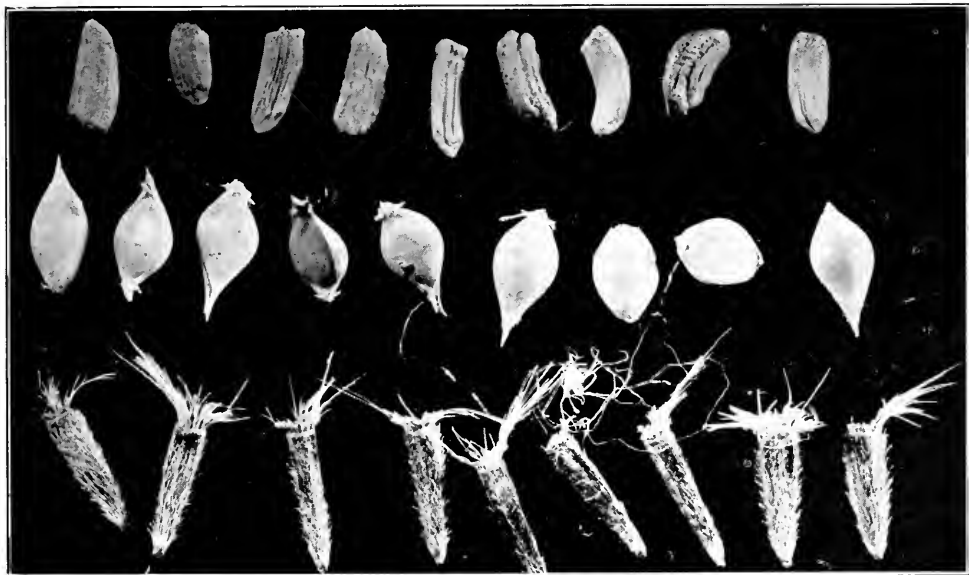
I have often wondered how they managed to clear the space around their homes so completely of vegetation. I have never observed them at this work to any great extent. What I have seen has revealed many little traits that caused me to wonder. An ant will work at trying to cut down a large weed, for nothing must grow within a given radius, for a while and then scamper off and no more would be seen of her (all the workers are females). This action will bring up many questions but why take space to ask them? Once I picked a little hardworking member up and he said "let me go" in a very forcible manner. He grabbed me with his jaws and then set his body to working in such a way as to give me a sharp sting every tenth of a second. No wonder he can cut down weeds and grass and drive away all enemies for he has two stout jaws each with seven teeth and a sharp stinger.

Would that I could see within the home! What little I have to tell I have had to piece little bits of information gathered from time to time, together. By carefully removing the inch or so of gravel we come to the soil which has been brought up in the process of making the galleries upon galleries we find there. Inside of the saucer-shaped opening, that is just underneath the outer surface, of a morning in the sum-

mer and fall we find the eggs, larvae and pupae brought out here for air and the morning sun I suppose. Do the ant nurses, for such there must be, work under the command of a head nurse or is the same independent, erratic course pursued within as without? Who tends to the granaries for I have seen a seed brought by an ant turned over to another at the door of the home. More often the seed and its carrier tumble in pell-mell and I suppose land on the first floor. When are the seeds hulled and the refuse brought out? My observation would lead me to believe that before each winter this is done. Yet, who can tell? May not the hulls brought out in the fall be the remains of the previous store hulled as eaten? All one can say for sure is, hull and seed are

ants do the work and if a storm is rapidly approaching more ants are busily engaged at it. Who ordered out the extra force? They do their work well for one can scarcely find the opening when they have completed the closing task. Many of them are often found long distances from home; although they are satisfied to fill their storehouses with such seeds as grow on the plants immediately surrounding their dwellings. Unable to see over even the smallest object they must have a sense of direction that guides them at all times.

The cool days of fall bring less and less activity to these busy little creatures; fewer are seen out side, and most of them are fixing up their habitation. Cooler days and they become scarcer,



SOME SEEDS FOUND IN A MOUND OF THE HARVESTING ANTS.

taken in at the time they are gathered.

Who controls the coming and going of the ants? Who is there time-keeper? About eight or nine in the morning one can see them opening the doors, which are always shut at night-fall and when it storms, and issuing forth for the day's work. At noon, if the day is hot, they return to the nest and take a two or three hours' rest; if it is cool and cloudy no cessation of work occurs. Wise creatures are they. Another thing in their favor they are always home when the doors are shut at nights. When the night closing comes a few

one here and there filling in the saucer-like opening; then none at all. All is quiet; they are more or less dormant, eating when not too cold, awaiting another era of activity. The hill stands amidst its bleak surroundings a silent tomb of unanswered questions. They have worked hard and have earned their rest, although they "Have no ruler or guide or overseer, yet they have provided their meat in the summer and gathered their food in the harvest."

The next time a reader travels across the plains and sees these mounds may

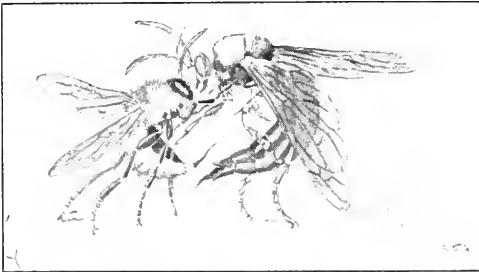
he be tempted to stop and enquire into the life of these very small members of the animal world and he will truly find that they are rightfully named "Western Harvesting Ants."

(Dr. McCook calls them the accident ants.—E.F.B.)

The Vigilance of a Digger Wasp.

BY S. F. AARON, SECANE, PA.

During the past summer I ran across an old acquaintance, the big digger wasp with the golden thorax. I have been quite unable to determine the



GOLDEN BACK WASP ATTACKING A SMALL TRESPASSING BUMBLE BEE.

specific name of this wasp. It is a fine, large species and very handsome. The female is as long in body as the largest, long-waisted *Ammophila* and as heavy as a paper nest hornet, with an abdomen lacking the long petiole. I do not know the male, although the species is not uncommon in the South. It is most closely allied to *Pompilus* and *Pepsis*. Almost as large as the sand-hill hornet, (*Sphecius speciosus*) and even more striking in appearance it seems strange that her biography and picture are not given in the books, for such is the case. So we shall call her the golden backed digger and trust that students may know or discover her name, possibly among the rarities.

The digging habit of the golden back is not unlike that of the Western tornado wasp (*Pompilus quinquenotatus*) of which the Peckhams wrote so fully and interestingly. She goes at her work like a sizable whirlwind, throwing the sand and gravel behind her in almost a steady stream, enough to make one's finger nails ache in sympathy, and it is small wonder that her claws do not wear out long before the large hole, easily three-fourths of an inch in diameter, is completed. It was in the

sandy stretches of Southern New Jersey that I watched her at work, within a spot more than a yard in extent and bare of vegetation except a few dwarf daisy fleabane plants. When the burrow was completed and she had entered it and backed out more than a dozen times without carrying a mite of dirt she made a bee-line for some chosen hunting ground and in a few minutes returned carrying something in her strong jaws, something not large and that had legs drawn up closely in death, but try as I would I was not able to ascertain the nature of this capture, although I half believe it was a spider. I had hoped something better of her than this; a creature of such furious energy and formidable proportions should have captured something like a powerful katydid, a giant horsefly, a big hairy-legged lycosid spider or at least shown herself something of a St. Georgiana and overcome a spiny dragon-like caterpillar whereon to feed her baby wasps. However, she did not lack courage as events proved. After having made this first capture, which may have been a mere tidbit for her offspring, she rested awhile and carefully groomed herself, passing her legs over the entire surface of wings and body and comically cocking her head at all angles during the operation of cleaning her antennae. Then she began a careful inspection of the immediate premises within two or three feet of her digging and examined every bit of gravel, every plant stalk and every inequality of ground, going through this undertaking with the utmost dispatch and hurrying back to the hole every few seconds, using her wings in part to add speed to her long legs. Now and then she dived into the burrow and backed out again, sometimes two or three times in quick succession as if quite undecided that everything was all right. The motive for all this is what? Evidently Nature's evolutionary method of teaching her race to spy out and guard against the persistent and numerous parasitic enemies, such as *Chrysis*, *Chalcis*, *Trypoxilon*, species of *Bombex* and perhaps *Teloneumon* and *Braconid* flies that will seek to enter the nest during her absence and deposit an egg therein that will hatch before her own and destroy the maggot-like baby golden backs.



THE GOLDEN BACK WASP AT THE MOUTH OF HER BURROW.

This was pretty clearly illustrated by an incident witnessed just before I caught my train. A bumble bee, (*Bombus fervidus*) was very busy gathering honey from the small flowers. Innocent of purpose and quite unguarded it flew directly to a spray that branched above the wasp's burrow and the golden back, not having a concise knowledge of entomology or the habits of her own near cousins, darted upon the bee forthwith, bringing it to the ground, where a short and terrific struggle took place. It was difficult to follow the methods of attack and defense practised by both contestants. They used both jaws and stings, the latter evidently of little avail against the hard chitinous armor of which all the adult Hymenoptera are possessed, but evidently the jaws did some damage for the bee struggled loose and with a wing much torn flew clumsily away to a plant near, where it rested. Its body was perhaps otherwise considerably bruised and battered. The wasp was as lively as before and had sustained no injury; its activities quite overmatched the heavy bumble-bee. I left it still patrolling the region of its burrow, evidently from its late encounter determined to be more vigilant than ever. I wonder if it ever relaxed its watchfulness against real and supposed enemies long enough to go upon another foray for its chosen victims.

"The year is dying, and the trees let fall
With gentle lapse their faded leaves;
Sheeting the ground as with a funeral pall,
Sombre and sad."

Their First Experience With Bees.

When Mr. Schoonhoven, the well-known biologist of Brooklyn, made his visit to Arcadia, about which he wrote the extended appreciation that was published in the September number of *THE GUIDE TO NATURE*, he was accompanied by his wife and son, both of whom manifested great interest in the apiary. It appears that both of them, in common with most other people, possess an abnormal fear of honeybees. Now it is true and not true that there is reason for this fear, as previously explained. Bees can make a serious attack upon persons, horses and various other forms of animal life, but not unlike human beings they usually give us what we give them. If one is kind and gentle, they reciprocate in the same spirit; if one is harsh and shows fight, they are usually ready to fight and they come out as winners. The accompanying illustration shows Mrs. Schoonhoven and her son having their first experience in getting acquainted with honeybees. Observe that they used neither veil or gloves.

I am inclined to think that a kindly feeling towards these insects is a better protection than gloves or veil, and yet I am perfectly willing to admit that



MRS. J. J. SCHOONHOVEN AND SON, GEORGE O. SCHOONHOVEN.

there are times when the kindly feeling is of no avail. Just as with people, kindness and good will bring back the equivalent—except sometimes!

THE CAMERA



What is Dust?

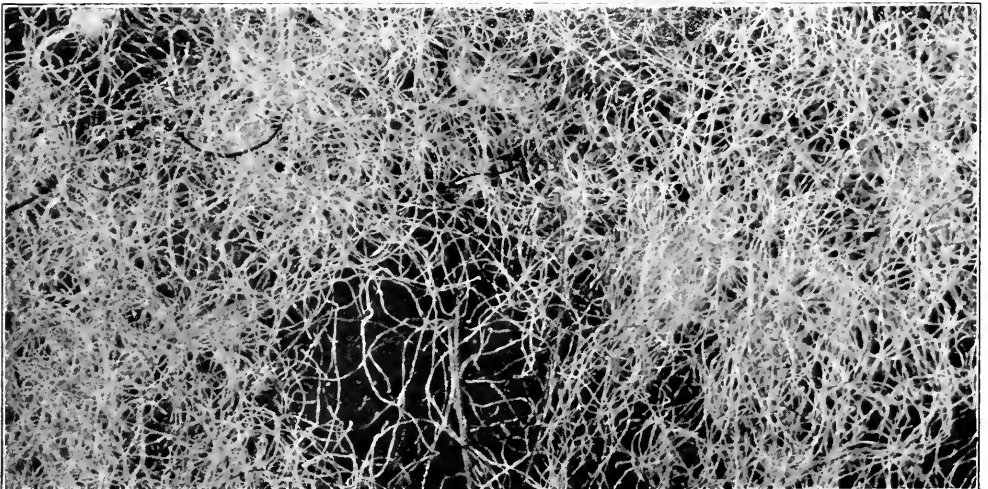
I was busy at work in the laboratory. Needing something from my bedroom in the residence near by, I went over to get it, and found Mrs. Bigelow and the maid "putting things to rights," by sweeping and dusting.

"It is surprising," said Mrs. Bigelow, "how soon these tiny white rolls will accumulate. I wonder where they come from and what they are."

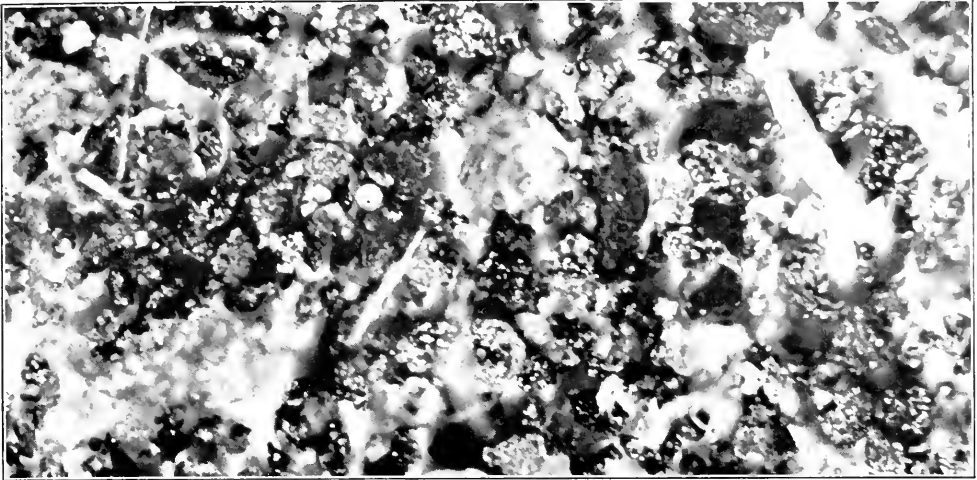
Here was a suggestion. I gathered a few of the rolls, and took them to the laboratory. Upon examining them under a compound microscope I found that they were composed of comparatively long and slender white fibers. Very few, if any, dark fibers could be found. It appears that these are cotton fibers and are probably mostly from the sheets of the bed, though I cannot believe they come wholly from them. Some appeared to be from dark colored clothing, but they had become whitened by wear in the same sense that the weather-beaten fibers of a dark fence rail or board becomes whitened as they are roughed up and

beaten from the wood. In a few cases I found fibers that were dark in color but, as is familiar to everyone, the little rolls of dust that accumulate in the nooks and corners of the room are invariably white. It makes no difference what are the colors of the clothes within the room, these fibers beaten off from those clothes show the white mark of age so common not only with human beings but with aged fence rails.

In order to examine these dust fibers under the microscope I had occasion to take a glass slip that was lying by the microscope on a shelf under the window. I started to wipe off that slip with a bit of cloth, after having breathed on it so that the dust fibers might adhere to the condensed moisture. Then it occurred to me that perhaps the dust on that slip might be as interesting as the rolls that had been taken from the house. Placing it under the microscope, I was surprised to find that with strong reflected light, it had the appearance of a bed of cinders, and such it really was, although the



A PHOTOMICROGRAPH OF A FUZZY ROLL FROM THE FLOOR UNDER A BED.



HOW THE CAMERA SHOWS THAT RAILROAD DUST IS TINY CINDERS.

cinders were microscopic. This accumulation of dust came from the railroad about forty rods away and was formed in the winter, when the windows on that side of the laboratory are closed. The dust was fine enough to float in the air and to work itself into the room with the currents of air that were working in through the spaces around the windows. If the air forty rods from the railroad is thus filled with microscopic cinders, it makes one wonder what must be the condition of the air in the railroad station, and also how far from the track the cinder dust may be carried. This would be an interesting field for investigation by one who has time to make a study of such accumulated dust at various distances from a railroad. At any rate, I found by careful examination under the microscope that as is here shown in the photomicrograph the structure of the microscopic cinders was practically the same as the structure of such cinders as would be delivered by the wagon load for making walks or for grading.

These investigations suggested one more trial. I went to the book shelves in another room and there searched for a volume that had been the longest unused. I coated a glass slip with a very thin layer of mucilage and touched this against the dusty edge of the book. Placing it under the microscope I found that the deposit was composed of characteristic white fibers similar to those from the bedroom, but not

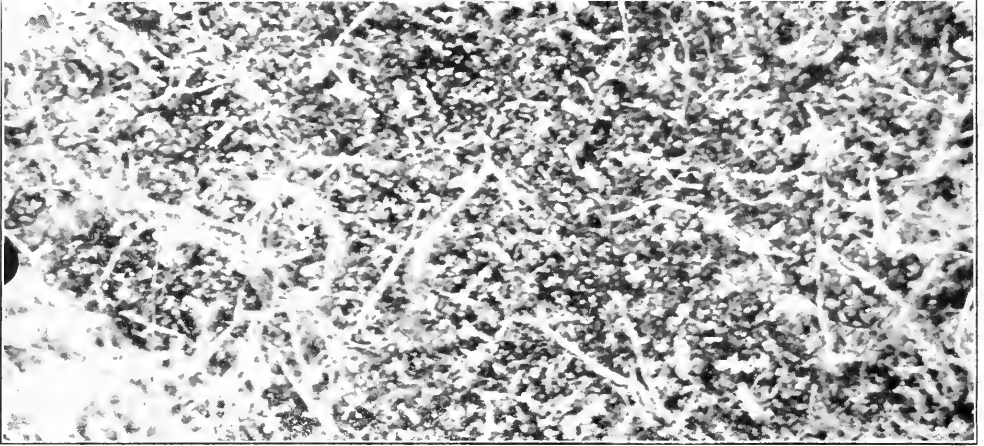
so long and evidently to a large extent of the fibers of wood. It seems that the floor must wear away under constant use and the tramping of many feet, and that the tiny particles of wood thus rasped off are much the same as those pulled from old fence rails by hornets for paper making. These short fibers of wood from the floor float in the air and settle wherever they find a lodging place. Mingled with these, are occasionally the fibers of cloth, but basis is made up mostly of very fine soil. This seems to be ordinary soil that has been brought in on the shoes, and pulverized so fine on the floor that the unseen and unnoticed currents of air carry it in all directions.

When one sees a ray of light in a darkened room, he is astonished because the air contains such myriads of floating particles, but the light that they reflect shows them plainly and the microscope applied to the accumulated dust in that room will reveal the character of the material there floating and deposited. Nature has evidently realized this condition of things, and in the structure of our nostrils by the mucous coating and by the sieve of hairs at the entrance, has made an effort to prevent at least a portion of these irritating and possibly pathogenic particles from getting into our lungs. Here certainly is a valid argument for the perfect cleanliness of a room, and for wiping the floor with a wet cloth or with some of the commer-

cial preparations, rather than depending too much on the broom.

The more one thinks of our aerial enemies, which are always present in innumerable forms of both organic and of inorganic matter, and the more one realizes the dangers of an exposure, for even a brief period, to cultural material on which bacteria may be advancing toward a protuse harvest, the more con-

with heavy foliage, in late autumn, with bare limbs, and in winter with those boughs clothed in snow or sleet. Pictures never lose their interest, but always satisfy, and the owner is truly and deservedly proud to exhibit them, unconsciously and naturally giving them the best and most prominent position on the walls or in the album where they bring back, whenever look-



DUST ON A LONG UNUSED VOLUME FROM THE BOOK SHELVES.

dent may one feel that good old mother nature has done her best to prepare us all with sufficient energy and with the proper facilities for contending against these enemies. We may come off conquerors over most of these invisible foes, if we cultivate sufficiently our natural power of observation by study and by experiment, and have energy and perseverance to practice what we learn. Mother nature may be a somewhat subtle personage, but she will help us to help ourselves if we will allow her to do so.

Good Words for Photographers.

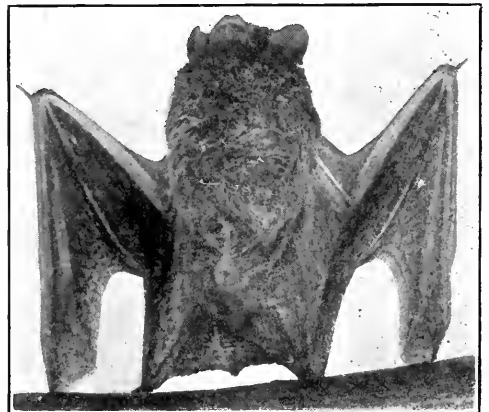
BY W. D. KYLE, FORT WAYNE, INDIANA.

They are little things to amuse, or interest or mystify one's friends. The supreme or fundamental object should be, or, rather, the result will be, a close study and close approach to "Nature in all her glorious moods." A true nature lover never tires of studying and talking pictures, at different seasons of the year, of even the same scene, some favorite view, a bit of river, a cozy alcove or bayou in a wood surrounded lake perhaps in the spring with leaves half out, again in summer

ed at, no matter how many years after, happy recollections and fond remembrances.

An Interesting Bat.

Mr. J. Willis Young, of Greenwich Avenue, Stamford Connecticut, recently contributed to Arcadia a live bat of extremely interesting appearance with unusually well-shaped mouth and ears. It is not the common red bat found almost everywhere, but is the so-called silver haired bat, *Lasionycteris noctivagans*.



LITERARY

AND BIOGRAPHICAL

Agriculture in The Public Schools. By Lester S. Ivins, M. S. 208-212 Wright Avenue, Lebanon, Ohio: March Brothers.

This is an interesting handbook especially adapted to the schools of Ohio, but suggestive and helpful, in many respects, in other places wherever the interests of the farm are taught to the young people. The price is thirty-five cents.

tions, can easily be performed with simple apparatus.

House-Flies and How They Spread Disease. By C. G. Hewitt, D. Sc. New York City: G. P. Putnam's Sons.

Here is a convenient little handbook on the well-known insect pest. We had supposed that the general public could appre-



TURRET OF *LYCOSA CAROLINENSIS*.
From "The Spider Book."

The Evolution of Worlds. By Percival Lowell, A. B., LL. D. New York: The Macmillan Company.

This is a collection of university courses of lectures before the Massachusetts Institute of Technology but it contains a vast amount of interest for the general reader.

Clark's Laboratory Manual in General Science. By Bertha M. Clark, Ph. D. Head of Science Department, William Penn High School for Girls, Philadelphia, Pennsylvania. New York and Chicago: American Book Company.

In this Manual eighty-nine experiments are presented, which are designed to make the pupil familiar with some of the facts and theories of general science. The experiments, which are accompanied by full direc-

tions, can easily be performed with simple apparatus.

ciate entomology from the economic and utilitarian point of view, even if not from that of pure science, but the author tells in his preface that he had troubles of his own in investigating the subject. He says: "The educational work necessary is not easy; it is often discouraging. Early in my work the editor of a well-known London weekly journal recommended my incarceration in a lunatic asylum, and another eminent medical man suggested that had I propounded such doctrines a few years ago a commission might have been appointed to inquire into the state of my mind. But it is ever so, and that stage in the history of this doctrine is past. The hostile period is practically over; the indifferent and apathetic period is waning. People can avoid hypotheses but they cannot escape facts."

The Book of Grasses. By Mary Evans Francis. Garden City, New York: Doubleday Page & Company.

This is the first book written for the amateur which takes up in a simple yet comprehensive way the common and rare species of grass. The work is thoroughly scientific in its treatment without being forbidding or dull. The author has a vast amount of most interesting matter and the layman is astonished in reading Miss Francis's volume to discover a wealth of beauty and variety in what is oftentimes regarded as a rather unattractive side of nature.

The Spider Book. By John Henry Comstock. Garden City, New York: Doubleday Page & Company.

The Spider Book, by John Henry Comstock, now Senior Professor in Cornell University, is a scientific work, but it is written with the clarity and simplicity of style that has made his "Manual" a classic in the literature of insect life. The reader is, at the outset, relieved of the old, widespread, false notion

that spiders are venomous and detestable creatures. On the contrary, as, family by family, they are described and named, their wonderful habits hold the interest, and send the reader out to watch the doings of these industrious, skilful, beautiful creatures. This in the first comprehensive book on the habits and classification of a vast natural group and it is a notable contribution to the literature of science.

This book is one of the best, mechanically, that has been issued in the Nature Library. High class, heavy weight, coated paper is used and there are over seven hundred illustrations. It is a book in subject and style of treatment that literally fills a long felt want. There have been previously written a very small handbook by Emerton, and a very elaborate book by Dr. McCook, selling for some \$50.00. This new book by Professor Comstock will meet the needs of a great number of students. In writing to the publishers, as I am sure a large number of our readers will wish to do, please refer to "The Guide to Nature."



WEB OF METARGIOPE TRIFASCIATA.

From "The Spider Book."



THE GUIDE TO NATURE



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December
1912
No. 8



EDWARD F. BIGELOW, Managing Editor

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We may here mention our connection with the World's Columbian Exposition, the Brooklyn Park Department, the Arnold Arboretum, Boston, and many private parks in and around Greenwich.

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LANDSCAPE GARDENERS AND NURSERYMEN

GREENWICH, CONN.

To make space for wandering is it that the world was made so wide.—Goethe, *“Wilhelm Meister.”*

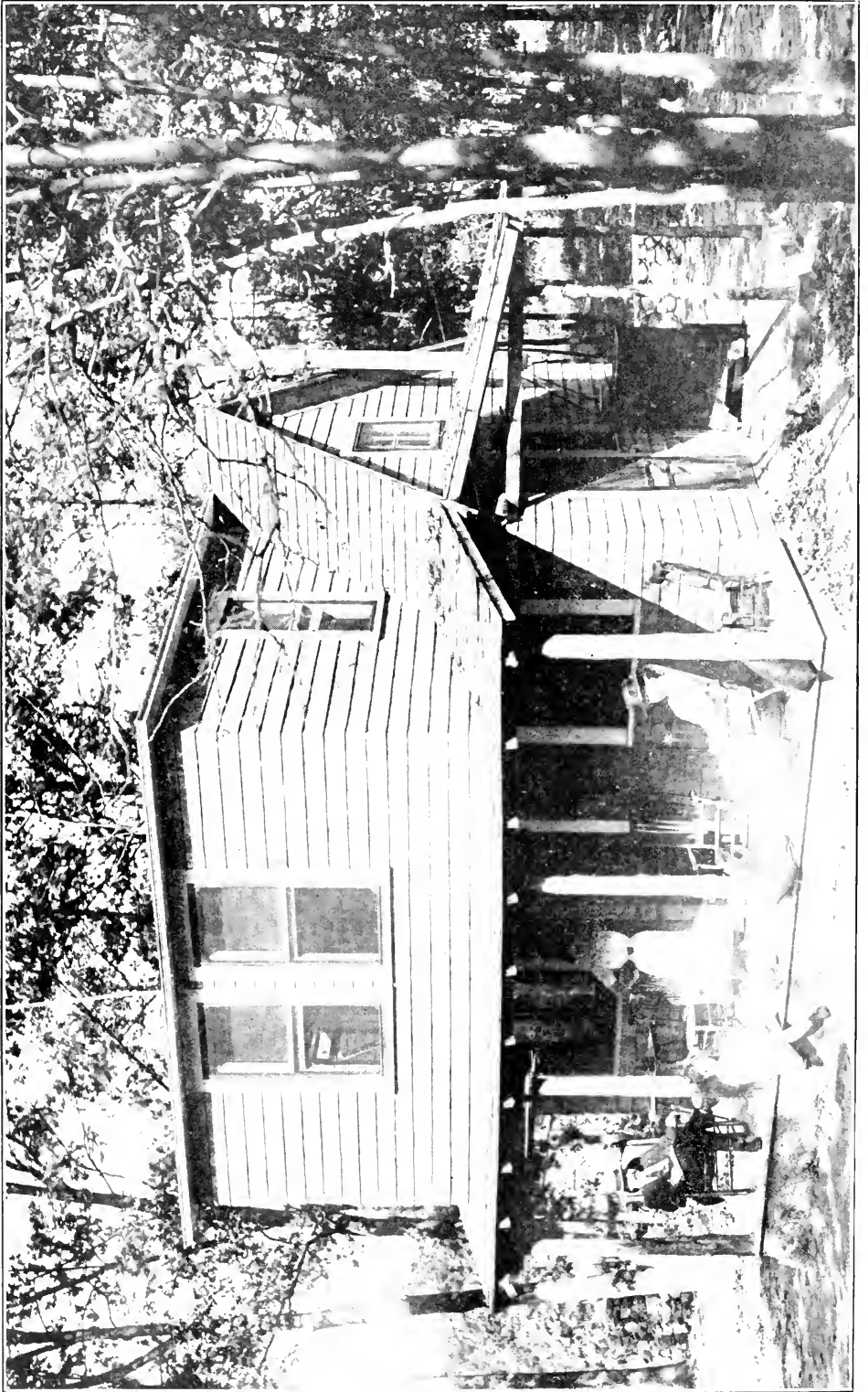


I love sometimes to have a day alone—a riotous day. Sometimes I do not care to see even my best friends: but I give myself up to the full enjoyment of the world around me. I go out of my door in the morning—preferably a sunny morning, though any morning will do well enough—and walk straight out into the world. I take with me the burden of no duty or responsibility. I draw in the fresh air, odour-laden from orchard and wood.

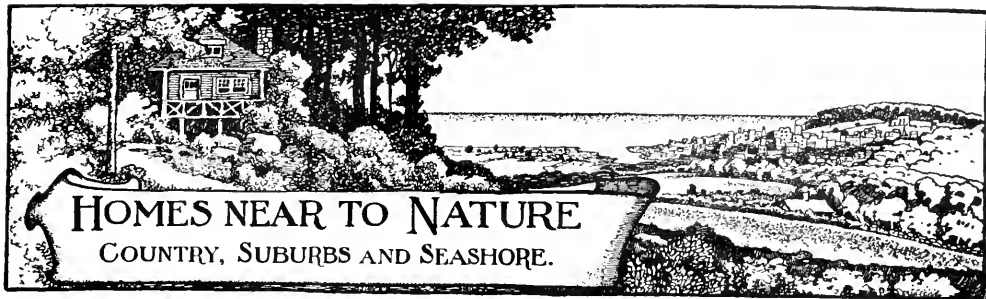
Arc adia

I look about me as if everything were new—and behold everything IS new. My barn, my oaks, my fences—I declare I never saw them before. I have no preconceived impressions, or beliefs, or opinions. My lane fence is the end of the known earth. I am a discoverer of new fields among old ones. I see, feel, hear, smell, taste all these wonderful things for the first time. I have no idea what discoveries I shall make.—David Grayson in *“Adventures in Friendship.”*





JUDSON W. DELAP'S HOME NEAR TO NATURE AT STAMFORD, CONNECTICUT. BUILT OF PACKING BOXES AS A RECREATION FOR A FEW MINUTES A DAY.



Volume V

DECEMBER, 1912

Number 8

A Woodland Home Made of Packing Boxes.

BY EDWARD F. BIGELOW, Arcadia: Sound Beach, Conn.



NATURE is primitive, and she is never artificial. If one is to meet her with advantage, and to become intimately acquainted with her, naturalness and simplicity are the traits that the visitor should possess. A life-long training has given to Mr. William Judson Delap of Stamford, Connecticut, preeminently these characteristics. To him anything incongruous, anything that does not fit well with the surroundings would be jarring and in-harmonious. He likes to have all things in perfect accord. When he goes to nature, he goes in the best, most primitive and natural of methods. For many years he has been fond of seeking nature from a local home in the form of a tent or cabin. As he is a busy man, with a multiplicity of cares, extended trips to distant woods or to the Adirondacks consume too much time. Then, too, he is a lover of wild nature at all seasons of the year. He does not believe in limiting his communion with nature to a week or two in midsummer. Since he could not bring the Adirondack woods to Stamford, nor spare the time to make extended journeys at every season of the year, he solved the problem by building a permanent home that he calls "Denhurst" in the wildest spot of the woods that he could find within a few miles of Stamford. He purchased several acres of wild woodland on the well-known Den Road, which, for primitiveness, would take first premium in competition with any other part of the Stamford

suburbs. He is a tree lover. To him every tree on the premises is sacred. He was unwilling to part with a single one, yet he did not want to build the modern, conventional bungalow, nor a country cottage. He solved the problem by building a home in the woods so simple, so incomplex that it is even less complex than a log cabin. It was, therefore, not a matter of economy in lumber, but to carry out an idea, that he constructed a house entirely of packing boxes from his extensive clothing and gentlemen's furnishing store.

He did not haul these in one great load after their accumulation in the back yard, but he took a few at a time; he ran up into the woods with his automobile, and tacked on a few of the boards and thus gave himself a sort of excuse for frequently visiting this wildness of nature for an hour or two when he could spare the time from the store. Almost unaided he put on board after board from the packing boxes, which made him feel that he owned not only this section of unchanged nature, but that the house itself is really his own, the result of his own personal handiwork. There is a charm in a thing that you make yourself.

Contrary to what might be expected, the buildings are not in appearance poverty stricken shanties, but are well and substantially built, in good proportion, and with harmonious and appropriate architectural lines.

Here Mr. Delap and the members of his family frequently resort for rest, recreation and the study of nature. He



"HE TOOK A FEW AT A TIME: HE RAN UP INTO THE WOODS WITH HIS AUTOMOBILE."

is especially fond of the trees, he knows the plants, and with his young daughter he often sits on the stone wall and studies the birds. When I visited this delightful spot, where one may commune with nature, one of the first things that he said was, "I want to

show you a remarkable boulder that reminds me of the figure-of-four traps of our boyhood. Nature has brought this stone, weighing many tons, from some distant place, and has propped it up by a small boulder under one side, as if I might pull it out by this hoe



"WITH HIS YOUNG DAUGHTER HE OFTEN SITS ON THE STONE WALL AND STUDIES THE BIRDS."

and let the huge boulder fall as do the well-known stone traps."

At no other home near to nature that I have visited, is there a better example than at this, of the meeting of the extremes of civilization, which here seem to come together and form a circle. Here is the wildest of primitive regions, but short daily visits to it would not be possible without the aid of that most modern of man's inventions—the automobile. The automobile has been working wonders and is still working wonders in thus making it possible to have frequent communion with nature. Not many years ago a nearness to nature was possible to the business man for only a short time during his short vacation, or perhaps a hunting trip in midwinter, or a mid-summer fishing excursion to some remote part of Maine. But the automobile annihilated the distance between the busy centers of trade and the tangled thickets. Can one imagine a more perfect form of recreation or more literally a place in which to recreate, or a more successful antidote

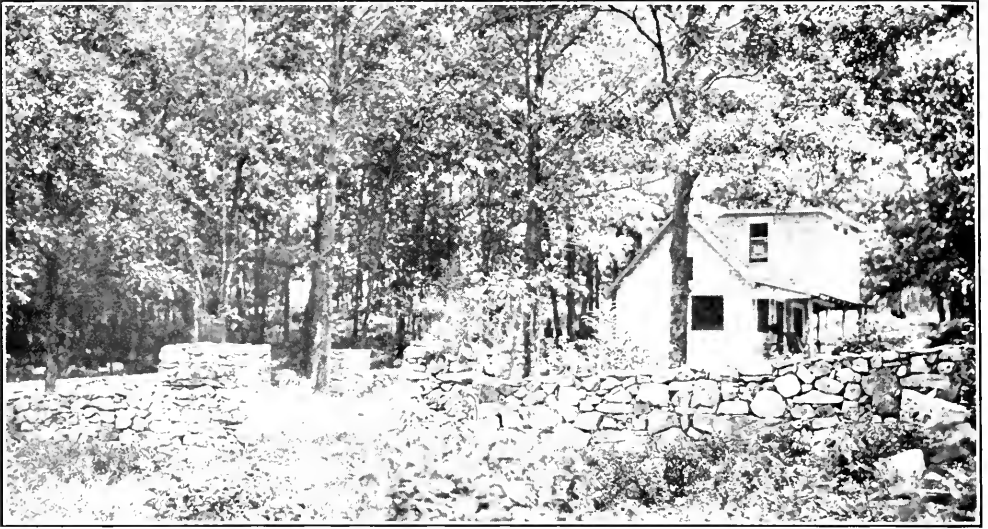


UNDER SOME CONDITIONS A MAN MAY TAKE HIS BUSINESS WITH HIM AND YET HAVE A VACATION!



"AS IF I MIGHT PULL IT OUT BY THIS HOE."

But he couldn't nor could the combined strength of several men.



THE PACKING BOX HOME WITH MODERN STONE WALL DECORATION.

for the rush and strain of modern civilization and the intense competition of business than to slip away to this spot for a few hours of relief from responsibility, to enjoy this intimate acquaintance with the rocks, the trees, the birds, the sunshine and the invigorating air? That is the right kind of approach to nature. It inflicts no cruelty upon any form of life.

Mr. Delap has been a successful hunter in years past, but I note that he is becoming more and more disposed to lay the gun aside, and to go to nature for rest, refreshment and

observation. What he has done hundreds of others are doing and will continue to do. The more frequently such methods are repeated and practised, the longer will be the life and the greater the happiness of our business men. Nature for the recluse only is a thing of past ages, but nature for the modern business man is not only a new method for preventing nervous exhaustion and collapse, but it is successful. It is proving to be salvation from the evils of nerve strain. It works. It is successful. Mr. Delap is himself a proof of it. He apparently



AN AIR OF REST AND CONTENTMENT.



"THE AUTOMOBILE ANNULATED THE DISTANCE BETWEEN THE BUSY CENTERS OF TRADE AND THE TANGLED THICKETS."

has no nerves. Those who visit his store well know his never failing geniality and wit. He always has a smile

and a word of good cheer. I know where he gets and how he retains his vitality. The purpose of this article



"FOR HE'S A JOLLY GOOD FELLOW" WHO LIKES TO HAVE HIS WIFE AND DAUGHTER WITH HIM TO TELL THEM HOW MUCH HE ENJOYS SOLITUDE (WITH THEM) IN THE WOODS!

is to reveal the secret that others may go and do likewise. Ever notice what a difference there is between one store and another? How tense and strained is the tone that one finds in some, where everything is keyed up to concert pitch like the strings of a violin, while in others there is a cordial pleasantness, a geniality as soothing as the melodious tones of an organ. Perhaps the kind of geniality found in Mr. Delap's store may be susceptible of a musical explanation. I think the secret may be found in the songs of the birds, the murmur of the winds through the trees over that packing-box house, and the rippling laughter of the water in the ravine at the foot of the hill. Soon after my arrival I went to the ravine at the suggestion of the host. "There," he said, "is a beautiful place and I know you will enjoy the brook." That brook laughs not only there but in Mr. Delap's store. It sings in the charming hospitality of his home, in the kind greeting of his wife, an attractive and affable hostess, and not least in eyes and on the lips of his young daughter, the joy of the household, a veritable nymph of the woods, the fairy of the packing-box home, of the beautiful trees, the mighty boulders, the singing birds and the humming insects of Den Road.

The Love of Nature.

BY GEORGE W. CARVER, DIRECTOR, DEPARTMENT OF RESEARCH, EXPERIMENT STATION, AND CONSULTING CHEMIST, TUSKEGEE NORMAL AND INDUSTRIAL INSTITUTE, TUSKEGEE INSTITUTE, ALABAMA.

To me Nature in its varied forms is the little windows through which God permits me to commune with Him, and to see much of His glory, by simply lifting the curtain and looking in.

I love to think of Nature as wireless telegraph stations through which God speaks to us every day, every hour, and every moment of our lives.

No true lover of Nature can "behold

the lilies of the field" or "look unto the hills" or study even the microscopic wonders of a stagnant pool of water, and honestly declare himself to be an atheist or an infidel.

The study of Nature is both entertaining and instructive, and is the only true method that leads up to a clear understanding of the great natural principles which surround every branch of business in which we may engage. Aside from this, it encourages personal investigation, stimulates originality, awakens higher and nobler ideals.

Language fails to adequately express my thoughts regarding the joy of my soul; so, therefore, I send you the above crude paragraphs, hoping that you may find at least one worthy of a place in your splendid magazine.

A Song for Autumn Days.

By Mrs. Miriam B. Jacobs, Greenwich, Conn.
So soon, ah! so soon the summer is over!

The rose on its stalk hangs dead;
The bird on the bough
And the bee in the clover
Their farewell have said,
For the summer is over.

So quickly, alas! the bright hours are over,
The fragrance and sunshine fled;
Now, home for the wand'rer,
And work for the rover,
For the roses are dead
And the rest-time is over.

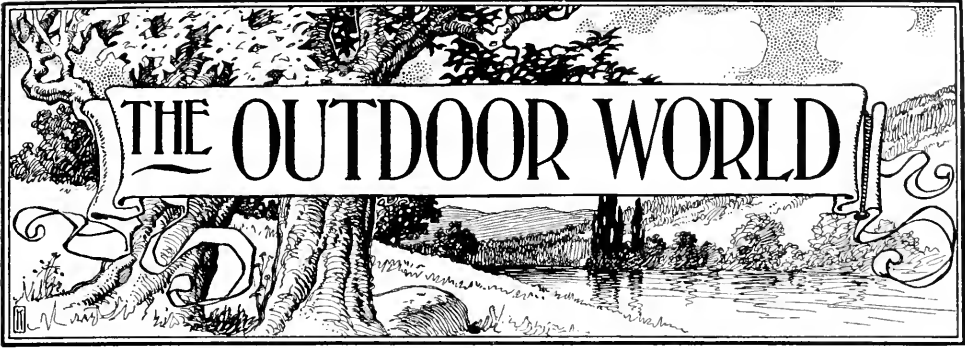
So quickly, alas! the reaping is over,
The grapes to the winepress fed.
In forest and field
The lone flocks seek cover,
Ere the frost-pall is spread—
For the mild moor-life's over.

So soon, ah! so soon, our dreaming is over,
In rose-paths no longer led;
But to the heart
Of the undaunted lover,
No summer is dead,
Though its splendor is over.

It lives, ay! it lives in the soul that remembers
The song and the rose so red.
New faith shall be kindled
From well-guarded embers,
New love-light be shed
In the soul that remembers.

—Reprinted from "The Boston Transcript."





The Camp Fire Girls.

The best thing in the handbook of the Camp Fire Girls is almost its shortest paragraph under the heading, "Object:"

"Its object is to add the power of organization and charm of romance to work, health and play."

I particularly like that expression, "the power of organization and charm of romance," for most of the pleasures of life are in the mental anticipation and in our ideals. There is no greater incentive to well doing than our association with others. Long ago Thomas Hood sang of the pleasures of a home, and a home is merely an organized body. The joy of having a home is the joy of working in co-operation with others. All other organizations are largely on the same principle. That "power of organization" is one of the great incentives in working for nature through The Agassiz Association. When the ideals of any commendable organization are realized what a "charm of romance" there is about it. Take, for example, Masonry, one of the oldest of organized brotherhoods. Is there anything prettier in it than the compass that extends around the lives of all the members that are "on the square?" The square and compass in themselves are only matter-of-fact tools used by the carpenter and the mason, but when they become emblems what a "charm of romance" they have. To hang on the wall a pennant of green baize bearing the letters AA in gold, is perhaps no more decorative than the pennant of a foot-ball team, but when one stops to consider the "charm of romance" in the fact that those golden letters represent the oldest and largest

organization in the world for the study of nature—the golden sun on the green fields—there is the "charm of romance" woven about the whole world.

The Camp Fire Girls have started aright. Their commendable purpose is ideally expressed, with one possible exception. We could wish that they had mentioned a rather more definite purpose for their outdoor interests. Yet that is perhaps comprised in the words, "health and play."

The qualifications for Guardian are well expressed and of importance:

"It is important that she have the out-of-door spirit and be somewhat familiar with the out-of-door life and activities; and that she understand the meaning of the home and the opportunities for doing important things in the home in an interesting way. She should be a woman who wants to be with girls because she enjoys it, rather than because she merely thinks it her duty. The work requires real devotion and enterprise on the part of the Guardian and the greater her enthusiasm and health, the better; the more natural her leadership, the better."

An important point of view in any organization is well expressed in the qualifications required for membership. The candidate must first of all become a wood gatherer. She does not find the camp fire ready burning, but she starts at the beginning and goes into the thicket to find fuel. She is required to do that herself—no one goes with her and she uses her own common sense in finding that bit of fuel. Then she, with others, takes it to a common center and makes the fire. O, you members of The Agassiz Association, and those who have inquired about membership, hark ye to this. How



THE GIRLS STAND AROUND THE FIRE AND REPEAT THE FIRE INVOCATION.

frequently do we have inquiries reading like this, "If we become a member of the AA what will we get for our membership?" The thing, my friend, to worry you is not what you get, but what you give. The getting will come right when you do your part in giving. That lesson is impressed upon the Camp Fire Girls at the start. You have not come to us as to a bargain counter to get more for your money or for your time than you have received elsewhere, but an ideal opportunity has been given you to contribute something for the good of others. From all points of the compass in the woods come in the fagot gatherers to make the fire.

Occasionally we have a member who seems so filled with the modern commercial spirit, the desire for marked down prices, that he first surveys the field to ascertain what he is "going to get for his money"—a trifling fifty cents a year for membership. Our association would never have existed if some one had not come forward, and unselfishly aided others for years of strenuous endeavor. Suppose our first President, Mr. Harland H. Ballard, had taken a pencil at the beginning of the AA, and had tried to figure out what he would get by starting such an organization. But he did not. No, he saw the opportunity to help young people, and he urged and inspired them to be gatherers of observations for the common good.

But to return to the Camp Fire Girls. When each girl has gathered her bit of fuel she is animated by this desire:

"Seek beauty,
Give service,
Pursue knowledge,
Be trustworthy,
Hold on to the health,
Glorify work,
Be happy."

And after she has brought in wood for three months with other gatherers she repeats this each time the fire is made:

"The Fire Maker's Desire.
As fuel is brought to the fire
So I purpose to bring
My strength,
My ambition,
My heart's desire,
My joy
And my sorrow
To the fire
Of humankind;
For I will tend
As my fathers have tended,
And my father's fathers,
Since time began,
The fire that is called
The love of man for man,
The love of man for God."

I have heard it urged by way of criticism that the Camp Fire Girls, and the Boy Scouts, and the Audubon Societies, and the humane societies, and the AA Chapters, have as an incentive some scheme to get something. There are even those who seem to think that the preacher has only his salary in view. The ways and means of life must be provided for, but there are many in every department of endeavor that are working unselfishly, and are sacrificing themselves for the

good of others. That spirit is inculcated in the Wohelo ceremony. As each member lights a candle she says: "Wohelo means work.

We glorify work because through work we are free. We work to win, to conquer, to be masters.

We work for the joy of the working and because we are free.

Wohelo means work."

Read that again. It is worth careful consideration. It does not state that we work for pay, but "we work for the joy of the working and because we are free." What a pretty ceremony that is in which the girls in their Indian costume stand in a ring around the fire, hold their hands aloft and repeat in concert:

"Burn, fire, burn!

Flicker, flicker, flame!

Whose hand above this blaze is lifted

Shall be with magic touch en-
gifted

To warm the hearts of lonely
mortals

Who stand without their open
portals.

The torch shall draw them to the
fire

Higher, higher

By desire.

Whoso shall stand by this heart-
stone,

Flame-fanned,

Shall never, never stand alone;

Whose house is dark and bare and
cold,

Whose house is cold,

This is his own.

Flicker, flicker, flicker, flame;

Burn, fire, burn!"

It is all good, every bit of it; it recognizes the primitiveness of mankind by the Indian costume. The hands are held aloft in recognition of the Ruler of the Universe, known even to the humblest of His children.

Fire you have known all your life, but is there anything more miraculous than fire? No wonder the Indians were touched with the spirit of worship around the fire, and rightly do these Camp Fire Leaders impress the minds and hearts of these young girls with the wonder of the commonplace.

Those who have compiled the handbook of the Camp Fire Girls possessed an abundance of common sense, and the spirit of poetical enthusiasm.

It was a happy day for us when the



A COMPANY OF CAMP FIRE GIRLS AT THE ENTRANCE OF THE AGASSIZ HOME, ARCADIA; SOUND BEACH.

Camp Fire Girls took possession of Arcadia, and made every department and every building cheery with their voices, and then gathered around the fire in Arcadia's grove. We commend their example to The Agassiz Association, to the Audubon Society, to the humane societies, yes, even to the churches. Realize that work is worth doing in itself, and that the more you bring the more benefit you will be able to take home. What if you do not take home any personal benefit? If you have aided a fellow being, isn't that joy enough for one day?

* * * * *

The Elective Honors or the real work of the Camp Fire Girls comprise a long list of Health Craft—swimming, boating, bicycling, horseback riding, mountain climbing, tramping, automobiling, dancing.

Under Home Craft there is much of cooking, marketing, washing, house-keeping, entertaining, caring for the baby.

Camp Craft tells us how to care for the camp, how to build a fire, cook, follow the trail.

Patriotism tells of our principal national holidays, and the history of our country; it includes attendance at church, and the giving account of religious leaders, missionaries, great women and others. It is a good idea to put that under the heading of patriotism, for what is love of country but love of God!

There is much of Hand Craft and Business, but perhaps we like best of all the list of Nature Lore, which consists in identifying birds, making notebooks of observations of trees, birds, habits of animals. There is a long list of work to be done in the garden, including much of experimental and some of technical scientific interest.

Stars have a prominent place, and at least seven constellations and other stars must be learned. Under the heading of Birds there is the identification of wild birds, the erection of bird boxes, caring for the birds, keeping notes of observations and managing a lunch counter.

Under the heading of flowers, the members are required to identify twenty-five wild flowers. With bees one is to do all the work on a successful hive

of bees for a season, and to know the habits of honeybees. If that means to know all the habits there is no need of going any farther. A lifetime will be required for that alone. In the study of animals there is much of heredity and environment, and it is especially commendable that the common animals are taken as, for example, chickens and dogs.

We say Godspeed to the Camp Fire Girls. We shall be glad to give them aid, encouragement and co-operation. They have much common sense. They believe in taking the things that come first at hand. They believe not only in studying, but doing, and not only in receiving but giving. That is their best point.

Science Stimulates Wonder and Reverence.

With such wonderful facts facing us on every side it is madness to assert that the progress of Science means the destruction of the spirit of reverence and of wonder.

* * * * *

Indeed, owing to the advances of Science, how much more wonderful a world we live in than that of Milton or Shakespeare? How dwarfed the mental vision of all who lived only a few hundred years ago appears to us now. Where our predecessors saw but gleams of light and shade, we see billions of ethereal vibrations flashing swifter than eye or brain can follow. Where they saw grey walls and gentle breezes, we see myriads of atoms and all the wonders of the atomic universe streaming and flaring about us. Truly, every fresh advance of science makes us only more forcibly realise the truth of Minshull's words:

"Land, Sea, and Sky! What mystery and
what wonder
Lie hidden in the old familiar sound!
From surging wave and roll of mighty
thunder
To the white daisy nestling on the ground."
—*Goffrey Martin in "Triumphs and Wonders of Modern Chemistry."*

Fond of Flowers.

"Are you fond of flowers?"

"I just love them."

"What are your favorites?"

"Those that are out of season."—Ex.



THE HEAVENS IN JANUARY

The Heavens in January.

BY PROF. ERIC DOOLITTLE OF THE UNIVERSITY OF PENNSYLVANIA.

The first month of the new year begins with an evening sky which is full of interest to those who study the heavens. Besides the brilliant midwinter stars that now fill the sky with

to different portions of the great cloud of stars around us, we will again witness the constant and ever-interesting transformation of the appearance of our evening sky. The magnificent Orion and the two brilliant Dog Stars, now so high in the south, with the beautiful winter groups surrounding them, will

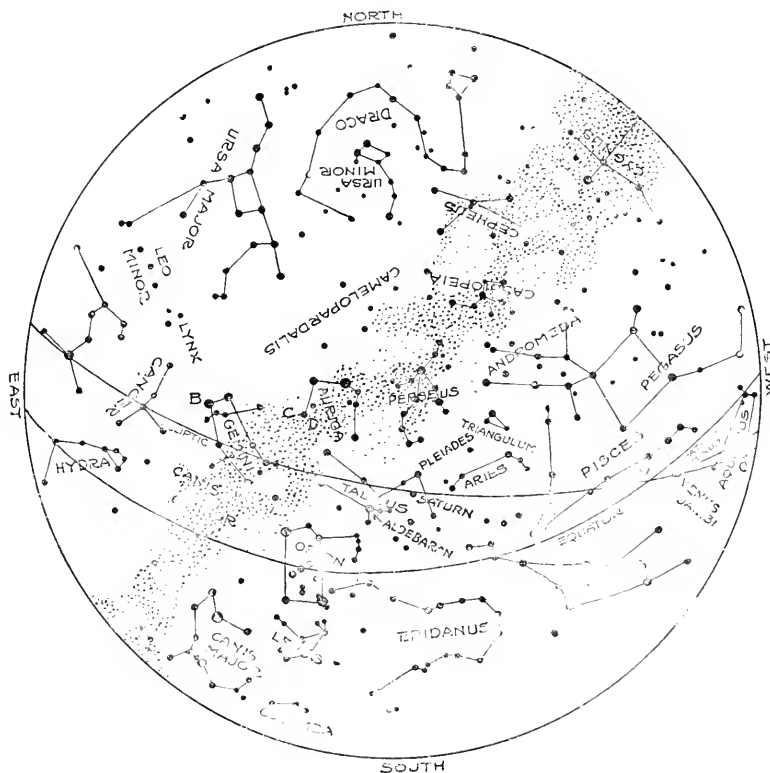


Figure 1. The Constellations at 9 P. M., January 1.

(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.)

beautiful constellations in the south, the bright Venus and Saturn also shine out high in the evening sky, and these worlds are in many respects the most interesting of all the planets. As the months of the new year go on, and our earth in its journey around the sun finds its dark side turned successively

not finally reach the western border of our evening heavens until May; at this time the striking summer group of the Scorpion will be seen just entering our evening heavens in the east and the great, reddish Arcturus will shine out high in the south, almost on the meridian.

THE MOTION OF THE PLANETS DURING 1913.

The reader cannot have failed to notice how for the past many weeks the most brilliant Venus has been rapidly climbing upward in the southwestern part of the heavens. Throughout the first months of the year it will mount even higher and grow brighter until it will become by far the most conspicuous object in the sky. On February 22 it will reach its greatest distance east of the sun, when it will

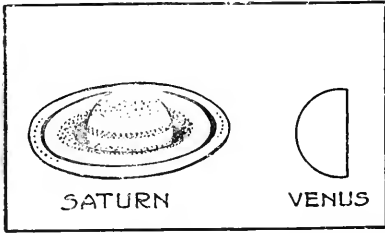


Figure 2. Present appearance of Saturn and Venus in a very small telescope. The two planets now appear almost exactly the same size. The contrast in tint between the ball and the rings of Saturn is very striking.

set four hours after sunset. It will not attain its greatest brightness, however, until March 24, at which time it will set three hours after sunset. It will then rapidly sink in the west, passing the sun and entering the morning sky on April 24. From this time until the end of the year it will remain a morning star.

The planet Saturn is so far distant from the sun and moves so very slowly among the stars that its motion presents a striking contrast to that of Venus. We now see the outer world just below the Pleiades; in the course of the year it will reach a point only a little to the left and above the bright star Aldebaran, in the group of the Bull. Consequently, as this constellation gradually withdraws from the evening sky, Saturn will disappear also. During April and May the planet will be too near the sun to be observed; it will enter the morning sky on May 29, but toward the close of the year, when the winter stars again become visible, the planet will again be seen among them, shining in the evening sky.

Thus, for the first three months of the year, both Venus and Saturn will be with us. Then for a period of about two months we will see no bright planets at all, until (on about June

first), Jupiter will enter the evening sky in the east. This planet will remain visible until December, when it will have drawn too near the sun to be observed.

The motions of Mars throughout the year will be of special interest. This planet is now very near Jupiter in the summer group of stars known as Ophiuchus, or the Serpent Holder. When, early in June, the slow transformation of the heavens has brought this group into our evening sky, we will see the larger planet shining out with its steady, golden radiance, but Mars will not then be visible. This is because the Red Planet is itself moving very rapidly eastward over the face of the heavens. Its eastward motion is so rapid that by March 6 it will have moved entirely across the summer groups of the Serpent Holder, the Archer and the Water Bearer, and will have passed the Vernal Equinox, at V, Figure 1. By the end of the year it will have moved well across the winter sky, attaining a position a little to the right of the bright star Pollux, at B, Figure 1. When Mars has thus reached the highest point of its path it will be in remarkably favorable position for observation, for its place will then be three degrees higher in the sky than that attained by the sun in midsummer, and on the early morning of January 1, 1914, it will have drawn to its least distance from the earth. Doubtless this most interesting world will be attentively studied during the last few months of the year.

OTHER PHENOMENA OF THE NEW YEAR.

The observer who is not possessed of a telescope will find that the ever changing position of the planets furnishes one of the most interesting of all the features of the heavens for his study. Several times during the present year two planets will be seen to apparently approach very close to one another, and our own moon in its rapid journey around the sky will necessarily be seen to pass each one of the planets at least once during every month. On some occasions the latter approaches will be very close ones, but unfortunately at no time will our satellite pass directly in front of a planet and so hide it from our view. Many brighter stars will, however, be occulted, and during every month of the year the moon will

move over the little group of the Pleiades, although observers in the eastern part of the United States will not first witness this most interesting occurrence until next September.

Of the five eclipses of the present year there will be three of the sun, which will be wholly invisible to us, and two interesting total eclipses of the moon. The latter to observers in the eastern part of our country will be seen to begin about sunrise, just as the full moon is setting. They will, however, be wholly visible throughout the western part of the United States.

It is also of interest to notice the remarkably early occurrence of Easter during the present year. The time of this festival has been fixed as the Sun-

1862. This body was known to be pursuing a great, closed path around the sun, making a complete revolution in the course of 13 years. At its present return to the vicinity of the earth it was at no time bright, and it has now moved into the southern sky and is wholly invisible to observers in northern latitudes.

On November 2 a third faint comet was discovered in the constellation Hercules. This body was seen to be moving very rapidly eastward and southward among the stars, its extremely rapid apparent motion being due to the fact that it and the earth when nearest together were moving in almost exactly opposite directions. On January 1, it will be found low in the

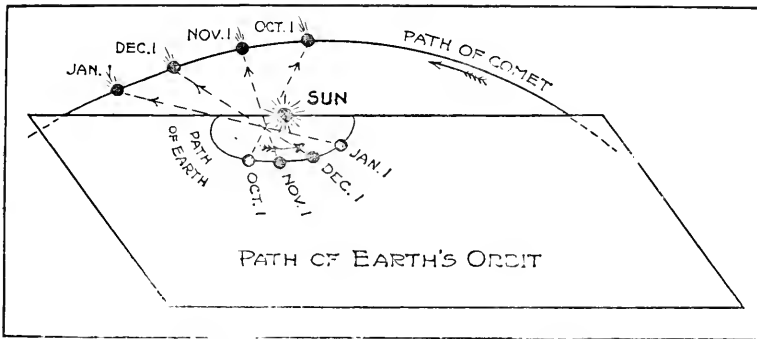


Figure 3. Showing the path of the third comet of 1912 about the sun.

day following that full moon which first occurs after the passage of the center of the sun across the equator, at the point V, Figure 1. It happens that this year the center of the sun reaches this point at 18 minutes past midnight on the morning of Friday, March 21, and that a full moon occurs but one day later,—at 7 o'clock on the following Saturday. Consequently the following day is Easter. Had the full moon occurred a day and a half earlier, our Easter of this year would have occurred about a month later than it does.

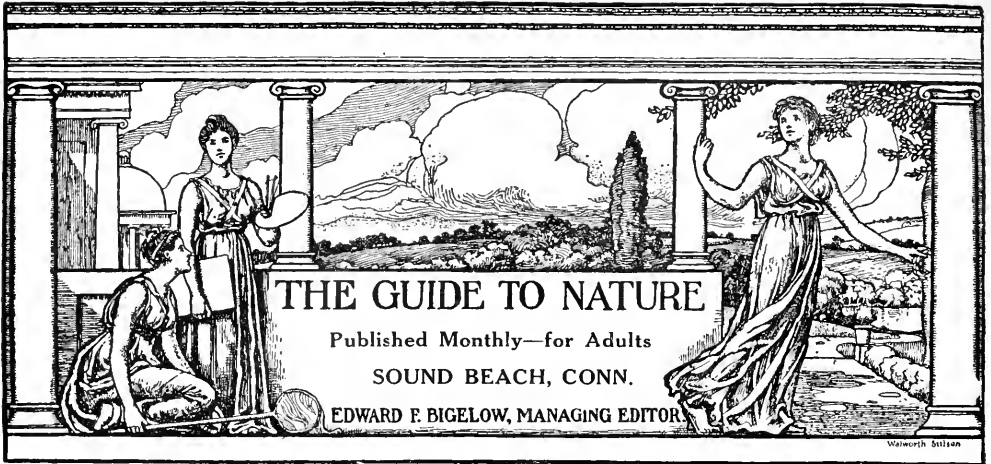
THE NEW COMETS.

Nearly nine months of the year 1912 had passed before the first comet of the year was discovered. This is a faint, telescopic object, now moving northward through the constellation of the Dragon, and rapidly receding from the earth.

The second comet to be discovered has now been found to be identical with a periodic comet first seen in the year

southwestern sky, almost exactly one hour to the west of the star C, Figure 1, but at this time it will probably be invisible even in the telescope, on account of its great distance from the earth.

One of the most interesting of all the comets is the comparatively small object known as Eucke's Comet. The motion of this body was long ago so disturbed by the planet Jupiter that the comet was thereafter added to the bodies of our solar system, and forced to revolve about the sun in a path so small that an entire revolution about the orbit is performed in only three and one-third years. This is by far the shortest period of any known comet; as the orbit is a much flattened curve whose nearest vertex is within the orbit of the planet Mercury and whose farthest vertex is but four hundred millions of miles from the sun, it follows that during much of the time the comet is near enough to the earth to be seen by us.



Greatness and the Missionary Spirit.

In an experience of some twenty-two years of editing scientific magazines I have been more and more impressed by the fact, that the greater the man, the more willing he is to help those who are not so great. I have found that when I want to know the answer to even the simplest question, it is best to send that question to the biggest expert in that particular line of thought that there is in the country or perhaps in the world. Then I am sure to get not only an authoritative, but a kindly and prompt answer. Several times I have thought when a question comes to my desk, one, for example, pertaining to dentistry, that I would send it to a local dentist, or a legal query to a local lawyer, or perhaps some point in natural science to a local teacher who should have access to many books. But such an action almost invariably proves to be a mistake. Several times a letter has been returned unanswered, but using my stamped and self-addressed envelope. Several times has come the reply, "I am too busy in my work to answer your questions." And not infrequently has come a reply, "This question is too simple for me to take time to answer it. You ought to send it to some one more interested in elementary work than I am."

But not once in this almost a quarter of a century of experience have I been refused, or repulsed or delayed by any really great authority. I now send such questions, simple as they

may be, to the most learned men or women in the land or to the most accomplished specialists. Take a man like President David Starr Jordan, of the Leland Stanford Junior University. There is not a busier man in all this country than he, nor one better versed in the science of ichthyology, yet he will send promptly a full, interesting, kindly answer to a barefoot boy's inquiry about something that he has observed while fishing, or about some strange fish that he has caught. Make the experiment just once if you doubt. If, for example, some friend asks you an astronomical question that seems simple, and you send it to the teacher of astronomy in a high school, the chances are that you will be told that, "This subject is fully explained in all the elementary text-books on astronomy." Send it to the Yerkes Observatory or to the Naval Observatory at Washington, and you get a reply that treats the whole subject as if it were a matter previously unknown; they will convey the impression that they have investigated it at your request, and are happy to give you the result in simple language. Surely the missionary spirit goes with greatness, and it accompanies profound learning. Profound learning is always ready to impart, and to do so in the simplest and plainest language. The expert knows that he knows what he knows, and that is Confucius's definition of knowledge. The man who befores the subject in a cloud of words, is virtually concealing himself behind his own ignorance, as the cuttlefish retreats under a cloud of

its own ink. The well-informed man is sure, and speaks accordingly. The man that refers me to an elementary text-book has himself need of further information. He thinks he knows, but he does not know that he knows. He is uncertain, and therefore afraid to answer, and too weak to say "I do not know." He retreats behind the cloud of his own inky ignorance.

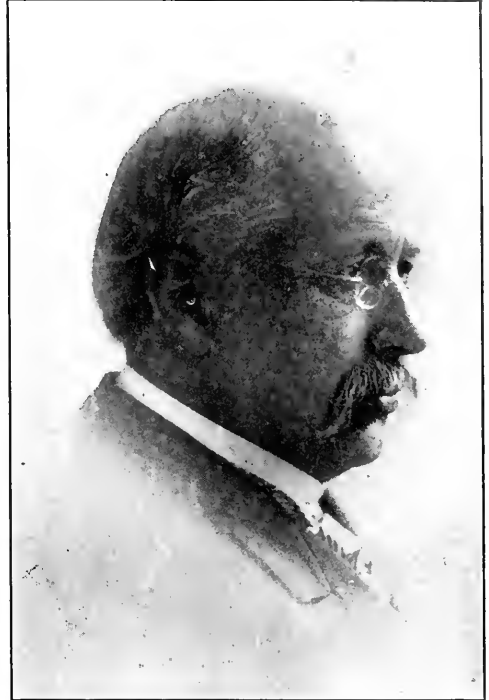
In company with such ignorance you will find selfishness. A wealthy man was asked for a contribution for the public library. "Let the public buy their own books," he said. "I buy mine." Answer your own questions, I answer mine.

Profound learning and the missionary spirit walk hand in hand. Ignorance, pride and selfishness are triplets, born of the same mother at one birth.

John W. Spencer.

Thousands of persons, children in age or in spirit, from toddlers up to white haired men and women, will grieve when they learn that "Uncle" John W. Spencer is dead. He was a much esteemed member of The Agassiz Association, and on page 184 of our number for August, 1909, we published an extended article in regard to his work. He was, indeed, "Uncle John" to everyone who has the faith and purity of childhood left in his heart. This earnest and kindly man did a remarkable work especially among farmers and farmers' children, and was a great aid and encouragement to lovers of nature and of the outdoor world everywhere, and yet, "Uncle John" in some of the early days of his work was much misunderstood. He had the rare talent of being able to raise money to carry on his work, and was so good a politician that he could get from the legislature the appropriations that were necessary. These were at first misunderstood. It was stated that he was after help to build up a paying business, but "Uncle John" plodded and worked on, and lived long enough to be generally appreciated. After a time everybody saw that he was genuine at heart and was merely making it his life mission to get people of all ages and both sexes acquainted with nature. He thoroughly believed that what humanity needs is a closer relation with Mother Earth, and no one worked more faithfully to that end.

As a member of The Agassiz Association we always valued his many kind words. He appreciated our work and gave it hearty encouragement. His own work in establishing organizations known as Junior Naturalists was patterned on the methods of our much older AA, and



UNCLE JOHN W. SPENCER HAS ATTENDED THE LAST "HARVEST HOME" OF GOOD FARMERS AND GOOD LOVERS OF NATURE.

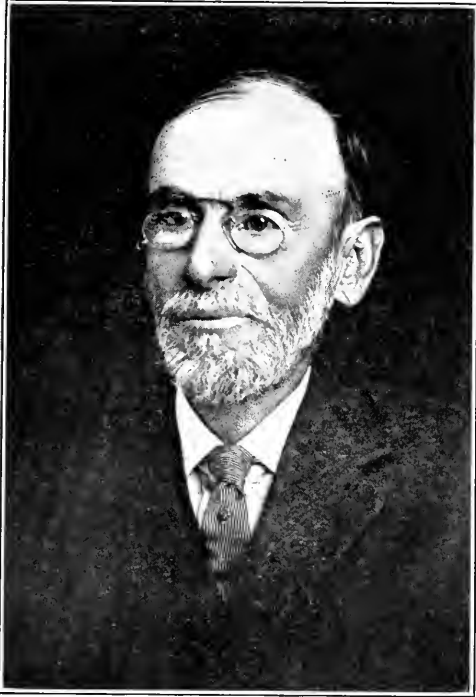
yet we were glad to see him go ahead along those lines and make effective similar work under a different name. He always had the kindest feelings for the AA, of which he was a member.

He was born in Cherry Valley, New York, June 12, 1843. Five years ago, at the age of sixty-five, he retired from his active work, but continued to the last his interest in agricultural improvement, and in his later years was a field agent in the Cornell University Extension work. "Uncle John's" work was worth doing and he did it well. The world is better because he lived and did his work.

I know the world must be very old, because ever since I can remember it's been a good while.

His Rambler's Lease has Expired.

For many years he held it and endeared himself to ramblers everywhere. Bradford Torrey, the author of "A



BRADFORD TORREY.

Rambler's Lease," recently died at his home at The Upham, Santa Barbara, California.

He had the spirit of a true naturalist, and recognized that every dweller in this world may, in a certain sense, possess the entire world. In the preface to his much loved book he says:

"His private opinion is that the world belongs to those who enjoy it; and taking this view of the matter, he cannot help thinking that some of his more prosperous neighbors would do well, in legal phrase, to perfect their titles. He would gladly be of service to them in this regard."

Then again he has given a word of encouragement to those who meet with obstacles of which there are many in the pursuit of natural science. He says:

"It is good, once in a while, to take advantage of a disadvantage to show what we can do.

"On the same principle we are glad to find ourselves, if only not too often, in unpropitious circumstances. Other wise how should we ever make proof of our philosophy?"

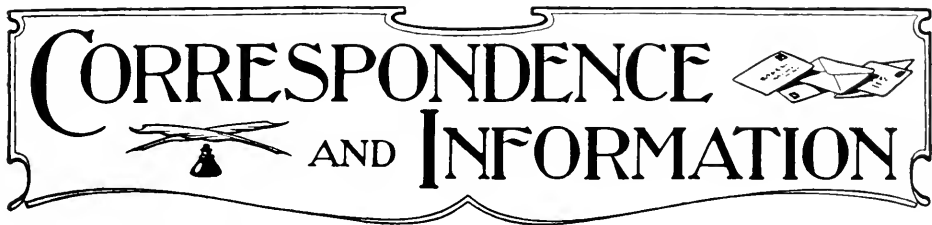
He was born in the same year as "Uncle John" Spencer, whose death we note in this issue. He was a devoted disciple of Henry David Thoreau, and edited an edition of his journal. He was also an editor on "The Youth's Companion." He is the author of a long list of books pertaining to nature, published by Houghton Mifflin & Company, Boston.



THE RAMBLER.

THE "TOWN PATH."

CORRESPONDENCE AND INFORMATION



The Cat and Bird Problem.

Secane, Pa.,

To the Editor:

You have recently and I think very properly published something on the cat and bird problem, rightly giving both sides a chance at it but it is at least amusing to read some of the opinions expressed. That old fault in reasoning is always too often apparent, whereby the declaration of another fault seems to excuse or diminish the fault mainly considered. As a matter of fact so indisputably proven as to be quite beyond contradiction the cat as well as the small boy and rifle, the pot hunter and the so-called sportsman are all of them just as destructive to birds as they well can be, only those small species escaping them that nest in remote regions as the migrants and slyer inhabitants of deeper forests. These latter are benefited by the hunter and trapper destroying so many of their wild enemies and I have never before observed so many migrants during this last spring and fall.

The ground-nesting species and those that nest upon the larger limbs of trees to which cats can readily gain access are the main sufferers from *Felis domesticus*. A well fed house cat not usually able to take adult wild birds will break up nest after nest of the young or setting birds and what observer has not known this to occur many times. But nesting birds pay small attention to the presence of a cat in any locality for the reason that it is within their hereditary experience when selecting the nest to ignore weasels, minks, raccoons, opossums, wildcats, snakes, red squirrels, etc., as once known in the wild state, though often a prey to these creatures. Birds will continue to exist in spite of the domestic cat just as they did when their wild enemies were common. It is the combination of destructive agencies that are lessening the numbers of many species of birds that nest in

more or less well inhabited sections. There have never been so few house wrens, bluebirds, thrushes, robins, native sparrows and other similar species as now, for which the cat, the boy and the air rifle are chiefly responsible.

It is very true that the English sparrow is a large factor in lessening the number of box building birds in many localities. This may be easily overcome by bird lovers. The wren box entrance may be made too small for the sparrows, the bluebird box and crested flycatcher box may be fastened to trees in the woods or orchard and so low down as to not be attractive to sparrows; and pole boxes in which martins and bluebirds may nest may be kept free of the sparrows by violently shaking the pole just after dark when the sparrows are roosting or beginning to nest within and before the martins have appeared or the bluebirds selected their nesting sites.

S. F. AARON.

To Prevent Neglect of Cats.

Oradell, New Jersey.

To the Editor:

The cat evil is due to two circumstances—one, as you say, being that most pernicious habit that some persons have of turning their pet cats loose to forage for themselves when they go away for the season (or for good); the other is the owning of male and female cats by irresponsible persons. My suggestion is that licenses shall be issued for the keeping of *neuter* or *altered male* cats (special licenses being issued by breeders, who shall keep their cats in restraint,) with the stipulation that they shall provide food and shelter for them, or forfeit the license. These cats should wear collars with tags bearing owners' name and license number. You would then need a "cat catcher," controlled in such a way that he could not with impunity remove collars from cats in order to increase his income unfairly, as I have

known dog catchers to do. As to cats confiscated, my suggestion would be to destroy all unhealthy cats, females, and young kittens, but to have the healthy males "altered" and disposed of at low prices to help defray expenses.

WE CANNOT AFFORD TO EXTERMINATE THE CAT. He is of great practical value to the housekeeper, the farmer, the business man whose warerooms are subject to the depredations of rats and mice; when cared for his beauty is as great as that of any other of nature's children; and no person who is not a cat lover can form any idea of how companionable a cat is, or what an excellent pet it makes for those who cannot properly exercise or take care of a dog.

I write without prejudice, as a lover of all animals, including the birds.

Sincerely yours,

JANE R. CATHCART.

A Rattlesnake on a Ledge.

Singer's Glen, Virginia.

To the Editor:

I am sending you two pictures of a rattlesnake, in the hope that they may interest you and, if you use them in *THE GUIDE TO NATURE*, may interest your readers.

The picture of the snake on the ledge was taken while the snake was apparently asleep, as it showed no signs of life until it was aroused by being hit with small gravelstones.

It rattled continually, but showed no disposition to fight or coil, but tried to escape among the rocks when struck the second time.

The second picture (of the flat stone) was taken after the snake's

back had been broken just behind its head. Its length was three feet and two inches. It had seven rattles and a button.

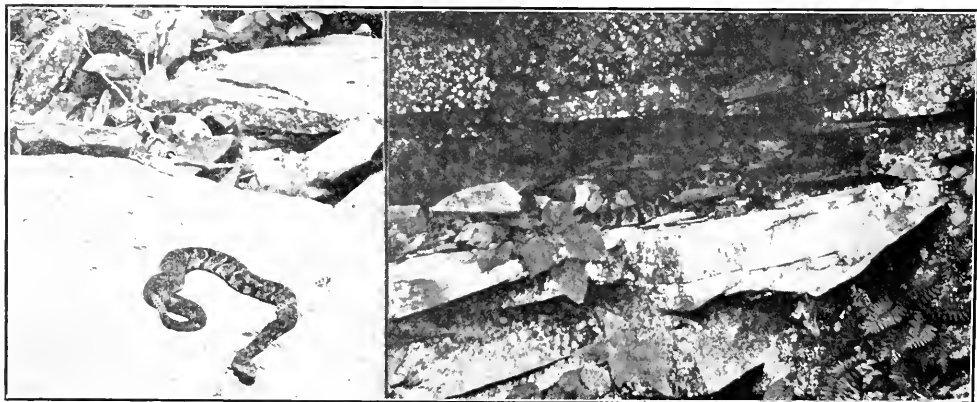
HARRY STALEY.

A Suggestion as to the Bluebird's Curious Flight.

Secane, Pennsylvania.

To the Editor:

Your note in the August *THE GUIDE TO NATURE* entitled "Astonishing Performance of a Bluebird" records that which by no means is astonishing, except to you at the moment, no doubt; it was merely coincidental. A very similar occurrence not many years ago was witnessed by myself, the bird being a crested flycatcher. I was going through the woods with a friend for whom I was identifying the birds one June day and from a low limb the raucous yet not altogether displeasing note of the big flycatcher was given. We looked up and I had no sooner given the name of the species than with a swoop the bird descended straight at my companion as if it quite intended hitting him in the face; indeed it almost did this, coming within a couple of feet of him and then darting to one side and away. At the same instant I heard the snap of its bill and recognized the cause of this seemingly strange action. We had observed the bird only and not the swift-winged, perhaps small insect that it was pursuing, probably a gnat or muscid fly. In the bird's eagerness it disregarded the fear of man or, relying on the power of its wings, meant to get that



TWO PHOTOGRAPHIC STUDIES OF THE RATTLESNAKE.

bug anyhow. So with your bluebird, these fellows being not indifferent fly catchers. It was not hypnotically attracted by your finger any more than was the great-crested tyrant possessed of sudden animosity toward my friend as the latter certainly imagined. Both were hungrily attracted by winged tid-bits and with your bluebird an un-seen specimen of insectine character happened to make a bee line past the bird's perch straight for you and beneath your table. No other explanation will suffice.

S. F. AARON.

Doubted. The bluebird, from the distance and straight line of flight, was self-evidently not in pursuit of an insect. I am also inclined to think that the "snap" of your flycatcher's bill was an attack on your friend.—E. F. B.

A Heart From the Earth.

Dudley, Massachusetts.

To the Editor:

I am sending you a heart-shaped potato raised by one of our Dudley farmers, and exhibited at our Grange Harvest Festival. Something should be done by camera and literature, possibly the latter in poetry, to extol this find in the humble earth and in the humble potato. It is as if Mother Earth, whose bosom is the burial place of so much that we love had relented as to the secrets within her breast this once, and had sent to us, out of the mold of centuries, *her heart* bidding us hold to the love that nurtured us, and that all is well for us and for *her!* It needs a stronger pen than mine. I know *you* are the one to receive this curious and kindly message from our common soil.

Cordially your friend,

SAMUEL MORRIS CONANT.

The potato, coming in this form, has, in both Mr. Conant and myself, awakened thoughts too deep for expression.

Ever sincerely,

(MRS. S. M.) NELLIE F. CONANT.

Only an emblem of a heart—only a commonplace potato. But life's greatest joys and sorrows are expressed in emblems of commonplace material. Yet, are not emblems and the ideals for which they stand, all that makes life worth living—and even death worth the dying?

Only a circle of gold typifying never ending union of two lives in never ending love; only a few drops of water and the real life has begun; only a change



THE "HEART" POTATO.

of form and a handful of dust, "earth to earth,"—Ideals and their emblems are everything; they are the reality, and if the daisy shall bring thoughts too deep for tears, so shall the heart buried in Mother Earth, returning in one of her commonplace products, rightly "awaken thoughts too deep for expression."

"HEART'S LOVE REMAINS."

By Charles H. Crandall, Idylland, Stamford, Connecticut.

We buried a Heart in the mother mold,
A Heart that was silent, still and cold,
And we went about in our saddened round,
Trying to smile as we tilled the ground,
Dropping the seed in the fruitful earth,
Praying, with faith, for the timely birth
Of flower and fruitage to greet our eyes—
But Oh, that Heart we buried with sighs!
Of the flower and harvest we feel so sure!
But what of that Heart? Shall it endure?

Blade and leaf and blossom have come,
Frost the garden will soon benumb,
Faith is faltering, promises weak:
But still the earth has a word to speak,
As out of the soil we lift this sign—
Life, like all life, ever divine—
Lowly type of immortal kind,
Bringing the promise again to mind:
"Hearts may be dust, hearts' loves remain;
Hearts' love shall greet us yet again."

Tribute to a Lover of Nature.

Louisville, Kentucky.

To the Editor:

I am sending you herewith a tribute from one friend to another, both lovers of nature. The writer, Reverend J. W. Lynch, now resides in Athens, Georgia, but formerly lived in Danville, Kentucky. Mr. Sandifer was a resident of Danville, and one beautiful day last

month was spending the day alone on the river, where he died suddenly of apoplexy. Mr. Lynch's beautiful tribute to him seems to me worthy of preservation, and I am sure will be appreciated by every true lover of nature. I send it to you and hope you may be pleased to publish it.

Very respectfully,

DR. L. S. McMURTY.

He died in Nature's lap. All his life he loved her as a mother, and in death they were not divided. He went to sleep on his play ground, like a tired child in the midst of its toys. I know the spot and love it—more now than ever. The splash of gentle waters; the glint and glory of Autumnal tints; the balm of rural solitudes; the unsullied breath of maize and meadow, Kentucky's little orchestras—all these he loved and were the favored witnesses of his translation. I am glad I was not with him, friend and lover though I was and am. My presence would have been a profanation. Nature was jealous of her son, and wanted him all to herself in the sacred moment of death. I could wish, however, to have seen his entrance into the Happy Hunting Grounds. He was not long alone.

Faithful churchman, high Mason, courtly gentleman, true sportsman, appreciative listener to all high things, Good Bye!

Comrades of the rod, our lines are black today, and Kentucky's beautiful streams are brackish with the salt of human tears.

J. W. LYNCH.

Athens, Ga., Oct. 16th, 1912.

Yellow Columbines.

Cheney, Washington.

To the Editor:

In THE GUIDE TO NATURE (August, 1912) Mr. John A. Davis of Baltimore, Maryland, mentions two yellow columbines that are in his possession. He asks if you have seen a yellow columbine. Does he mean you, the editor, or me, the reader? If he means me, I am pleased to tell him that we have two species, both western, that have yellow flowers. In seedmen's catalogues he will find *Aquilegia chrysantha*, the golden columbine, or Arizona columbine as I have heard it called. Coulter's Manual of Rocky Mountain Botany gives the locality of these species as "Colorado and southward." The same authority gives Wyoming, Montana and Idaho, as the home of the

other yellow species, *Aquilegia flavescens*. I have not seen this, but the Arizona columbine has long been a favorite.

I have produced some interesting hybrids by crossing different species. One of my hybrids has blue sepals tipped with yellow, and yellow petals. The long spurs are blue.

I had noticed that columbines were red and yellow or blue and white, and was therefore much pleased when my first efforts at hybridizing produced a flower differing in color from any that I had ever heard of or seen. Have you ever seen a blue and yellow columbine?

Another hybrid, having *A. chrysantha* for one parent and a red and yellow columbine for the other, has large, bright, copper-red sepals, and butter-

cup-yellow petals. I think this is the most "showy" columbine I have ever seen, as the flowers are large, spurs long, and both sepals and petals thicker than in *A. chrysantha*. Seedlings from this hybrid have not bloomed yet, so I cannot say if it will come true. From the first mentioned hybrid I have plants with blue and yellow flowers, but the yellow is much lighter than in the original hybrid, which I regret to say was lost after blooming twice.

SUSAN TUCKER,

Corresponding Member 2,047

Regarding the Sympodial Growth.

Dr. Ward's "Pure Sociology" (referred to in Mrs. Cape's article page 205 of our number for December) is published by the Macmillan Company, New York City.

His "Applied Sociology," a very interesting exposition of the subject, is published by Ginn & Company, Boston.

(SUGGESTIONS BY OUR ASSOCIATES.)

Sympodial growth is not an unusual phenomenon but has probably not been considered of enough importance to be discussed frequently in botanical magazines. Wiesner, in his *Biologie der Pflanzen*, cites as examples of sympodial growth the elm, linden, hornbeam, red beech, buckthorn, locust and honey locust; Pax, in his *Morphologie der Pflanzen*, gives eel grass (*Zostera*), anthurium, sedge sp. (*Carex*), pickerel weed (*Pontederia*) rush (*Juncus*), some of the Solanaceae (the tomato is an example), Cyperaceae, Cruciferae and Selaginellas. In addition to the grapevine, mentioned by the writer of this article, several of the Ampelideae show this type of growth, and some of the Passifloras. It is frequently seen in rootstocks as in Solomon's seal (*Polygonatum*).

Kerner and Oliver, in their *Natural History of Plants*, describe the type of growth of the staghorn sumach (*Rhus typhina*), although the term sympodial is not employed. I think that the writer lays an undue emphasis on the importance of sympodial growth and I see no reason for correlating it with evolution, however she deserves credit for her good powers of observation and keen interest.—J. B. P.

In the evolution of animals there

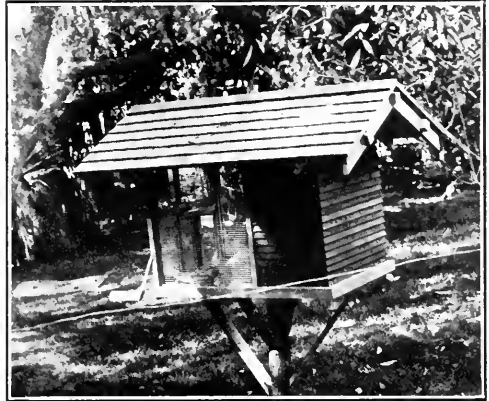
have probably been not a few illustrations of the principle, the human race itself being apparently one illustration of it.—H. W. C.

A Bird Bungalow.

Los Angeles, California.

To the Editor:

For years I have studied the wild birds of southern California and have done what I could to educate the pub-



THE BIRD BUNGALOW.

lic in regard to their value, by giving informal talks about them before school children, women's clubs and various other organizations. In many cases I have used colored stereopticon slides. I have become so well known in the community on account of this work, that injured birds are often brought to me, and in the spring many nestlings, although I try to teach the children to leave a young bird near the place where it has been found so that the parent can feed it.

Because I had no suitable place in which to keep such birds, I had the little bungalow made. It is about two feet wide by three long. For years I have kept food in my garden for the wild birds which are abundant there. I have one shelf outside a window, but because I wanted another feeding place, I built a porch on the front of my bungalow and there also food is kept for the wild birds. We have several large pepper trees, and many shrubs and vines in the back garden which draw many species to the grounds. I also have a bird pool in the yard. Winter and summer the yard is full of birds. We have no English sparrows

to drive them out. There are a few in this locality but an effort is being made to get rid of them. We hope that they will never get a hold in the southern part of the state.

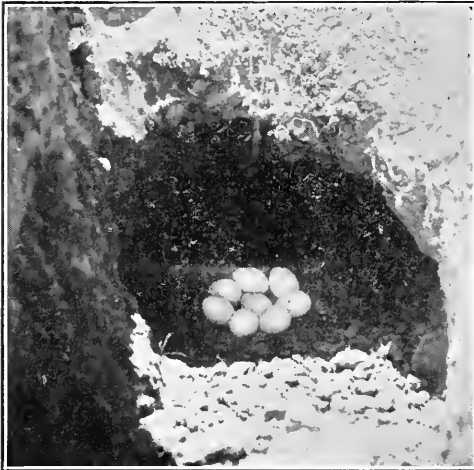
HARRIET WILLIAMS MYERS.

Nest of Burrowing Owl.

Denver, Colorado.

To the Editor:

The comical little burrowing owl selects the deserted burrow of a prairie dog in which he spends his life. This



THE NEST OF THE BURROWING OWL.

he carefully lines with dry, pulverized manure, and far down in the earth on this soft lining the female owl lays from eight to twelve white eggs.

Figure 1 shows a nest of this bird from which the surrounding ground has been removed. This little mother incubated her eggs fully four feet below the surface of the ground, and more than five feet from the entrance of the crooked burrow.

It is an interesting fact that with few exceptions, the eggs that are laid in holes in the ground or in holes in trees, where there is a little or no light, are pure white.

ROBERT B. ROCKWELL.

A Boulder Monument.

A few years ago, while on a tramp through the North Woods, I came out through the forests of North Elba, to the old "John Brown Farm". Here John Brown lived for many years, and here he tried to establish a colony of freed slaves in the pure air of the moun-

tains. Here, too, his family remained through the stirring times when he took part in the bloody struggles that made and kept Kansas free.

The little old brown farmhouse stands on the edge of the great woods, a few miles to the north of the highest peaks of the Adirondacks. There is nothing unusual about the house. You will find a dozen such in a few hours' walk almost anywhere in the mountain parts of New England or New York. It stands on a little hill, "in a sightly place," as they say in that region, with no shelter of trees around it.

At the foot of the hill in a broad curve flows the River Au Sable, small and clear and cold, and full of trout. It is not far above that the stream takes its rise in the dark Indian Pass, the only place in these mountains where the ice of the winter lasts all summer long. The same ice on the one side sends forth the Au Sable, and on the other feeds the fountain head of the infant Hudson River.

In the little dooryard in front of the farmhouse is the historic spot where John Brown's body still lies mouldering. There is not even a grave of his own. His bones lie with those of his father, and the short record of his life and death is crowded on the foot of his father's tombstone. Near by, in the little yard, lies a huge, wandering boulder, torn off years ago by the glaciers from the granite hills that hem the Indian Pass. The boulder is ten feet or more in diameter, large enough to make the farmhouse behind it seem small in comparison. On its upper surface, in letters two feet long, which can be read plainly for a mile away, is cut the simple name—JOHN BROWN.

This is John Brown's grave, and the place, the boulder, and the inscription are alike fitting to the man he was.

Dust to dust; ashes to ashes;
granite to granite; the last of the
Puritans!—

*The Last of the Puritans, by Pres.
David Starr Jordan.*



THE CAMERA



An Interesting Study of Bats.

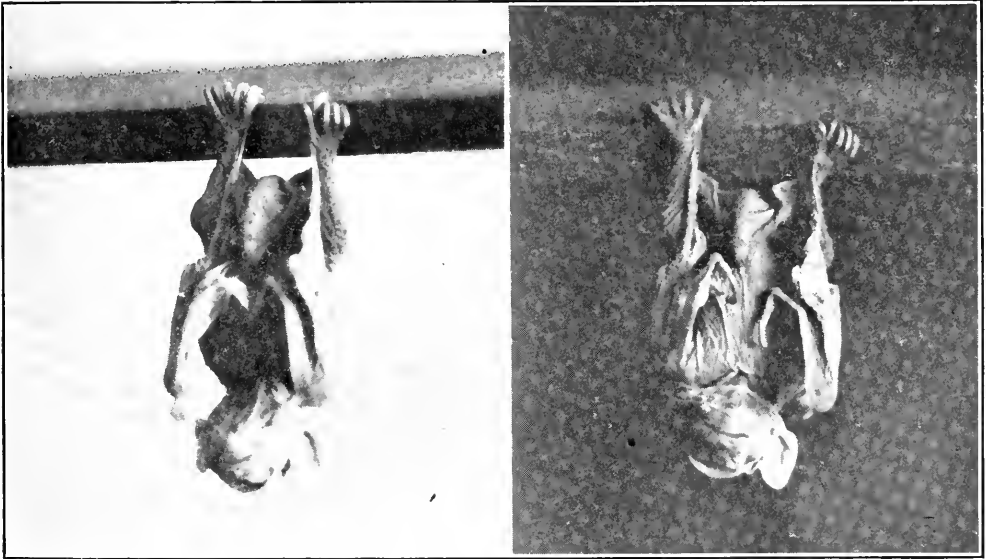
BY H. E. RANSIER, MANLIUS, NEW YORK.

They were on a leafy twig when I first saw them—a bat and her three young bats. A boy had picked them up from the ground under the maple trees in one of the village streets. They had been thrown down by a strong wind. The bat was not injured, and appeared not to be afraid for she allowed us to handle the twig to inspect the young ones that were entirely naked, and with their eyes still closed. They looked more like young mice than anything else with which I am familiar. Occasionally one would poke

I proceeded to take the little family's picture by arc light.

I first suspended them on a line, but they swayed so constantly that I tried a yard stick. The bat hung on, usually with one hind foot, sometimes using both hind feet, and sometimes even both hooks on her wings. The five claws on each hind foot are hook-like, about equal in length, and enable the bat to remain suspended without the least apparent muscular effort.

I exposed a number of plates but did not get a single satisfactory negative. The bat soon became restless and con-

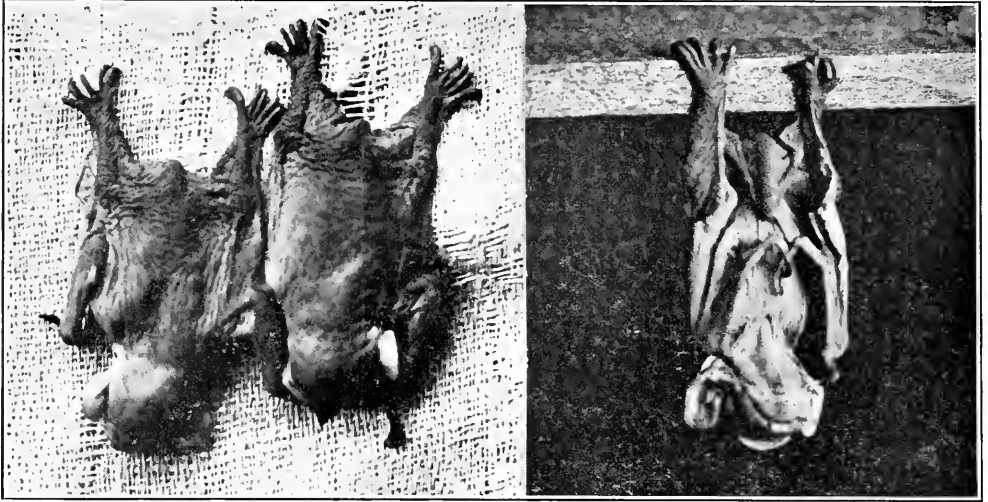


TWO ACROBATIC POSES OF YOUTHFUL BATS.

his head out from under her wing, which she tried to keep folded closely over them, and sometimes they succeeded in crawling outside.

This was on June 18th, and the weather had been cool. It was about dark when they first came to my attention, and I was unable to give them any of my time till after the evening's business had been completed. When the doors were closed,

cluding to take some exercise, away she flew, circling the room many times before alighting. I took a position at the strongly lighted end and when she made the turn, I could see the two young bats (one of the three having died) dangling beneath her body, and looking like the feet of some web-footed bird when in flight. When she alighted to rest on one of the electric light wires close to the



YOUTH IN BAT LAND.

ceiling, one of the little ones left her care and swung out on the wire. I coaxed the little one to cling to a penholder and took it back to the yardstick for a portrait of which I made several, some life-size and some even larger. Meanwhile the mother was on the wing again and when she alighted, it was on a towel. I returned the little one to her, and she made every effort to coax it back beneath her wings, using the "thumb" hook in aiding it.

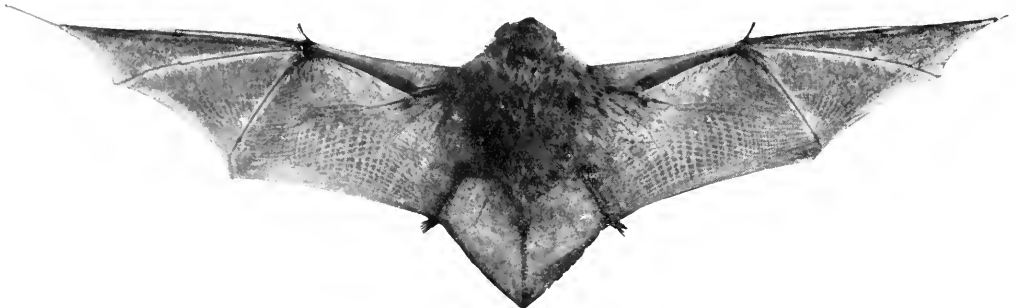
A little later she was again in flight, and I found that she had left both little ones clinging to the towel. She would fly systematically behind a counter, through the main aisle, and behind the other counter, flying low and apparently seeking a way of escape. It was so late that I could not remain longer, and trusting to her ability to get back to the little ones when she chose to do so, I went home.

Next morning I found the little ones

just where they had been the night before, and though I searched faithfully I could find no trace of her, and concluded that she had willfully deserted them, till I found her two days later, weak and unable to fly. She evidently had not been able to get back to them. I chloroformed her, as I had the little ones earlier.

I measured the spread of her wings and found it was twelve inches, and noting how light she seemed, I placed her on the scales and found she weighed but an even half ounce. It did not occur to me to weigh the little ones till long afterwards. A man weighing one hundred and sixty-five pounds, if he had wings in proportion to those of the bats, would have a wing expanse of fully a mile!

I had no means of identifying the bat, but I noticed that the hair was surprisingly light colored, in shades of tan, and there appeared to be a sort of "ruffle" of longer hair about the neck.



THE FAITHFUL MOTHER BAT.

Cats and Cereus Photographs.

Stamford, Connecticut.

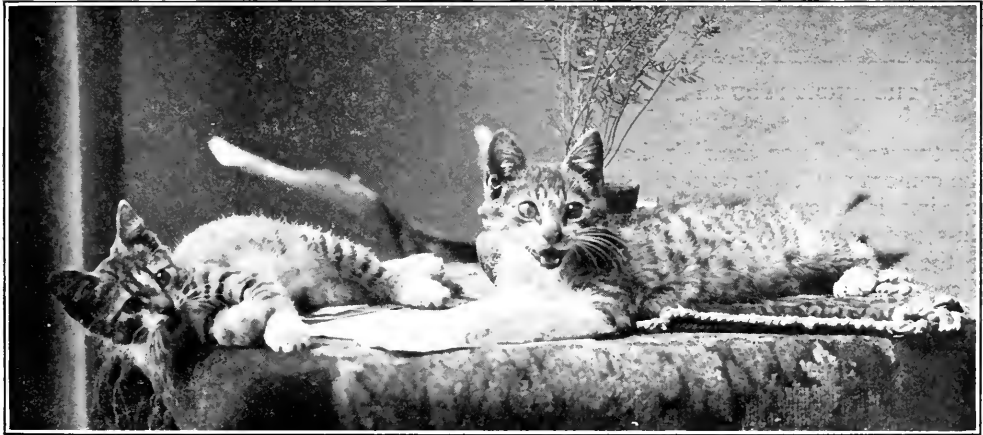
To the Editor:

Herewith please find two prints that will possibly be of interest to the readers of the "Camera" department, one showing two kittens at play, the other the blossom of a night-blooming Cereus, neither of which can be considered easy for the young camerist.

First we will take the cats. They were about three months old and just full of fun, a fact of which I took advantage. Having first gained their confidence (a most important part of the proceeding), for although cats are nervous they are intelligent and soon recognize their friends and foes, then begin to play with them. But do not make the mistake of putting them where you want them; get them there, yes, but do not put them there as that excites their suspicion, and seeing the camera, a strange object to them.

prise upon her, a squeak or a peculiar noise with the mouth will do. When she turns her head press the bulb and you have got pussy—perhaps. At any rate that is how I did it. The cats were the property of Mrs. Valley of Main Street, Stamford, who is a great lover of animals.

The night blooming Cereus, from which this bloom was taken, is about twelve years old and is the property of Mrs. Robert Bunten, a nature lover if ever there was one, of Mill River Street, Stamford. It bore nine blossoms this year, and this particular one kept all her friends excited for several nights as it threatened to bloom but did not. At last our patience was rewarded, and Mrs. Bunten telephoned that the longed for event was taking place. We hurried over and saw one of nature's strangest floral mysteries—a flower that blossoms for a few hours only at night, and then withers away. Although it was so beau-



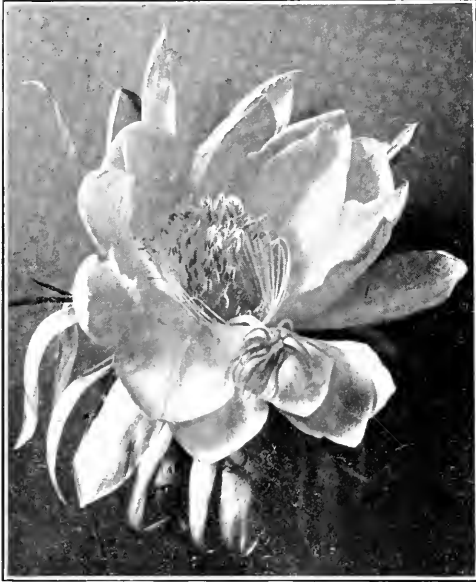
A REMARKABLY GOOD PHOTOGRAPHIC STUDY OF CATS.

they simply jump down. Get everything ready first, focus the table or other support on which you are going to place them, the pattern of the table cloth will enable you to see just where the focus is, put in the plate holder, draw the slide, and you are ready. Now you must get pussy where you want her. A small piece of paper on a string will be all that you need. Put a chair by the table so that she can jump from one to the other, draw the paper over the chair and pussy will jump on the chair; draw it on to the table and pussy will follow. It may be necessary to do this two or three times then when she is on the table let her capture the paper, then spring some sort of a sur-

tiful there was something sad about it, for it seems strange that such a magnificent flower should fade in so unaccountable a way. As Mrs. Bunten was kind enough to give the flower to my wife, we hurried back to the studio and set to work to get a negative of it before it began to fade, which, of course, as it was one o'clock in the morning, had to be made by flash light.

The chief difficulty to overcome was the characteristic harshness of all flash light pictures of white subjects. This was done by using a proschlite flash lamp which has a storage chamber with a capacity of one hundred grains of magnesium, so that any exposure up to ten seconds

can be given. I fixed the flower to a gray mounting board and with the camera racked out to the full extent, about thirty inches, exposed for the full ten seconds, and to avoid harsh shadows held the lamp



THE NIGHT-BLOOMING CEREUS.

for two seconds on the right hand side of the camera and eight on the left side, also moving it sideways and up and down, thus producing the soft shadows shown in the picture. The lens used was a Carl Zeiss Protar stopped down to almost a pin hole. Development was with metol hydrochinone and good old pyro. With a still life subject like the Cereus the speed of the lens does not matter, but it must have depth of focus. With the cats it was different; there the lens could not be too quick. The picture was made with an open lens, though one would hardly think so if he judged by the amount of detail seen in the picture, and the same developer was used.

G. B. WINDSOR.

Deer Impaled on a Fence.

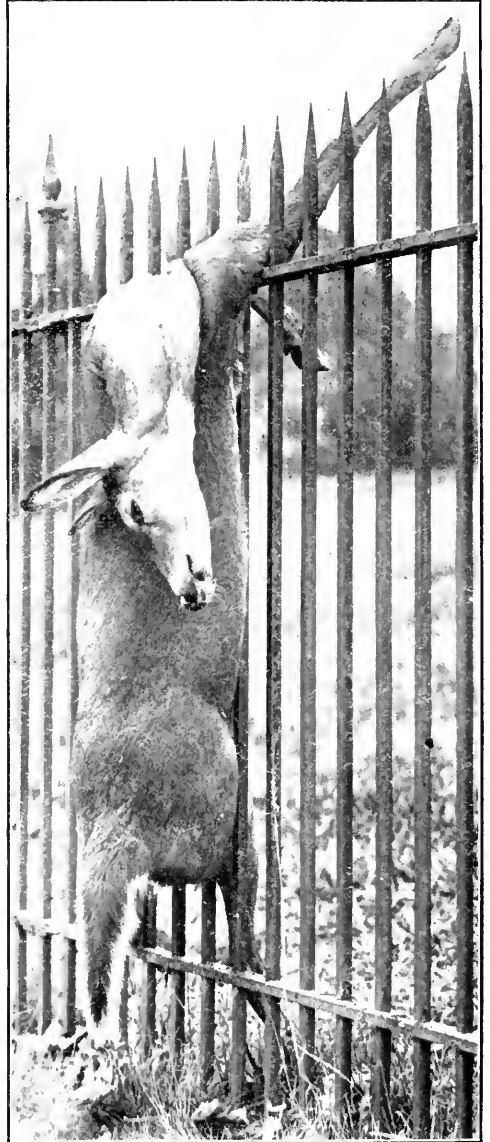
Stamford, Connecticut.

To the Editor:

On October 9, a full grown doe dashed through the streets of Noroton, and tried to jump an iron picket fence seven feet high. It missed the leap by a few inches and impaled itself on the fence, a picket piercing its heart. The deer died after giving a shrill piercing cry which was heard throughout the village. It weighed about 250 lbs.

Deer are common in Connecticut at present and can be seen on almost any day along the country roads. The game law will not be out on deer till 1917.

The report rapidly spread that a "Bull Moose" had been caught, and hundreds of people came in automo-



THE TRAGEDY OF THE BEER.

biles to see the body still hanging on the fence.

BROWN & DAWSON

The accompanying illustration is from a copyrighted photograph supplied to THE GUIDE TO NATURE by Brown & Dawson of Stamford.—Ed.



Established 1875

Incorporated, Massachusetts, 1892

Incorporated, Connecticut, 1910

Will it Live When You are Dead?

Many of us worry not so much about what will happen to us when we shall have shuffled off this mortal coil, but what will happen to others and to our work. Regarding The Agassiz Association this query has been asked by two of our largest contributors and several of our smaller ones, and indeed the point has been raised in conference with those who have taken but little active interest in our work. And this uncertainty, in the event of the President's death, has made them hesitate about contributing largely to the work.

But whatever doubt there may be as to whether the load can be drawn when this work horse has laid down for the last time, one thing is sure; it can be drawn more easily and there will be more probability of its continuance if it can be placed on the top of the hill or at least on level ground before that event.

I also asked the question years ago in all seriousness and in anxious thought for the life of the AA under the excellent administration of the former President. Undoubtedly there were times when it seemed to him that if he were to stop working the whole thing would stop. But it didn't. He found a successor and that successor has worked hard. I am convinced that this world will not let stop any work that is really worth while. It constantly weeds out the unfit and when I see an organization like the AA doing good work for thirty-six years and increasing as these years go by I am not at all worried about its continuance.

One thing has been accomplished by the present administration. An official magazine has been established. Previously the AA had a department in various magazines subject to the whims of the editor or changes in the management. Now it has its own magazine, an important factor in the

continuance of the Association. In the past it has from time to time gone out of various periodicals for various reasons but never for any fault of the AA. It has several times changed its office in the last few years, but now it has at least the nucleus of a permanent home on its own ground in its own buildings. I believe that these are essential elements that foretell continued existence.

I accepted the invitation of the former President to take the office and I then accepted the offer of the owner of the old Arcadia because I hoped to build an Institution that will live long after the persons now connected with it shall be dead. But let us look at the other side for a moment. Suppose the whole thing ceases to exist at the death of the present manager. There have been contributed in the past four years not quite four thousand dollars. The management of any organization in existence has cost as much as that in salary to its chief worker for that same period of time, but the chief worker of the AA gets nothing. *The AA has been worth all it has cost while it has existed, and if several thousand dollars should be contributed every year in the indefinite future, the AA will pay us it goes a hundredfold more than any other investment for the benefit of humanity.*

In the thirty-six years of the AA's existence there has been invested for the entire management, home and everything else, an average of less than a thousand dollars a year. Why is that we have had so much less than has been given to the humane societies, Audubon societies and other organizations of widespread, effective work? Echo answers, why. And sometimes that is a mighty discouraging answer. Not long ago I visited a large city in which there was a huge, dial-shaped indicator at the head of the main street to announce the amount of money that

was being contributed day by day for a Young Men's Christian Association. More than one hundred and fifty thousand dollars had been contributed in a few days. This was regarded as a good investment and it was a good investment to benefit the young men in one city. It was worth while but think for a moment what an equal sum invested in the AA would do to benefit not the young men and boys of a single city but thousands of people of all ages and both sexes throughout the world. It does pay to give one hundred thousand dollars to a Y. M. C. A. to keep a few boys off the streets and it would pay even a higher rate to invest that same amount of money in the AA to keep a hundred thousand boys off the streets. According to the rate at which money has been used in the AA during the past thirty-six years, and according to the work that has been accomplished with so little, one hundred thousand dollars would help effectively in keeping one hundred thousand people interested in Mother Nature, whose influence is and can be only good.

It is said that within the town of Greenwich, in which Arcadia is located, there are fifty-one millionaires and that many more are in the town of Stamford near by. We have on our books and we reach, directly and indirectly, probably more than twice that number in other places, all of whom without exception recognize the good work of the AA.

But regarding it merely as a local affair what a simple matter it would be for each of the fifty-one millionaires to give the AA say five thousand dollars for equipment and endowment. Has any one the slightest doubt of the continuance of the AA for all time if it were endowed with a quarter million dollars? Does any one doubt that the Audubon societies will continue with their quarter million or more? There can not be the slightest doubt. There are constantly advancing to better and larger things and are calling for another million dollars which are worth while in the realm of birds alone. The AA takes an interest in all nature and teaches love and kindness for all forms of life, the lowest at the bottom of the scale, as well as the human at the top. What the AA needs is not

only to do more effective work during the present presidency but to continue the work after he is dead. We need to increase our capacity for work, and that means a complete plant and money with which to accomplish effectively that work and to employ assistance. More than ten thousand people are fully awake to the good work of the AA. How effective it would be if each one of these ten thousand would give at least ten dollars a year. Think what could be accomplished by five thousand dollars a year, which is the salary received by scientific workers in some other organizations of allied nature. If that much could be devoted directly to the work in view of the gratuitous labors of the workers here at Arcadia we could move the world. So let this question of worry regarding the death of the AA at the death of the AA President be forever set at rest. Even if it should go down immediately upon his death, at least ten thousand dollars per year could as long as he lives be used to good advantage in direct application to the work. But with ten thousand dollars a year or more or even less there would not be the slightest doubt of the AA's continuance upon the event of the President's death.

The AA is exerting every nerve and muscle to get to the top of the hill or on smoother ground where better speed can be made. Won't you please push a little on one of the wheels?

Once upon a time a ship stuck fast on the ways, and the yard master was at his wits' end, for he could furnish no more power. He was beginning to despair when a shrill voice beside him piped up, "Say, Mister, I can push a pound." "All right, sonny; push." The boy pushed his pound, and the ship leaped grandly to the embrace of the waiting river.

Hacc fabula docet that while a pound is no great matter, it may work wonders.

A little more than two years ago we were pushing our best, assisted by the same faithful and devoted workers that are pushing to-day. We were nearing the top of the hill with a part of the load—namely, the establishment of a magazine, but the greater part of the burden, that of establishing a Home, was still far down the declivity. Then came the offer of assistance. We

hailed it with joy. But the joy was premature, for, without warning, the assistance suddenly ceased.

But now, thanks to the tugging and pushing of many friends, we are back on the main road, though far from the top of the hill. What is up there at the top for the AA? It is to travel effectively over a good road and to draw the burden well and to reach at last a permanent, effective Institution, well equipped for doing good work in all its various branches. The cause is worth the expenditure of much time and of many dollars.

Nature Near at Hand.

BY FREEMAN FOSTER BURR, WHITE PLAINS,
NEW YORK.

There is one thing in connection with nature study that can never be made too emphatic; indeed, it has never been sufficiently emphasized. This is that nature is not necessarily a matter of distant fields and unknown forests; of expense either in time or in money; of fine equipment, or of profound learning. The great special value of nature study as a factor in education lies in the fact that Nature, yes, spelt with a capital of the largest size, is here at our door in a multitude of interesting forms. There are far more wonderful things in a single back yard than you and I will ever discover.

Not that I would say anything to discourage those that have time to spare, or money to spend, in exploring the world that lies beyond, for they will in some measure take care of themselves. I would apply my text to the majority of people, who do not understand that the world inclosed within their narrow circle is a teeming world, and who consequently never look nor listen. These need to be taught that the study of nature is not a question of extended travel and long leisure, but of those things with which God has endowed us all, eyes to see, ears to hear, and minds to comprehend. On my way to the train, early this spring, I happened to remark to an acquaintance that the red maple buds were swelling beautifully. His answer was characteristic, "I hadn't noticed." Not that there was nothing there to see, but that the eyes were not used. If I were not at the present moment writing to people already interested in nature,

this would be an appropriate place in which to stop, and to argue the matter of outdoor observation as a factor of value in the life of anybody, and everybody. You and I are in accord, however, on this point, and no such argument is needed. With regard to the other matter, there is always plenty to be said, and the time is always ripe for saying it. Every day I catch myself longing for new fields, wishing that I could go where nature has something really interesting to show me. How full would I fill my mind with things worth thinking about, and how my pen would fly in the effort to share my wonderful thoughts. I suppose there have been few nature teachers that have not, for a good part of the time, felt in the same way. Such feelings are sure to be reflected in our teaching, and I think most of us will have to confess that it has been at the expense of a mental struggle, if we have succeeded in teaching what I, for one, have always most earnestly desired to teach; namely, that one need not go beyond his own doorstep to find more natural history than he will ever succeed in comprehending with all the books and teachers in the world to help him.

There have, of course, been teachers to whom this was a prime working principle—Gilbert White of Selborne, for instance, but he hardly knew that he was teaching; and Louis Agassiz, who certainly knew how to lay his hands at any moment upon something incalculably worth while. It seems to me, however, that most of us, pardon the immodesty of including myself in a comparison with these men, are far too prone to lay the emphasis upon the other thing, and thus miss the one great point that should make the teaching of observation, through our schools and our publications, a matter of pre-eminent worth.

The majority of everyday people will never get beyond a circumference of exceedingly small radius. A large majority of this majority have not the slightest notion that, within the narrow limits of their daily movements, there is a single thing worth the cost of a moment's attention. And it is to reach the thousands of such people in existence that the nature study teacher's efforts may most profitably

be spent. Book after book, teacher after teacher, suggests fields and woods, freely flowing streams and broad skies, as the necessary settings for nature. It is only the occasional teacher that finds nature everywhere, and succeeds in bringing home to the city bound and the work trammled, the real use and value of the seeing eye and the hearing ear.

What an enormous amount of interest may be found in the simplest, commonest things imaginable by one who has learned that the effort is worth while. Charles Darwin wrote a book on the earthworm, the common angle-worm, of every small boy that has had the good fortune to live away from city pavements. But Darwin came so far from exhausting his subject, that any small boy on any day could add an interesting bit to the book. The common slug that I almost stepped on the other day is a creature dull enough in appearance, but learned men have spent much time in trying to ascertain how it walks, and have considered the time well spent, yet they do not know so much about it even now that they have drained the subject dry of interest for you and me.

The busy corner of Fifth Avenue and Forty-second Street in New York City is not exactly the place that the average person would select for a natural history ramble, unless, perchance, he were interested in the ornithology of millinery, yet the starling that alights on the gilded eagle that tops the Library flag pole, and the little hawk that I saw hovering above the tall buildings across the street, are as full of interesting habits as any of their cousins along the country roads, but the number of people who took any note of either was probably less than the number of fingers on any one of my hands, and I have the normal number of such digits.

The fields and the hills, the trees and the running brooks, all are wonderfully good, and I would not give them up for all that a great city has to offer, but I would have it taught that nature holds the fair leaves of her book wide open to those who live in the city streets, as well as to those whose lives are "far from the madding crowd," "exempt from public haunt," and that the one really great object of the teach-

ing of nature study, wherever that teaching is pursued, is to lead people, through intelligent use of sight, hearing, taste, touch, smell, and whatever other senses there may be, to find "good in everything."

Nature Study and Elementary Agriculture.

BY ANNA BOTSFORD COMSTOCK, ITHACA, NEW YORK.

[Reprinted from "Nature-Study Review."]

(To those who have loved and studied nature for her own sake, and have labored to inculcate a real appreciation of nature, it has been discouraging to note the "shop" phases, and in some of our states, the play to the taxpayer's gallery. It is nature that should be kept in mind, not agriculture. Love and known nature in as many phases as possible, and there will be no trouble in keeping the young folks on the farm. After all, love is the greatest thing in the world—far greater than dollars and blue ribbons—even if that love expresses itself in corn and cattle, potatoes and pigs. Read the following carefully then reread it.—Ed.)

In looking over the literature, including text-books, outlines for study and leaflets on elementary agriculture, we are forced to the conclusion that a comparatively limited amount of subject-matter may be thus taught. The writers of these books and leaflets find themselves restricted to lessons on the care of poultry, the uses and treatment of cattle and other stock, and methods of raising a few of the common field crops. In fact, there is a great difference in the amount of agriculture which may be taught as such, in the elementary schools and that which may be taught in the high schools.

The country teacher finds that when she has had a corn show, a potato show, or perhaps a show of some leading garden crop, she must repeat the same next year, and too often the interest wanes after a year or two of this competition. It is rare indeed when a country school offers exhibits of this kind, for three consecutive years. It is natural for the children to get tired of doing the same thing over and over unless the premiums are so great as to overcome this natural disinclination.

It is with no thought of belittling the

work of elementary agriculture that this statement is made. The writer believes that the corn shows and poultry shows and all such work in our country schools is of inestimable service to the pupils and to agriculture. It is, instead, with an intent to strengthen the weakest point in the teaching of elementary agriculture that the following suggestions are given:

If the teacher learns to base her agricultural work upon nature-study she can, to a large extent, overcome the above mentioned difficulty. Thus when the boys are growing corn, she can give them a series of experiments to show the nature of the corn plant; and when they are working out their stock problems, she can give them some lessons which will help them to a better understanding of domesticated animals, and put the work on a more interesting basis. Then she may lead the pupils to study carefully the little four-legged tenants of the farm to learn whether they are paying rent or not; and encourage likewise a study of the birds and insects to discover what they are actually doing to help or injure the farmer; and if she leads the pupils to examine their fence corners and roadsides to find what the weed squatters are doing, she will find there an almost unlimited amount of subject-matter, all bearing directly upon the farm; and at the same time she will be broadening the interests, knowledge, intelligence and powers of observation of her pupils.

It is safe to assert that there is not on the farm a plant, tree, bird, animal, or insect that is not doing something, in its own small way, to that farm. And, if elementary agriculture be thus correlated with nature-study, the lessons may be of quite as fundamental importance and at the same time of never-failing interest. There is no danger that this use of nature-study will narrow the child's ideas, because it covers such a wide range of subjects that it will result in the young farmer becoming a field naturalist as well as a more practical agriculturist.

Life is not all for the pocketbook and stomach. On the farms there are heads and hearts of human beings.

A Plea for Physiophily.

BY FREDERICK LEROY SARGENT, CAMBRIDGE, MASSACHUSETTS.

It is not unfair that while lovers of books have the convenient name of bibliophil, lovers of nature have to go nameless for lack of such a word? It cannot be truly said that we may get along well enough with the words already in our language. Neither "naturalist" nor "nature-lover" really answers the purpose. The former does not belong to a person whose interest in natural phenomena is not scientific yet who nevertheless may be ardently devoted to the enjoyment of out door nature. To such a person "nature-lover" does apply to be sure; but this expression is rather a phrase than a word, and does not yield a good set of derivatives. As matters stand the language provides us with only more or less unwieldy phrases for use when referring to our love of natural things as we find them out-of-doors, to our joy in being with them and watching them, and to the wholesome delight we derive from them irrespective of artistic or scientific considerations.

I suggest that the word *physiophily* and its obvious derivatives would serve a useful purpose in our speech. Its meaning would be evident to any one recalling the words *physiography* and *bibliophily*.

That the word *physiophily* did not get into our dictionaries long ago is doubtless due to the late development of the separate interest for which it stands. Only recently has there grown up a *physiophilic* literature, of which this magazine is a typical example. Now that the interest represented by this body of writing has come to such a clear consciousness of itself it surely deserves to have a name comparable to those which distinguish the love of books and the scientific study of natural phenomena in general.

I reckon as among the most profitable years of my life one spent in the country because of ill health which yet permitted my being much out-of-doors. In the autumn I watched nature's ways of preparing for winter, looked into buds to see how they were packed, and into various fruits to see how their seeds might be scattered. Through the winter I en-

joyed the pranks that ice and snow played by the roadside and afield, and in these found more curious, exquisite effects than I had dreamed were possible. I searched many a stone wall and cliff, fence rail and tree trunk for lichens and mosses which offer special attractions in winter. While thus occupied I exchanged many a greeting of comradeship with winter birds searching as intently as myself in similar places. The wall stones and various outcrops of rock with their remarkable components, and evident carvings and crumplings in times remote, led me to reflect upon the stupendous forces which must have worked upon them. In spring and summer the interests were almost bewilderingly numerous. A hand magnifier, always with me, revealed new worlds of delight in tiny creatures everywhere. At various seasons a habit of watching the sky was rewarded by seeing a sundog, a lunar rainbow, and wonderful displays of northern lights, as well as by deeper enjoyment of the more familiar pageantry of cloud and constellation.

Pursued incidentally to my special lines of work, I have found physiophily an inexhaustible source of joy and life-enrichment, notably as bringing me into wider sympathy with the work of specialists in other fields than mine, and thereby helping me to feel more truly the relations of nature to human needs. I am sure that good standing in the world-wide fraternity of physiophiles must yield innumerable benefits to any seeker for truth in whatever realm.

Bird Hunting With the Camera.

No matter which branch of Nature photography the worker takes up, he or she will always find it fascinating work. It is better, I think, to specialise in one branch than to turn your attention to many different subjects. The chief charm of Nature photography is that it takes you into the open air, amongst the flowers and the songs of birds; and it does not much matter what time of the year you go into the fields or the woods, there is always something fresh to be seen, and Nature shows us something new whenever we visit her. I have never yet been out in the meadows or woods, or

on the mountain or moor, without seeing or hearing something worth going for, and I shall never regret having taken up the fascinating work of bird-hunting with a camera—*Oliver G. Pike, F. R. P. S., F. Z. S., in "Farther Afield in Birdland."*

The information possessed by a country boy, gained by intelligent observation of the birds or plants of his neighborhood, is viewed by the so-called educated community as insignificant in comparison with that of the college boy who can relate stories from classical history of persons who never existed and events that never occurred.—*Professor Joseph Leidy.*

Farther Afield in Birdland. By Oliver G. Pike, F. R. P. S., F. Z. S. New York: Frederick A. Stokes Company.

This book by an English author has the genuine spirit of the naturalist as evinced by so many of our English students of nature. It is beautifully illustrated and the text is very readable. We cordially commend it to our students and readers.

American Annual of Photography 1913. By a large number of contributing photographers. 57 East Ninth Street, New York: George Murphy, Inc., Sole Sales Agent. Price: paper, 75c; cloth, \$1.25.

This standard Annual, in the 1913 edition, fully equals and excels former years. It contains much valuable material in text and has many beautiful illustrations. Every photographer and every one who loves beautiful pictures should have a copy.

The Spring of the Year. The Fall of the Year. Winter. By Dallas Lore Sharp. Boston: Houghton Mifflin Company.

These are good reading and good natural history, well adapted for regular text-books, or supplementary work in the schools. They also are good for the general reader, old as well as young. The author is a genuine naturalist and a skilled user of the English language. He has a vast storehouse of nature interests and information and he knows how to set forth these things in attractive form.

Literary Note.

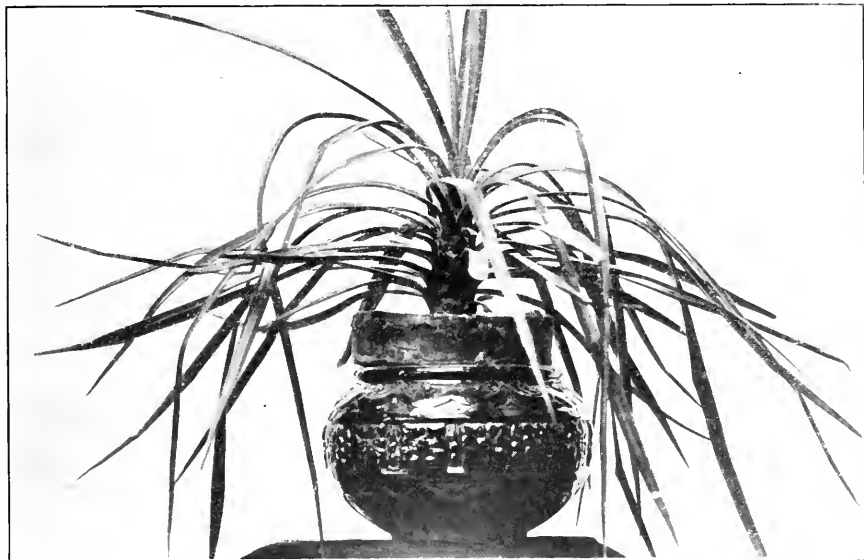
"Bird-Lore" for December, a 160-page number with three colored plates, is filled with matter of interest to bird-lovers, including the annual report of the National Association of Audubon Societies. The income of this association for the year reached \$60,000, and the detailed account of what was accomplished with this fund in enforcing the bird laws, guarding bird reservations, and in giving instruction in bird-study to nearly 30,000 children was particularly encouraging.

THE GUIDE TO NATURE

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She Wanted To Make His Acquaintance.

About two miles from Staunton, Virginia, on the state road, is a quaint old lady who keeps a tollhouse. These houses are located at intervals of about five miles, and a small fee is received from those who use the road. Most people have regular accounts, and it is only necessary to call out their names, when she checks the charges on her list. A number of people in Staunton keep their automobiles at the Beverly Garage, and the toll charges are made through the garage, so that as each rider passes the tollhouse he needs only to call out, "Beverly Garage." A few months after the old lady received her appointment, she noticed that there was a long list of charges to Beverly Garage—more than under any other name. She frequently remarked to her friends, "Law me! That Mr. Beverly Garage must be a very wealthy man, with a lot of automobiles, and a large number of members in his family to go riding. I would like to make his acquaintance."

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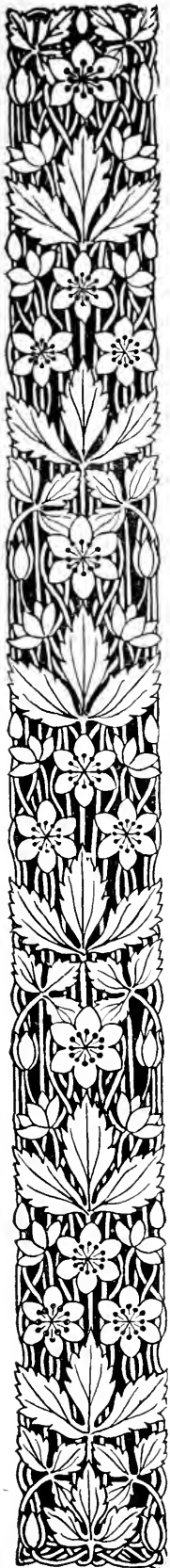
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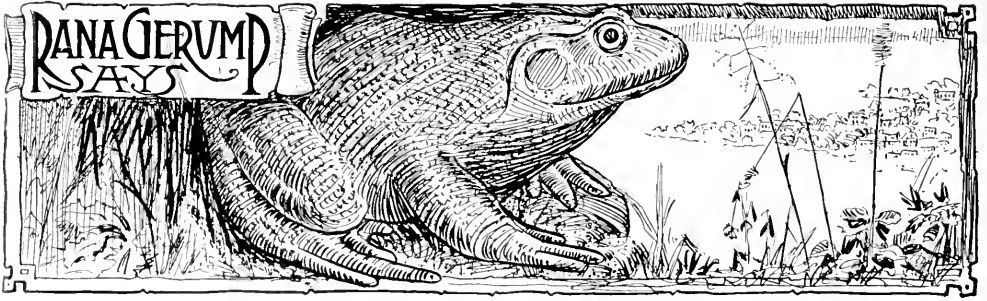
Stamford - Connecticut



Most of the travellers I see from my field are like the people I commonly meet—so intent upon their destination that they take no joy of the road they travel. They do not even see me here in the fields; and if they did, they would probably think me a slow and unprofitable person. I have nothing that they can carry away and store up in barns, or reduce to percentages, or calculate as profit and loss; they do not perceive what a wonderful place this is; they do not know that here, too, we gather a crop of contentment.

Arc adia

I had eyes, but I did not see—and ears, but I heard not. It may be, it MAY be, that the Future Life of which we have had such confusing but wistful prophecies is only the reliving with a full understanding of this marvellous Life that we now know. To a full understanding this day, this moment even—here in this quiet room—would contain enough to crowd an eternity. Oh, we are children yet—playing with things much too large for us—much too full of meaning.—David Grayson, in “Adventures in Friendship.”



**A Local Department of Observations and Suggestions, with the "wisdom,"
not of an owl but of a frog.**

**The Needless Repression of Little
Children.**

I had occasion recently to visit a factory in the southern part of Stamford. This with other factories is located in a district where the homes are mostly those of working men. Returning from that factory, I missed the trolley car, but found, as a convenient waiting place, a drug store on the corner. While I was sitting there the door opened and in came an intelligent, middle-aged woman. She had a shawl over her head, and carried a baby in her arms. A little tot of a girl, about four years of age, had been dancing along on the sidewalk in front of her, as I had seen through the window. The little one was in great glee, but I observed that the mother seized her by the shoulder two or three times within a few rods, and gave her a shake. But the little one seemed to be irrepressible, and again gleefully danced on ahead. As the little one rushed in the door, she called delightedly, "O Mama, see; there they are; that's just what I want." The mother, instead of taking delight in the child's joy, looked like a thunder-cloud, grabbed the little one by the shoulder, and said angrily, "Now, Estelle, behave yourself. If you don't keep still I will never take you with me again. Why don't you learn to behave yourself?" But the little one, evidently accustomed to that kind of conversation, unless the supreme joy of seeing some blissful penny attraction had made her oblivious to everything else, danced up so delightfully to the show case as to make the druggist and myself laugh with sympathetic joy. It was a delightful exemplification of youthful glee. Even the baby clapped her hands, and cooed at the present prospects. But the

mother's face grew darker, and even more angrily she gave the child another shake, with the admonition to, "Hush, keep still now," so strong this time that it threw a damper over the druggist's and my own joy and delight, and brought tears to the little girl's eyes. After she had made the purchase, and the child had resumed her liveliness under the first taste of an all-day sucker, the mother began to apologize for the little girl's noise, explaining that she dreaded to take her out because she made so much trouble.

Here is a puzzle, and here is a little child that needed an attorney. So I ventured, "Beg pardon, madam, but will you please tell me why you do not wish Estelle to express her delight with her penny specialty?"

"Why-why-why," she exclaimed, "I-I-I don't want her to be disturbing everybody."

"But on the contrary, madam, if you will permit me to say so, you are the only one who has disturbed anybody. You have put a damper upon our delight in seeing your little girl's happiness."

"Why, sir," she said, "I don't want to get the reputation of having disorderly children, and I try to make them behave themselves."

I explained that I had failed to find anything in the child's conduct that was not to be encouraged. She had been indulging in real childish joy that should make any adult, except a fossilized one, delighted to see. I think that the mother failed to relish the little sermon that I preached on that text, but I felt that some emphatic words should be spoken in behalf of that happy little girl, who, by this time, was dancing sidewise on the cross walk. The child was pretty, and

had she been in a wealthy and cultured home, she would have had a governess, whose duty would not be to repress, but rather to develop her joyous and childlike qualities.

"Can you," I said to the druggist, "from your acquaintance with people of that class, especially those who are uncultured, tell why they so constantly shake their little children, and try to repress them?"

"I don't know," he said. "I have always wondered at it myself, and now that you call up the matter, I wonder more than ever. But I recall that in my own home I had several brothers and sisters, and my father being a working man, we had difficulty in getting along. My mother was constantly shaking up someone, and telling him to keep still, especially when in the presence of strangers. And," he continued thoughtfully, "I guess, now that you question the matter, it is a sort of embarrassment, a feeling of shame at their position in life. They are not able to obtain clothes for themselves or their children, as good as those that others have, or the education that they covet, and when they come into the presence of those who are better dressed, and better taught, they are embarrassed and become self-conscious. They feel as if they must vent their spite upon some one, and that one is usually a child."

"No," I said; "I think you are wrong. It is a lack of a correct understanding of what good behaviour is. Such mothers have yet to learn that a child is well behaved when it is perfectly natural, and that giving expression to a joyous nature is not being vicious nor ill behaved. Every time we see a father or a mother, no matter in what station in life, trying to repress a little child's natural joyousness, I believe it is our duty to tell those adults that they are doing wrong. The harmless, innocent joy of no person in this world should be repressed by anyone. At the best, there are not too many happy moments in life, and every bit of spontaneous, enthusiastic joy should be encouraged, regardless of its cause, whether a five thousand dollar limousine or a penny all-day sucker. There are many commendable efforts made nowadays for better education, better

clothing, better sanitary regulations, better playgrounds, for all children, yet one more thing is needed, and the need is apparent to any one who will take the slightest notice of his surroundings, and that is the need of inducing fathers and mothers to stop repressing the delightful, harmless, spontaneous expressions of the little children's joy.

A Photographic Study of a Bridge. Stamford, Connecticut.

To the Editor:

I am sending herewith a photograph of the bridge at the old wire mills at



THE BRIDGE AT THE OLD WIRE MILLS.

Turn-of-the-River, taken by my wife, Mrs. Jennie W. Sackett, on October 13, 1912.

I think the picture is especially good. The subject should be of interest to all who love our dear old Stamford.

Cordially yours,
FREDERICK H. SACKETT.

We are Children of Nature.

It was good, I thought, to see so many people out-of-doors. Most of them had employment in the shops, probably, and on grounds of simple economy, so called, would have been wiser to have stuck to their lasts. But man, after all that civilization has done for him (and against him,) remains at heart a child of nature. His ancestors may have been shoemakers for fifty generations, but none the less he feels an impulse now and then to quit his bench and go hunting, though it be only for a mess of clams.—*Bradford Torrey.*

Vacation at the Maplewood.

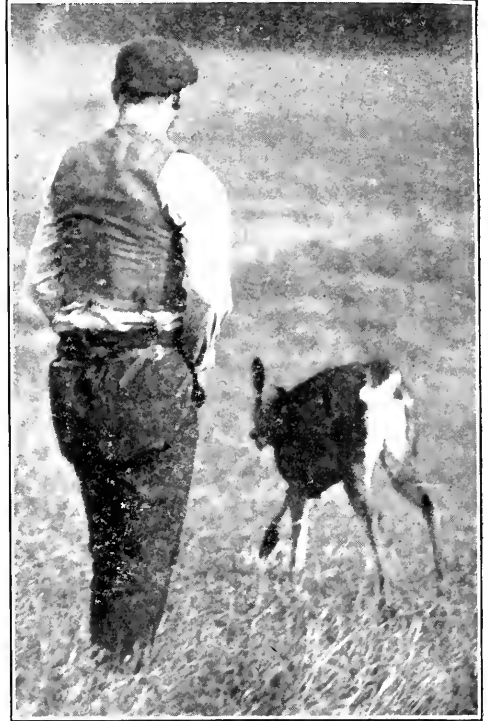
The Maplewood Museum of Natural Science and The Maplewood Biological Laboratory, of Stamford, Connecticut, have issued the following notice:

"Owing to a necessary absence of the owners and managers of the museum and laboratory, in South America, both establishments will close until the last week in April, 1913, when we will again be ready to carry on our former business and correspondence."

We congratulate Paul Griswold Howes, the General Manager, and Arthur Gordon Howes, Manager of Shops, upon this very enjoyable opportunity of adding to their collections and their scientific knowledge. We hope to be able in a few months to report some of their experiences during their scientific excursions to South America, which we hope will not only be interesting but profitable.

A Doe in the Center of a City.

Stamford, a short time ago, had an exciting chase after a doe that had wandered into the city from the country, probably from the vicinity of Long Ridge. The doe was first seen at the freight yards in the southern part of the city, and then started on a wild rush up town. At a cigar store she made a dash through a pane of glass. Then men from the telephone office started in pursuit and finally captured her with considerable difficulty. It took several strong men to hold her.



RELEASING THE DOE IN NORTHERN STAMFORD.

She was put in a wagon, and taken to the northern part of Stamford where, just beyond the Roxbury Bridge, she was carried into the open meadows, the ropes were untied and, almost exhausted by her struggles, she was set free. She stood in the middle of the river for some time drinking and enjoying the cold water, and then went slowly into the bushes beyond.



CAPTURING THE DOE IN STAMFORD.
Photographs (copyright) by Brown & Dawson

An Enthusiastic Bee-Keeper.

A recent number of "Gleanings in Bee Culture," published at Medina, Ohio, a town which, by the way, is often spoken of as the home of the honeybees, has, as its front cover, an illustration of Mr. E. Vanderwerken's apiary at Stamford, with two other illustrations which are here reproduced. It is apparent from "Gleanings in Bee Culture" that Mr. Vanderwerken has been remarkably successful with his bees. It states that Mr. Hutchinson of Michigan always advocated, "Keep

ern hives protecting boxes, with packing between the sides of the box and the sides of the hive. Mr. Vanderwerken has so strong an affection for the bees, and has so carefully experimented, and gleaned from the experience of others, and has put so much thought and labor into his apiary, that he has brought it to a very high efficiency.

The accompanying photographs show the somewhat rough appearance of a row of his hives, but this appearance is only external because, under those tar paper roofs and within the



MR. VANDERWERKEN HANDLING "FRAMES" WITH BEES.

more bees;" but that Mr. Vanderwerken says, "Take better care of those you have. Keep them warm and they will work." The method of keeping them warm is to place around the mod-

rough packing boxes, are the best modern hives, with thoroughly up-to-date frames, equipped with the best breeds of carefully selected Italian bees, that are not only beautiful in appearance,

but are thoroughly efficient workers.

The method followed in this apiary is to keep the bees constantly busy, as well as to have them carefully pro-

that form this apiary are in perfect condition the whole year round, and the products are consequently and correspondingly good.



MR. VANDERWERKEN AND HIS APIARY ON HIGHLAND ROAD.

tected. It is well-known to all students of nature that the flow of nectar is somewhat intermittent. Bees rush to the fields when there is plenty of nectar, and then sometimes for days, or even weeks loaf around the hive with nothing to do. In this apiary the feeding process supplements the natural flow from the fields, and it seems that this is not only good in theory but just as good in practice. It keeps the bees built up to a strong and workable condition, so that when the flow is coming in from the fields, all their energies may be centered upon the storage of honey. The feeding is discontinued when the supers containing the sections or extracting frames are put upon the body part of the hives. This is the right idea. The wonder is that some one has not previously put it so effectively into practice. By this method of feeding when necessary and by constant protection, the colonies

“The Occasional Enthusiasm.”

What would life be worth without its occasional enthusiasm, laughable in the retrospect, perhaps, but in itself pleasurable almost to the point of painfulness?—*Bradford Torrey.*

Six Pronged Cabbage.

Mr. Elbrey M. Purdy has supplied Arcadia with an interesting form of cabbage in which there are six prongs and six cabbage heads on one stem. This is an excellent example of a cabbage manifesting the branching tendency which has been largely diverted by cultivation, but which, like the corn, as we have previously explained, occasionally reverts. The corn then grows its kernels in the tassel, and our cabbage has not devoted all its energies to the terminal bud, but has developed branches—a curious compromise between the formation of the terminal bud into a cabbage head and the side buds into Brussels sprouts.



THE SIX HEADS AND SIX-PRONGED STUMP OF CABBAGE.

Why Hens' Eggs are in Demand!

When a duck lays an egg she just waddles off as if nothing had happened.

When a hen lays an egg there's a whale of a noise.

The hen advertises. Hence the demand for hens' eggs instead of ducks' eggs.—*E.r.*

Beautiful Stamford.

Halloween Park is a surprise to those who have known it only by passing it on the trolley car to Shippan Point. Then it looks like a long barren waste of sand, but that under the transforming guidance of Contractor Arthur with his efficient equipment and force of workmen will, in a few months, be only a memory. Just beyond the ball grounds there are some charming bits of nature that would do credit to any of the parks in our larger cities. Those who have not been there for a walk, or a rest on the inviting settees, have not seen one of the charms of Stamford. The editor of this magazine firmly believes that the name Halloween should be retained because its greatest charm was and ever will be, not a view of the Sound, but a view of itself. Therefore it seems that Sound View is ill fitting. It surely lacks the suggestive and pleasing quality of Halloween, though that name was given to it under rather unusual circumstances. When the first view of the

on the trolley cars, from references in newspapers and in current conversation, that Halloween is the favored name. That pleases us. It is an unique name, but it is an unique park. The name is surprising, and so is the park in its charm and its great variety of associations. The accompanying pictures show a few of the most attractive spots as they appeared to the editor with his camera on a recent day of our Indian summer. Sometime we intend to show the reader the view of the Sound from the park. But the places from which one cannot see the Sound are the best of any within the park, and from the nature lover's point of view always will remain so. There are seclusion, retirement and picturesqueness about these winding roads and rocky ledges and wooded hillsides, with which no amount of monotonous glassy water can ever vie. Our successors will wonder why any one ever objected to the developing of such a charming bit of natural scenery, and they will also be surprised, as we are nowadays, that such territory was reserved for modern development. In the craze for residences near the beach, it seems strange that this entire territory was not sold for building lots decades ago, but fortunately it was not, and now we are to have, with proper time for development, one of the best of seaside



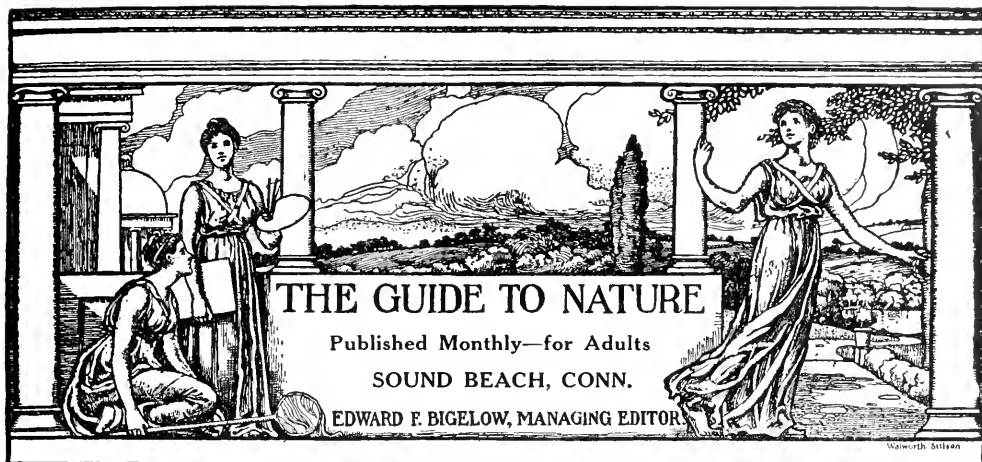
AN ATTRACTIVE ROAD AND BEAUTIFUL VISTA.



GRACEFUL AND INVITING CURVES IN HALLOWEEN PARK.



SOME SCENES IN HALLOWEEN PARK.



Volume V

JANUARY, 1913

Number 9

The Luther Burbank Society.

This association organized at Santa Rosa, California, is Chartered by the state and is to do its work under the motto: "Not for profit." It will aid in the dissemination of popular Burbank methods. Mr. Burbank has done great and good work not only in improving some of nature's products from the horticultural point of view, but of setting a standard of real interest in nature. Among his principal achievements are cited the Burbank potato, the walnut tree, the spineless cactus, and a long list of other products of mother earth as, for example, the prune, tomato, asparagus, squash, rhubarb, cherry, blackberry. Here is an important statement.

"The Carnegie Institution at Washington, recognizing the universal value of Luther Burbank's records, made an appropriation of one hundred thousand dollars in 1905 for the purpose of compiling them for scientific purposes exclusively."

But such publication of Burbank's works would not accomplish the greatest good. Here is what the Society proposes to do:

"But the scientific part of Mr. Burbank's work, important and interesting as it is, is not what the farmer needs.

"What the farmer needs is practical results—and definite instructions on how to apply them."

That is exactly where we are in perfect sympathy with this new society as it explains.

"It is the difference between mathematics and accounting—between the patent office drawings of an invention and working blue-prints for manufacturing—between theory and practice."



Luther Burbank

We thoroughly agree that what is needed in disseminating nature information is not so much what shall reach the exclusive few, as what shall benefit and influence the masses. Isn't it a curious fact that where millions are

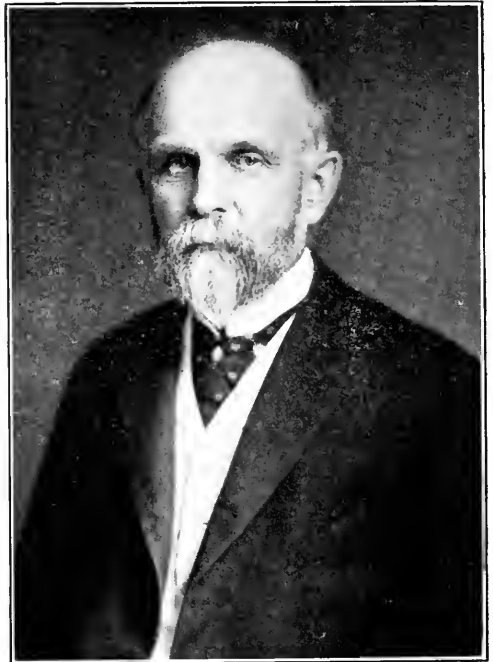
given to explore some technical point appreciated by only comparatively few people, only a small amount of money has ever been given to carry the knowledge of nature to the majority? If you ask what is the greatest puzzle in all the work of nature in relation to mankind, I should say that it is this strange fact, here is a good example of it. A few private individuals with a limited amount of money are doing vastly more important work than the Carnegie Institution backed by thousands and thousands of dollars, attempted to do with Luther Burbank's discoveries. So we say again, success to the Luther Burbank Society. It stands for the people, the homes, and not the tomes of exclusive libraries. It stands for farmers and their wives, the boys and girls and students and lovers of nature everywhere.

Frank Hall Scott.

The Late President of the Century Company.

The readers of a magazine cannot be expected to be aware of all the influences and qualities that go to make it what it is. Sometimes these influences are due to active and aggressive personal initiative in one department or another; but, particularly in large matters, such as traditional policies, says an editorial in the January "Century," they could not persist were it not for the sympathetic cooperation of many; and in a well-organized business these influences do not cease with the death of any one person. The loss of such a man as Frank H. Scott, our late president, cannot be a matter of indifference to our readers when it is known that Mr. Scott was intimately associated with the management of this business from the publication of the first number of the magazine, under the former style of "Scribner's Monthly," until the day of his death, November 25, 1912. From the time that the house entered upon the publication of "St. Nicholas" and of books his responsibilities grew until they became those of the first order. He was thus an integral part of the entire history of this enterprise, and to those of us who have been by his side for many years his death is a poignant bereavement.

Mr. Scott had rare and admirable traits. He was a serious, forceful, urbane, cultivated gentleman, wise in counsel, with a well-poised and cheerful philosophy which did not yield to the weight of business cares. He had a noteworthy dignity of bearing, but even late in life this retained a youthful



FRANK HALL SCOTT.

and buoyant spirit. Intimate friends who knew the fertility of his fancy, held, from some early stories that he wrote, that he would have succeeded as a writer of fiction. But all who came in contact with him were impressed, chiefly with the judicial character of his mind, in which regard especially he stood high in the estimate of the publishing fraternity. His main purpose was to be just to all. He had hospitality toward various points of view, power of accurate perception and exact weighing of facts—clear intellectual processes which inspired confidence in his judgments and would have made him an ideal judge on the bench. He was, moreover, a man of active kindness—a staunch and responsive friend, and faultless in all the relations of life. Inadequate as is this record, his associates take pride in paying this tribute to a man who inspired their deep af-

fection, and the respect and regard of all who knew him.—*The Century Magazine* for January.

**In Memory of Frank Hall Scott,
President of The Century Company,
New York City.**

(From the "St. Nicholas" Magazine, expressive of the high esteem in which he was held by all who knew him.)

It is possible to condense into a few sentences the chief events of any life, but the things that count most are not to be enumerated in "brief biographies." And no summary of Mr. Scott's career can give more than the merest hint of those rare qualities of mind and heart that endeared him to his fellow-workers. With a gentleness and dignity that were seldom even ruffled, he combined a winning speech and manner that made every one he met a friend and every intimate friend a lasting comrade. Fair-mindedness was one of his strongest traits. His love of justice insured to each and all a patient hearing and thoughtful consideration. He was always and in all circumstances the kindly, cultivated gentleman.

For his associates, and those who knew him well, his own character and all that he achieved are his best memorial. He believed, with Emerson, "that the reward of a thing well done is to have done it." His own successes were uniformly the outcome of unassuming faithfulness and quiet mastery. But "St. Nicholas" owes him a debt of gratitude; and even if gratitude could be kept from flowing out upon the page, it is due alike to him and to our readers that we should here record how largely this magazine entered into his lifework and shared the benefits of his practical activities. He had a special pride in "St. Nicholas"—a real love for it—which made him a tireless helper in every measure for its success and betterment.

It is one of the best rewards of a life such as he lived that it leavens all other lives that are in close touch with it or fortunately brought within its influence, and lifts their thoughts to higher levels. For American boys there is abundant inspiration in the history of Mr. Scott's progress by his own endeavor to a position of commanding influence and distinction in the publishing world. And the benignant wisdom,

sweetness, and serenity of his daily life are at once a beautiful memory and a lasting inspiration to all those who worked with and under him, to whom he was always courteous, kindly, friendly, just, and by whom he was so well beloved.

The New-Old Independent.

It was founded in 1848, this magazine known the world over as "The Independent" of New York City. Recently there has been a change of ownership and Mr. Hamilton Holt, who has long been connected with the magazine, has taken complete ownership. It comes out, the first of 1913, as the luckiest year it has ever had, literally turning over a new leaf, a new style of paper for the cover and new dress throughout. It is readable and very attractive and this old magazine has now become as new and enthusiastic as if it had really taken an entirely new lease of life. We note with especial pleasure that it is to take an active interest in all outdoor and nature interests, and as an opening door along the line of greater extended scope in nature we find an interesting article and attractive illustration regarding the kingbird by Ernest Ingersoll, the well-known naturalist. We are hoping to see something in the magazine every month regarding nature. We are sure that, under the new management in a more attractive form, the scope of its influence will be greatly extended.

"The Independent" has always taken an active interest in educational work and makes private schools an important feature of its advertising pages. Quite naturally it will, in accord with these plans, take very active interest in all things pertaining to education, from university to kindergarten. It aims also to make itself indispensable to clubs and associations engaged in the study of science, art and literature.

I have known farmers who, in traveling, saw only plows and butter-tubs and corn-cribs, and preachers who, looking across such autumn fields as these would carry away only a musty text or two. I pity some of those who expect to go to heaven; they will find so little to surprise them in the golden streets.—David Grayson in "Adventures in Friendship."

What is Nature Study?

Although I have been editing, for about a quarter of a century, magazines that I supposed were devoted to nature study, and have been a contributor, to various periodicals, of articles that seemed to me to be devoted to the study of nature, yet more and more am I puzzled to know what is meant by the term as used by most persons. I recently submitted some photographs to "The Garden Magazine," published by Doubleday, Page & Company, whom I have always supposed to be preeminent in nature study publications. Imagine my astonishment, not at the rejection of the photographs, but at this statement from the editor:

"We are not interested in nature study of any sort, our magazine being devoted to practical gardening."

Will some one please explain what is gardening, practical or otherwise, if it is not an effort to study certain of nature's products, and to induce old Mother Nature to yield us her best?

A few years ago, nature study was popular throughout all sections of the middle west, Ohio, Indiana, Illinois and Iowa. Now we hear that the term has been discarded and agriculture substituted, yet the teachers are giving instructions in regard to birds, trees, plants, insects, soil and rocks. What is this but the study of nature? When nature study becomes intense and enthusiastic, and is applied to the producing of plants in garden or field, is it no longer nature study? Is astronomy nature study when one gazes aloft with opera glass or the unaided eyes? Is it no longer nature study if an almanac is produced with the help of the same science? We have many friends who urge nature study in seeing things with a pocket lens, but the minute we advocate the making of that seeing permanent by the aid of a camera, they allege that that is no longer nature. It appears to be, in the estimation of certain persons, nature study when they take a pail, a net and a strainer, and go to a pond for micro-organisms, but the moment that a magazine describes a hardware store that deals in all these supplies, some one is sure to say, "Why, that is nothing but commercialism." There is one thing I especially like about Professor Schmucker's

definition of nature study. He says in the first sentence of his text-book, "Nature study is the study of nature." Can anything be simpler than that? It seems to me that digging with a hoe, or punching the ground in the garden with a dibble is nature study unless the one that does it is only a brainless machine. It seems to me that telling the boys and girls in farming districts about raising corn and potatoes and cabbage, and about the insects that prey on them, is plain and simple nature study. It seems to me that to go to a scientific house and get a microscope, or a collecting case, or a net, is the implemental stage of real nature, and likewise it seems to me that one has exactly the same motive when he goes to a hardware store for pails, hoes or shovels.

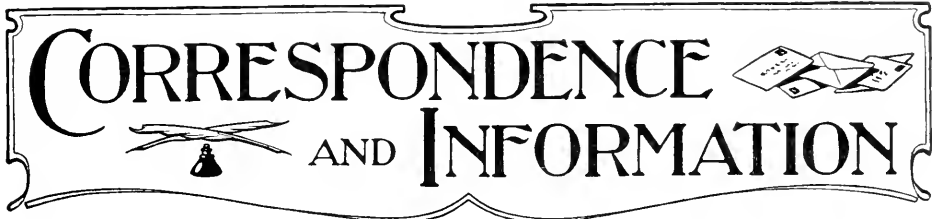
The whole trouble in the popular estimation of nature study, as this magazine has so often reiterated, is that we put a little mental shell around it, and persist in regarding the naturalist as in a little, isolated, queer class by himself, that he is an impractical fanatic, and that his uncanny and musty collections should be rigidly circumscribed. Away with such nonsense; let us come back to the simple, fundamental basis, "Nature study is the study of nature," and it makes no difference how you do it. Do it in your own way, but do it with heart and head, whether you are pressing a plant or trying to grow a better one; whether you are temporarily seeing a thing, or trying to get its image on to a permanent plate; whether you are germinating a few grains of corn between sheets of moist blotting paper, or holding the plow behind a fine pair of horses in a ten acre field. Let us clear away those restricted, antiquated fence lines. O you editor of "The Garden Magazine," practical gardening is nothing under the sun but applied nature study, and it is not always even applied, but still it is nature study even if only in the realm of the theoretical. To produce a more gorgeous chrysanthemum requires more real study of nature and her principles, than to pin a grasshopper to a sheet of cork. O you agricultural educators of the middle west, do not forget that to use even a hoe to

advantage, considerable cardiac and cerebral enthusiasm is required in the study of nature.

Nature, the study of it, God's works, utilitarian objects, development of mentality, are good for all people at all

times in all ages, in this world and whatever else may follow. Nature is the mother of us all, and we are only children in her kindergarden, still studying and for the profit of mind and body still trying to apply what we have learned.

CORRESPONDENCE AND INFORMATION



A Quotation From "Migdal Oz."

Hamilton, Ontario, Canada.

To the Editor:

Much has been said and written of late years showing a love of nature and the simple life, but perhaps few of your readers have read "Migdal Oz," and I think that the description of Shallum's secluded retreat amid the mountains, as contrasted with the perils and turmoils of courts, is one of the finest passages in the poem.

"Migdal Oz" is a Hebrew drama, the existence of which is, indeed, little known even to scholars, and it is to those of Germany that we are indebted for its having been saved from complete oblivion.

The author, Moses Ben Jacob Luzzato, was born at Padua in 1710, and died while on a pilgrimage to Jerusalem. Versed alike in the sciences of the West and the traditions of the East, he is universally admitted to have been the founder of a new style of Hebrew poetry, departing from the orientalism of that of ancient days, and partaking of the classic taste of Greece and Rome, whose rythmical forms it adopted. His play is designed to illustrate the difficulties attendant on the pursuit of divine knowledge and its characters are therefore to be regarded as allegorical.

"Migdal Oz," was published in Germany in 1737, but did not succeed in keeping its place before the public eye. We only know it through the medium of a Latin translation executed about the beginning of the last century, by Francis Delisch, who added a preliminary dissertation on the few scattered efforts of the Hebrew dramatic muse from the day of Josephus downwards.

Shallum (the hero) awaits an answer from the Princess Shilomith, his love, his bright gazelle, etc.

The imagery might seem hackneyed, but as a specimen of modern Hebrew sentiment and philosophy, it will have much of the zest of novelty, and the piquancy of contrast.

Trusting you may deem this worthy of publishing in *THE GUIDE TO NATURE*, believe me,

Yours sincerely,

ED. D. MARSHALL.

Ye everlasting hills; beneath whose shade
Sleep deeply hidden vales, where gentle
peace

Loves still alone to dwell—how dear to me
The privilege, amid your leafy groves,
To doff the burden of unwelcome greatness,
From cities far—from palaces remote:

For there lurks suffering in its bitterest
forms,

And gilded treachery, spreading still her
net

For the unwary foot, nor taking rest
Until her victim fall. How different all
Here in this peaceful haven; Wars alarms,
The din of tongues, laws janglings, bloody
strife,

Are things undreamt of in our happy
sphere.

Even the despairing wretch, on whom the
world

Hath done its worst, in this its loneliest
nook,

No sooner folds his weary wing, than lo:
The soothing whisper of the murmuring
boughs,

Stirred by soft winds, attunes his soul once
more

To joy, and lulls his sorrows in oblivion:
Are not these verdant, flower-enamelled
meads,

A goodly heritage—a second Eden?
Yet free to every dweller in the land,
Who neath the fig's deep shade, from mid-
day heat,

Careless reposing, stretches him at ease.
Lord of himself—from thoughts of evil far;

What to such liberty are stores of gold,
Or pomp, or kingdoms, judgment-seats, or
thrones?

Alas; men's treasures are only prisons
To lock the owners' souls in, while their
bodies

Seem free to go or come, to sleep or wake;
Then what is power? and what are diadems?
Worse than the serf's forced labour—since
the load

Of thousand provinces, not welcome night
Lifts off the weary shoulders of a king.

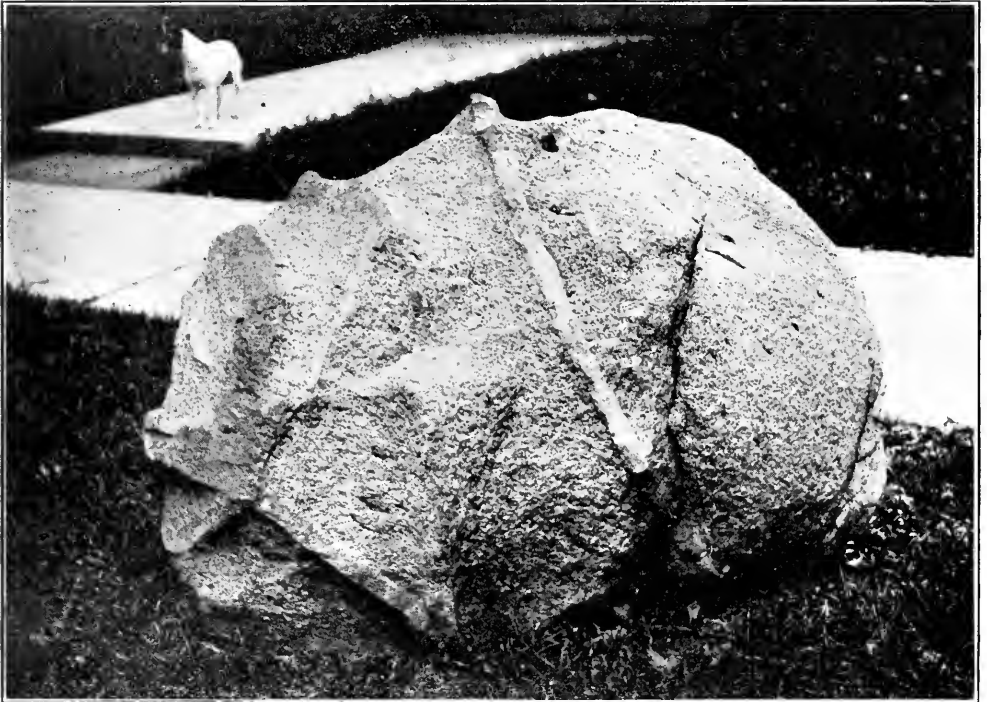
A Granite Boulder.

Fostoria, Ohio.

To the Editor:

In sending to you and other nature
lovers a picture of nature's art (take

which my good farmer friend replied,
"Well, you may call it whatcher please,
but we just call it a big nigger-head
roun' here, and bein's it's in the way of
the plow, we are goin to put it out
o' sight." "Well," I said, "as a spec-
men of a granite boulder, I should call
it 'out o' sight' now. What will you
take for it, and deliver it just as it is
at the front door of my house?" What-
cher want it there fur?" my friend
asked. "O, just to put my name on it,
as a doorplate," I answered. Agree-
ment was made on price of delivery,
and the stone now rests on my front



THE GRANITE BOULDER

note, I call it nature's art), which she
has formed in her workshop in the min-
eral kingdom, I also explain how it
reached its present resting place on
the lawn in front of my house.

Several years ago I saw, about ten
miles north of this city, two men dig-
ging a hole beside the large stone which
this cut represents. Taking a little
glance at the stone, as I noted a pecu-
liarity in its composition, and also in
its general contour, I remarked to one
of the men, "It looks like a genuine
boulder of the granite variety." To

lawn, a rich specimen of nature's synthe-
tical work from her laboratory in the
mineral kingdom, and it is pleasing to
note an occasional passer-by, one
whose eye can be attracted by the in-
teresting and the beautiful, who will
stop, its composition to inspect, and its
conformation to admire.

On one occasion while I was finish-
ing the regrading of my lawn, I over-
heard the remark, "Well! there is an
old friend of mine," and turned to
see who it was to whom I had once
been a friend. A stranger stood beside

the boulder, explaining to two ladies the latest theory of its early formation, its history, and its migration to this country from some unknown land, making its journey during immeasurable ages of the past, by a ride on a glacier's back.

Whereupon I asked, "Did I understand you to say that that stone is an old friend of yours?" "Yes," he said, "it reminds me of some of the glacial specimens of the kind which we have on the campus where I live." "You are a university man?" I asked. "Yes, professor of geology in my southern home university." "Well, Professor," I said, "you are the very person for whom I've been wishing, that I might, if possible, glean some new or late intelligence as to whence out of chaos it came." And the professor, with a twinkle glancing from one corner of his eye, stood silent for a moment, and smiled.

I think it was Henry Ward Beecher who said, "The flowers are the greatest work of God's creation into which he did not breathe a soul." But this glistening granite boulder's surface upon which from the sun

The warm genial rays come smilingly down,

And gleefully dancing

While silently trancing

O'er sparkling felspar, from grey to the brown?"

is to me as Beecher's flowers were to him, one of the sweetmeats for mental feasts when the mind is relaxed from the prosaics of life's necessities, and I ask, Whence out of Chaos came it?

Reverend James McCash, LL. D., Professor of Logic and Metaphysics in the Queen's University of Ireland, in his admirable work entitled "Typical Forms, and Their Special Ends in Creation," has beautifully traced man's composition through the kingdom of the plant creation, and how the plant kingdom has risen from the mineral and solid rocks. This hypothesis granted, I oftentimes wonder if the brightly illuminated soul of man which we sometimes see shining out from along his life's walks, may really have had its origin fostered by these beautiful floral granites with their shining and mirrored felspar from the mineral kingdom, and granting that this could

possibly be so, I yet reverently ask, Whence out of Chaos came it?

(Dr.) W. R. KNOWLES.

Sympodial Growth.

BY CHARLES C. PLITT, BALTIMORE, MARYLAND.

Just why sympodial growth should not have been given more attention by botanists, perhaps never will be satisfactorily explained. One would think, that, as an easy means for additional observation work, would alone have entitled it to a little more consideration than it generally receives in most of our botanical text-books. Even the terms sympodial and monopodial, when this subject is discussed at all, are quite frequently not used at all, and the discussion takes place under the caption, "Definite and Indefinite Annual Growth." Sometimes one might almost get the impression that these terms were no longer good and acceptable botanical ones.

For the benefit of those readers of THE GUIDE TO NATURE, who perhaps never have given this subject any consideration, the following is presented. It is not at all exhaustive, nor does it go into all phases of the subject. To do this, would take up much more time than the subject warrants. It is possible, as will be shown later, that some little importance may be attached to this matter, in the study of our trees and shrubs (towards their determination) during the winter; aside from this, no doubt, the greatest satisfaction will be the deciding for one's self whether a growth is monopodial or sympodial, just as one is pleased to study the phyllotaxy of any plant, and just as it matters very little whether it is of the 2-5 or the 3-8 arrangement, so, too, it matters really very little whether a branch is a sympode or a monopode.

We will start with Dr. Gray's definitions of a sympodium—"a stem made up of a series of superposed branches, in a way to imitate a simple axis," and of a monopodium—"a stem of a single and continuous axis, formed by the continual development of a terminal bud." In other words, as long as a plant retains a *terminal* bud, capable of continuing the axis, a *monopodium* will be the result, but a *sympodium*, when

such is not the case. If we examine the sumach (*Rhus glabra*, *R. typhina* or *R. copallina*) we will find that upon the approach of winter, the terminal portion of any stem and, of course, its terminal bud are neatly sloughed and cast off, just as are the leaves, and, like them, leaves a neat scar. If there is to be any further growth, it must be the result of the development of an axillary bud; in other words a bud which ordinarily should produce a branch is called upon to continue the axis, the result being a stem formed of superposed branches. The reason for this behavior of the sumach is explained in this way:

There are certain perennials that always produce a *definite* annual growth, and there are others (like the sumach) that have an *indefinite* annual growth, with the result that the terminal portion dies back some distance during the winter, and easily falls away. From this, we at once surmise that plants with definite annual growth give rise to monopodial growth, and those with indefinite annual growth to sympodial growth, and this is true, as far as it goes, but is only one phase of the subject; sympodial growth may result in other ways. For a good exposition of how sympodial growth may be brought about, the reader is referred to Strasburger (Text-book) or to Bessey.

As sympodial growths of the sumach type are possibly most easily observed, we will hold ourselves (for the most part, at least) to them. From the above, it seems that those perennials that make a more or less definite annual growth are found upon the approach of winter, provided with terminal buds, at the end of strongly lignified stems which can withstand the winter, and, upon the approach of spring, this terminal bud develops, continues the axis, and a monopodium results. On the other hand, those that do not make such definite growths (and these may possibly be in the majority), having their terminal buds at the ends of stems, with terminal portions not sufficiently lignified to withstand winter, have these not sufficiently lignified parts regularly cast off. This casting off in some, possibly most cases is done so neatly that a little scar is all that is seen of where was once the

terminal part of the stem. The growth of such a stem is now continued by the lateral bud highest up the stem; this lateral bud functions as a terminal bud, and frequently has the appearance of one. Atkinson in his "Botany for High Schools" calls this bud an "axillary terminal bud." (I must say, though, that I rather prefer the term pseudo-terminal bud, literally false terminal bud.) We thus have a bud which ordinarily would have produced a branch, continuing the stem; the resulting growth will, therefore, consist of superposed branches—in other words, a sympodium. In some cases this pseudo-terminal bud is on tissue, still not sufficiently lignified to withstand our winters (seen well in the sumachs, equally well in ailanthus), and is winterkilled, with the result that the new growth will come from a bud some distance back from the tip. Such sympodial growths are, of course, easiest of all to make out.

After reading Miss Patton's fine article in the December number of the *THE GUIDE TO NATURE* and thinking that it would be of interest, I have looked up a few of the authors one is most likely to have at hand, to see what examples of sympodial growth they might give, with the following result:

Asa Gray, as long ago as 1879 (*Structural Botany*), gives the following examples—grapevine, Virginia creeper, lilac, elm, rose, raspberry, *sumach*, honey locust, most perennial herbs, rootstocks of *Polygonatum* and of *Diphylia*.

Andrews, in his "Botany All the Year Round," discusses the subject under "Definite and Indefinite Growth;" he, too, uses the term, pseudo-terminal bud. He gives as examples of indefinite annual growth the following—rose, honey locust, *sumach*, mulberry, and, as examples of plants with pseudo-terminal buds—elm, beech.

Bower, in his "Practical Botany," gives two examples of sympodial growth—*Marchantia* and *Fucus*. They are sympodia of the dichotomous branch system (for discussion of which, see Strasburger).

Atkinson discusses the subject under "Definite and Indefinite Growth;" he makes use of the term axillary terminal bud. He gives the following examples

—spice bush, lilac, elm, *sumach*, willow.

Vines, in his "Students' Text-book of Botany," discusses sympodial growth, but gives *Polygonatum*, only, as an example.

Bailey, in his "Botany," mentions the grapevine and Virginia creeper.

Strasburger mentions the lime (linden), the beech, *Polygonatum*, willow, most rhizomes, most of the *Lycopodiaceae* and the *Sclaginellae*.

The following list is taken from Blakeslee & Jarvis' "New England Trees in Winter," a careful reading of which will be found worth while. The authors never once make use of the term, sympodial, but they discuss most clearly the absence or presence of the terminal bud. Here is what they say, "The presence or absence of the terminal bud is a very valuable point of distinction, and is used throughout in the keys. Unfortunately it is not always possible at a cursory glance to say whether the terminal bud is present or absent, and a hand-lens must generally be used for an accurate determination of this point." A sympodium is bound to result when the terminal bud is absent and we can therefore list the following—sycamore, plum, Cladrastis, mulberry, linden, chestnut, redbud, birch, hornbeam, elm, ailanthus, *sumach*, Celtis, quince, Kentucky coffee-tree, honey locust, catalpa.

Following is a list of those that I have personally observed—grapevine, linden, sumach, elm, beech, Paulownia, sycamore, locust, persimmon (?), ailanthus, Kentucky coffee-tree, Virginia creeper, hazel, willow, Smilacina, Polygonatum.

Let us summarize all these observations (those given by Miss Patton in THE GUIDE TO NATURE for December are included), and we will have the following list of plants of sympodial growth, but let us not lose sight of the fact that the story is not half told.

Anthurium	Linden
Ailanthus	Locust
Beech	Lycopodiaceae
Birch	Marchantia
Buckthorn	Mulberry
Carex. sp.	Paulownia
Catalpa	Persimmon(?)
Celtis	Plum
Chestnut	Polygonatum
Cladrastis	Pontederia
Cruciferae	Quince
Cyperaceae	Raspberry

Diphylleia	Redbud
Eel Grass	Rose
Elm	Rush
Fucus	Selaginellae
Grapevine	Smilacina
Hazel	Solanaceae sp.
Honey Locust	Spice Bush
Hornbeam	Sumach
Kentucky Coffee-tree	Sycamore
Lilac	Virginia creeper
	Willow

Points of View.

That evening, when I got back to the hotel, and after dinner, I stood on the balcony, lost in admiration at the glorious sunset effect on the mountains. While I waited there, watching the long shadows creep slowly up the hillsides, many of the guests staying in the hotel passed out also, and I was interested in their remarks as they came face to face with that great scene; for anyone with half a soul must have stopped and looked and thought. First there came two elderly ladies with a young girl. "Oh! isn't it just heavenly!" the latter exclaimed, as she gazed out over the mountains, and she clasped her hands almost as if she wanted to worship the sunset glory. "Yes, yes, my dear," one of the ladies said; "it's very pretty, but come along." They moved on, hardly glancing at the scene, and beckoned to the girl, who was still gazing out on it. The next to pass through the folding doors were two men. Their expression was just "Gorgeous," and they wandered on. More came and went, **but** all stopped and most admired the view. Then last came the wealthy man of the world. He sauntered through the doors, stood still on the steps, with his feet wide apart and his hands thrust into his pockets, and between his lips there was a large cigar. For just a moment he looked at the hills and mountains, more glorious than ever, and then grunted, "H'm, not bad for ten shillings a day!"—*Oliver G. Pike, F. R. P. S., F. Z. S., in "Farther Afield in Birdland."*

No Reason Why You Should Not Know Him.

For the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made, *even* his eternal power and Godhead; so that they are without excuse.—Romans 1:20.



THE HEAVENS IN FEBRUARY

The Heavens in February.

BY PROF. ERIC DOOLITTLE OF THE UNIVERSITY OF PENNSYLVANIA.

It is on the early evenings of February that we see the wonderful winter sky in its greatest brilliancy. The magnificent Orion, the great Taurus, the bright Twin stars, and the very brilliant Dog Stars are all high in the south, and these, together with the bright Capella overhead, and the group Leo, which has now mounted high in the east, unite to make the February evening heavens the brightest of the entire year. With the aid of Figure 1, the observer will have no difficulty in tracing out these brighter groups of the sky, and having found these he may next become familiar with the many remaining groups, which though so much fainter are no less interesting.

THE FEBRUARY STARS.

This is the most favorable time of the year in which to examine the two little groups, Lepus and Columba, which both lie directly below the bright Orion. The former has been known as the Hare from the earliest times, and the reason why so timid an animal should have been placed at the feet of the mighty Hunter has been much discussed. But as the Hare has been associated with the moon from the very earliest times,—possibly because the dimly outlined figure on the nearly full moon strongly resembles this animal,—and as the Hunter was a solar type, their close association in the sky was to have been expected. A short distance to the left of Lepus there always follows the brilliant Dog Star, which

"Behind him ever speeds as in
pursuit, and rises after,
And eyes him as he sets."

Below Lepus is the pretty little group of Columba, or Noah's Dove,—a modern constellation,—and to the left of this are the numerous faint stars which form the constellation of the

Larger Dog. Of these Sirius, that great sun four times as large as our own sun, is of course by far the largest and is the only one familiar to most observers. Yet there is much else of interest in the constellation. At the point C, almost midway between the stars A and B, there is a magnificent cluster of stars just visible to the naked eye, while all of the stars marked D are double stars which are readily visible in a small telescope. The star at A was known to the Arabians as the Announcer, because its rising foretold the appearance of the far brighter Sirius.

In the group Lepus, the possessor of a small telescope should examine the stars at F, which are interesting doubles, and also the remarkable red star at E, a short distance to the right of N, which is the reddest star of the heavens. At K, forming a nearly equal sided triangle with the stars L and N there is also an interesting cluster, which in a small telescope appears merely as a faintly shining nebulous cloud.

To the left of the Greater Dog we may see a few of the uppermost stars of the great constellation Argo, which covers a large space in the southern heavens. In this constellation is a wonderful variable star, noted as one of the most striking objects in the heavens even among the very earliest people from whom records have come down to us. This remarkable object varies from the first to the seventh magnitudes in a very irregular manner. Its light is now slowly increasing. Here too is the wonderfully bright Canopus, which by many observers is thought to equal or even to exceed Sirius in brilliancy. And it is a most remarkable fact that the wonderful brightness of this star is not caused by its nearness to us. The most refined observations fail to show any displacement of its position in the heavens due to our own motion around the sun, and

thus we know that although it appears to us to about equal our near neighbor, Sirius, it must in reality be almost inconceivably brighter.

Unfortunately, this beautiful object lies so far below the celestial Equator that it cannot be seen from points on the earth of a higher north latitude than thirty seven degrees. By observers in this latitude it will be seen to just rise above the south horizon at nine o'clock in the evening of February 6, while throughout Texas, Lower, Cali-

Venus has been mounting upward in the southwest and how it has continually increased in brightness until now it is more than seven times brighter than even the Dog Star itself. The very favorable position of this beautiful object is, in fact, the most striking characteristic of the present month. We will have to wait until September, 1914, before we will again see our sister world shine so brightly as an evening star.

Venus will reach its farthest distance

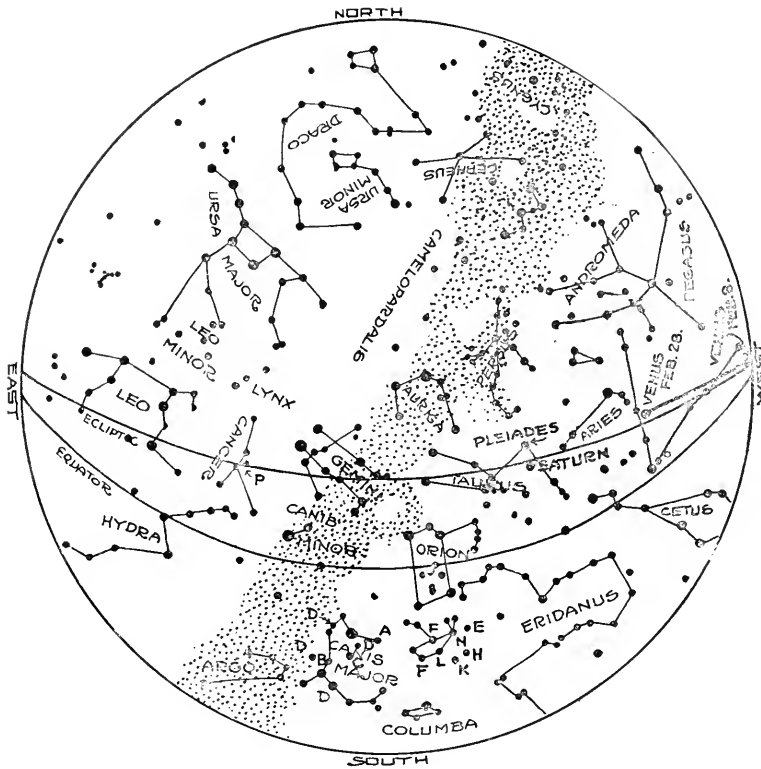


Figure 1—The Constellations, February 1, 9 P. M. (If facing south hold the map upright. If facing East below; if facing west, hold West below. If facing north hold the map upright.)

fornia, Arizona, and the Gulf states it will this month be a conspicuous object.

Above Argo there will be seen the Lesser Dog, the Crab, with its remarkable cluster at P, the Lynx, and the Giraffe, all of which interesting faint groups may be well traced out during the early evenings of the present month.

THE PLANETS IN FEBRUARY.

No one who during the past month has looked at the sky at all, can have failed to notice how the very brilliant

cast of the sun on February 12, at which time it will appear exactly half full if viewed in a small telescope. From this time it will begin to draw apparently nearer the sun and will rapidly assume the crescent shape, but as it is also moving rapidly northward among the stars its time of setting will be but very little altered. Throughout the entire month it will remain visible each evening until nearly four hours after sunset, and the study of its beautiful disc as it grows rapidly larger with



Figure 3—View showing the general form of appearance of the Zodiacal Light.

its diminishing distance from us, and as it changed first to a half circle and afterwards to a narrow crescent, provides one of the most interesting of all observations for the possessor of a small telescope.

On February 10, at 7 A. M., the moon will pass between the earth and Venus, hiding the planet from view. This most interesting sight will be visible to many observers in the southern hemisphere, but unfortunately the earth is so large that those who are above the equator will look over the upper edge of the moon and hence see the planet

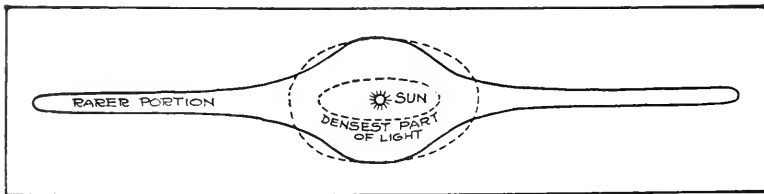


Figure 2—Cross section of the Zodiacal Light showing the supposed portion of this great circular cloud.

apparently above our satellite. Even were this not the case, the occultation occurs at such an hour that both objects will long since have set to all observers in the United States. It may be added that the moon will pass over the Pleiades on February 12 at 10 A. M., and on March 13 at 4 P. M., both of which will be invisible to us for similar reasons. Though the occultation of this little group of stars will occur

every month of this year we will not be able to witness it for the first time until September 20.

Mercury enters the evening sky on February 12, and though it does not reach its greatest elongation until next month, it may nevertheless during the last evenings of February be clearly seen. It will be found low in the twilight glow, a little south of the west point, for about one and three fourths hours after sunset.

Saturn is still in excellent position for observation, as it shines out just below the Pleiades in the southwest. The rings now show nearly their maximum width and the whole wonderful system forms a most beautiful object for study with a small telescope.

The other bright planets are now all morning stars.

THE ZODIACAL LIGHT.

During the moonless evenings which occur at the end of this month and the beginning of March, the observer should not fail to look for this faint but most interesting object. He should go out of doors on any clear evening, away from all sources of artificial light, as soon after sunset as the sky has become dark, and face directly toward the west. He will then readily detect the light, which will appear as a great, faint pyramid, whose widest part rests upon the horizon and whose apex may extend nearly to the Pleiades, or even

farther. The center of the widest part of the base is at the point at which the sun set, the light is here brightest, and it grows rapidly fainter as its borders are approached.

There can be but little doubt that this strange light is caused by a great, flattened swarm of little particles which surrounds the sun and extends somewhat beyond the orbit of the earth, the form of its cross section being very ap-

proximately that shown in Figure 2. But what the physical condition of the cloud is still largely a matter of conjecture, though we are certain that its average density must be almost inconceivably small.

One of the most interesting of recent mathematical investigations has shown that if the densest part of this cloud is only so much as one fifty millionth part that of our air, the pull of the mass upon the inner planets will be just sufficient to cause the hitherto unexplained disturbances of their motions. It may be remembered that in order to explain these disturbances the assumption was made many years ago that there existed an unseen planet moving inside of the orbit of Mercury, and to this supposed planet there was given the name of Vulcan. It has long been regarded as nearly certain that Vulcan has no existence. Now that it has been shown how the pulls of the exceedingly tenuous mass of the Zodiacal Light upon the inner planets are sufficient to explain their deviations from their predicted courses, the assumption of the existence of unseen bodies in the solar system becomes unnecessary.

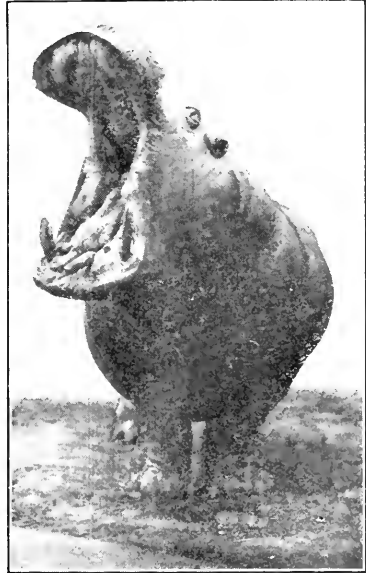
An Open Mouth as an Expression of Intelligence.

We have previously noticed an interesting book, "Wild Animals and the Camera," by W. P. Dando, F. Z. S., published in London by Jarrold & Sons, and in New York by the Frederick A. Stokes Company.

The photographs are especially good portrayals of the animals of the London Zoological Garden. Perhaps the most sensational is that of the hippopotamus, "Guy Fawkes." The author makes the novel suggestion that the wide opening of the mouth at the word of command is an indication of intelligence. I wish one could say the same thing of other forms of life because there are some examples, not unknown to most people, where a too wide, or a too frequent or a too vociferous opening of the mouth has not been regarded as an indication of the highest intelligence. But should we expect a rule to be of universal application? Perhaps this manner of manifesting intelligence is not more applicable to four-footed animals than to mankind, and no more

invariably applicable than certain biological principles that certain scientists have been persistently telling us are of universal application. The author says:

"The hippo has never been a great favourite with the public which is proved by the fact that very little of the



A REMARKABLE EXPRESSION.

food given to the animals by the visitors, which amounts to many tons a year, ever found its way to 'Guy Fawkes,' who, although by nature herbivorous, was as fond as an elephant of a bun, and would open her enormous mouth at the word of command, which to my mind proves she was not so wanting in intelligence as some people would make out."

Birds and Bird Music.

Mr. Henry Oldys of Silver Spring, Maryland, a most efficient lecturer on birds and bird music, is to make a tour of New England in the spring of 1913. In the course of his study of bird music, he has discovered many evidences of close relationship between bird music and the human voice. These discoveries have been presented before various scientific societies and in popular magazine articles. We bespeak for him a cordial reception in every place that he may visit in his New England tour.

THE CAMERA




HERE is a right as well as a wrong way—in the matter of the photography of snakes—just as there is in doing anything else in this world worth the while. Living snakes

may be photographed for the mere sake of photographing them, and with no other end in view than such satisfaction as the photographer may gain through the experience, and through the pleasure he derives from getting such pictures for his album. Pursuits of this nature are all well enough in their way, but the best use of the results are often defeated. The practice is usually more or less selfish, and there is rarely any incentive to scien-

tific or even to competitive achievement.

As in the case of all other biological material, living or otherwise, snakes are photographed by the scientific or zoölogical photographer to meet the various aims of science and of education. There are many points, then, to be taken into consideration, when we come to make a practically useful and scientific photograph of a living snake, and to accomplish this, requires the application of a certain technique on the part of one who is familiar, in all particulars, with the natural history of ophidians.

Up to the present time, snakes have been classified in science by the character of their scales, especially by those on the head; by the presence or absence of certain structures of the eye, tongue, and other parts; by the form of the head, and the development of certain appendages, as horns, and rattles on the end of the tail; by preorbital pits; by color, size, habits, geographical distribution, etc. So then, when we come to make a photograph of a living snake, which is to be of any use to the zoölogist, or to the teacher of biology, we must have it in mind to exhibit in the photograph as many of these instructive features as possible.

There is a fairly abundant species of snake found in the woods about the city of Washington, generally known as the water snake and to the zoölogist as *Natrix faciata sipedon*,—rather a long name, but not a difficult one to pronounce, or even to remember. I have frequently met with this well-known reptile in the low, swampy lands to the north of the city. On one occasion I got an excellent photograph of one in its very haunts, and this picture is here reproduced in Fig. 1 of this article.

This photograph not only gives an excellent idea as to how this particular snake appears in its natural environ-



FIG. 1. A WATER SNAKE AT HOME.



FIG. 2. A BLOTCHED KING SNAKE.

Designed to show the difference in the scales of the upper and under parts.

ment; but it conveys to the mind the probable size of the creature, for I was careful to include in the picture, by way of comparison, common plants and toadstools with which everyone is familiar.

By the aid of an ordinary lens, we can easily study the peculiar carinated scales, as well as count the scales upon the upper and lower jaws, which are among the characters employed in classifying this species. We can see there is no "pit" a short distance in front of the eye; therefore it is not a "pit viper," and consequently, being a North Temperate American snake, we know it is an innocuous one and perfectly harmless. Of course, it is unfortunate that we can tell nothing about the color of this reptile from the reproduction of its photograph; but this is something that we have so often deplored that it would be idle to touch again upon it here.

Sometimes it is advantageous to so pose a snake that, in the resulting photograph, the student may get a view of the pattern of the scales on the underparts. This I have accomplished in the case of the blotched king snake (*Lam-*

propeltis rhombomaculatus,) here reproduced in Fig. 2. This picture I took in my study at home, where I used a clean, white sheet for a background, and I encouraged the reptile to slide very gradually down on a limb, which I had firmly screwed into a little hand-vise, fastened to the top of an extra tripod. It was a short exposure, as one will appreciate by regarding the forepart of the animal, which is poised in the air and shows no movement whatever.

The difference in the character of the scales in the upper and lower part of this king snake are here well exhibited, as well as the nature of the *smooth*, unkeeled scutes of the dorsal surface. However, this picture has no special scientific value, whatever its worth may be from an educational point of view. Personally, I have never particularly cared for it, for the reason that it savors too much of the unnatural. Still, it does exhibit the character and arrangement of some of the scales on the under side of the body, and that is something; for we cannot very well get those in the case of a snake, unless we make a hand-drawing of them. This is strictly the case with respect to the terrestrial snakes, which, when photographed in their native haunts, rarely show any of their under-parts.

An example of this is seen in Fig. 3 illustrating this article. It is the reproduction of a photograph of a pretty little Garter Snake, which I obtained in Northern Virginia several years ago. It is really a good zoological cut, capable of being used in any scientific work on the subject, and that to decided advantage. It shows the species—*Thamnophis sirtalis*—in a place where one would be very likely to meet with it in nature. It is also about life-size, and has assumed a perfectly natural pose—in fact, one in which it is just about to make off for a place of greater safety.

By the use of an ordinary hand-lens, one can discern the complete arrangement of the scales on the top and sides of the head, as well as the distribution of those on the body. Further, one can plainly see the round pupil of the eye, and the absence of the "pit" between the latter and the nostril of the same side. The entire form of the reptile is

likewise given in complete detail; in short, were the colors of this snake known to the examining herpetologist, in any part of the world, he could, by the use of the aforesaid hand-lens, quickly identify the species, and so give its geographical distribution and life-history. Or, even were the colors not known to him, it would be quite possible for him to name the species.

This brings me to the discussion of a class of pictures which belong in the distinctly scientific category, and which are of positive educational value.

these young snakes, and they belong to three very distinct genera,—two of them being innocuous forms, and one of them very venomous.

In Fig. 4, we have the young of the common milk snake (*Lampropeltis dolia* *triangulus*,) and in Fig. 5, a young "spreading" or "blowing viper" (*Heterodon platyrhinus*,) Both of these species are entirely harmless, and, as a matter of fact, very beautiful and gentle little creatures. On the other hand, the two views of a snake shown in Figs. 6 and 7, represent a species of

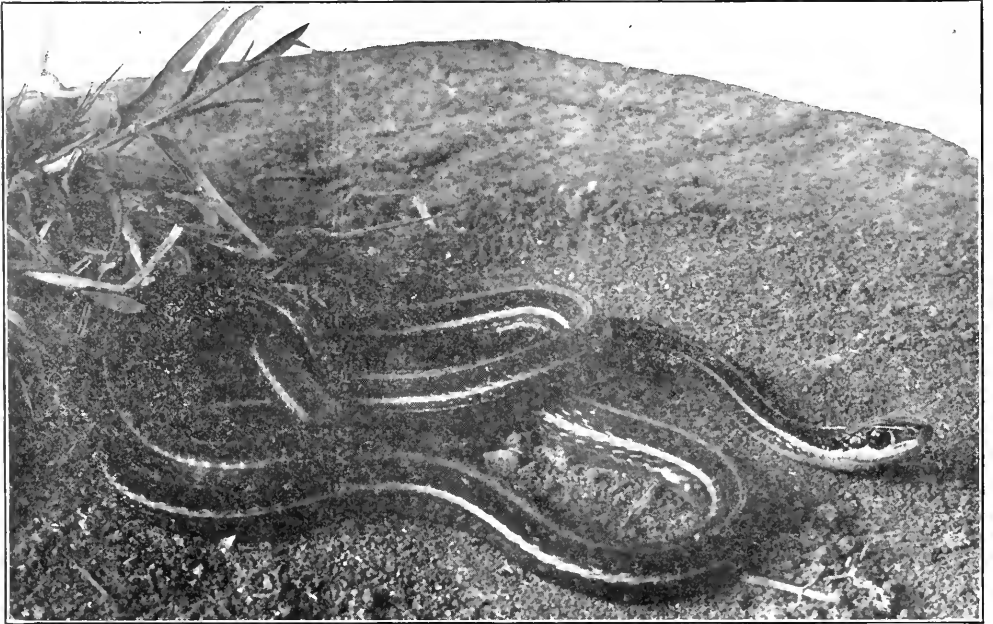


FIG. 3. A GOOD ZOOLOGICAL CUT OF THE COMMON GARTER SNAKE.

Of such I present four examples (Figs. 4-7,) all very recently taken. They are specimens of young snakes, none of them being over three months old,—and I may say that they often make the most difficult subjects for the camera.

In the first place it will be observed that, in all four of the cuts of these young snakes, each and every one of them have been completely shorn of all their surroundings, or of what some are pleased to call the "accessories." This, of course, is accomplished by photographing them on a plain, white surface, and, in the vast majority of cases, indoors.

There are three different species of

an entirely different kind, for it is the young of the very venomous and widely known copperhead snake (*Ancistrodon contortrix*). These specimens were all taken near Washington, during the summer of 1912, and photographed by me in my study, or in one of the rooms where I do my photography of live animals.

These pictures are all taken exactly life-size, and each exhibits the characteristic pose of its kind. For example, note the "meek and lowly" carriage of the head in the case of the harmless and gentle little milk snake, as it starts to make its escape (Fig. 4), compared with the self-reliant and saucy pose of the venomous young

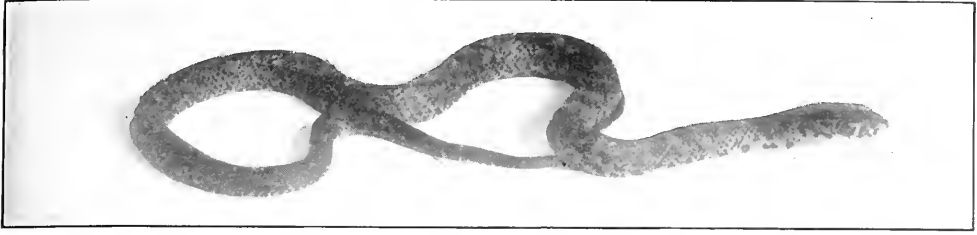


FIG. 4. A YOUNG MILK SNAKE.
Life size seen on lateral view.

copperhead, as he makes a similar attempt to get away (Fig. 6).

Their respective traits are equally well shown when taken upon a vertical view; for there is a lack of anything resembling a "coil" in the innocuous young *Heterodon*, seen in Fig. 5, as compared with the very threatening pose assumed by the aforesaid young copperhead reproduced in Fig. 7,—it being the same specimen as shown in Fig. 6.

It will be noticed that two of these pictures are taken upon a direct lateral view (Figs 4 and 6), and two upon direct upper or vertical view (Figs. 5 and 7). By the aid of a hand-lens the minutest character can be readily made out in any one of them.

If one chances to be very fortunate, the photographing of one of these young snakes, in the manner shown in Figs. 4 to 7, may be accomplished in a moment—or, perhaps, in a few moments—while it sometimes requires a very much longer time. For example, the one shown in Fig. 7 I obtained in about a minute; Fig. 5 in twenty minutes, and in the case of those shown in Figs. 4 and 6, each took about two hours.

These little snakes are very restless, incomprehensible and erratic, and consequently make very trying subjects, notwithstanding the fact that one has them perfectly at one's mercy and indoors.

To obtain results like those shown in Figs. 5 and 7 is not so very difficult. With them, I used a 5x8 gallery camera with a high-class lens. The white background is heavy, perfectly clean, non-glossy cardboard. You first focus on some object of the same size as the snake, and get it *sharp* on the groundglass of the camera, where it will make the picture *in the middle* of the plate. Next, remove the "dummy;"

place your snake in exactly the same place, and cover it with the lid of a small, circular box, under which it can rest with perfect comfort. Allow things to rest for several minutes, until you are sure that the imprisoned snake is perfectly quiet. In the meantime, put in the camera a quick plate of the best make (isochromatic;) set for the smallest stop, and use a rapid shutter. When everything is ready, uncover the snake. Do this, not by a slow, cautious movement, but rather by a very rapid and dexterous one. If he chances to be in a pose to suit you, the exposure may be made at once; if not, move him into position with some light object, such as a lead pencil. If he gets nervous and moves off, the only thing to do is to go through the whole performance again until you succeed.

To obtain the side views of these

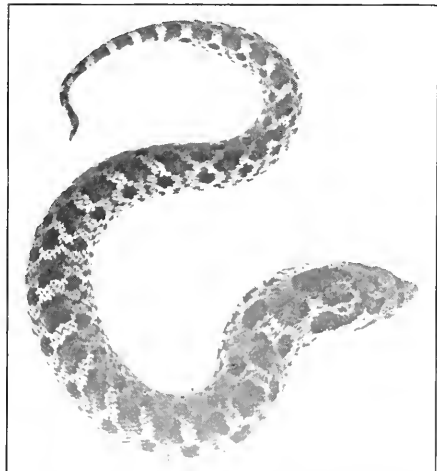


FIG. 5. A YOUNG BLOWING VIPER.
Life size; seen directly from above.

snakes, I use a similar piece of white cardboard, curved to an arc of the circle, and held in position by any suitable device. (Screw-clamps, etc.). Then I proceed by the same methods used in obtaining the vertical views.

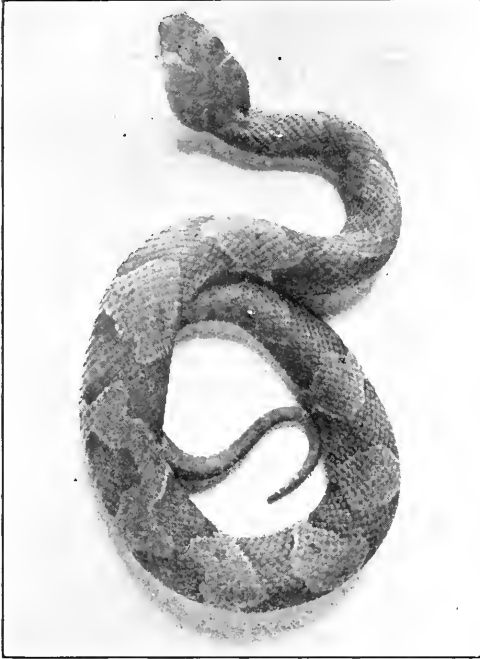


FIG. 6. A YOUNG COPPERHEAD.
Life size; seen from above.

The resulting pictures, however, are very unsatisfactory and equally unscientific if the exposure is made when the little snake is all drawn up into a coil, as it will be when the cover is removed. To be seen to the best advantage, it should be taken when moving away; but this is what takes skill and patience on the part of the zoölogical photographer. If he be lacking in those qualities, he can never make such pictures as are here reproduced in Figs. 4 and 5,—mark my word when I say so.

The young milk snake shown in Fig. 4, is undergoing the operation of shedding,—probably for the first time,—and the delicate bits of skin are plainly seen along the line of its body.

My young copperhead, as well as the milk snake have both been con-

signed to alcohol; ere long they will figure in the collection of some museum, which I think is a better disposition to make of them, than simply to kill them and toss them out of the window.

When irritated, the adult blowing viper flattens out the fore part of his body in a most ferocious-appearing style, at the same time giving vent to a series of very aggressive hisses. This is accompanied by his coiling and uncoiling the end of his tail. These habits have cost many a one its life, the slayer—if a man and uninformed—invariably boasting of having killed a specimen of the most venomous reptile known, whereas the species is a perfectly harmless one.

Be this as it may, the very young of this snake have also the above described habits, and it is very prettily shown in Fig. 5 of this article. We note the tail just about to coil up, while the little reptile's head and neck are both flattened out,—and that with the hope of frightening *me* away!

The young copperhead also coils its tail when irritated; but instead of flattening out its head and neck, as in the case of the young blowing viper, it seems to reduce the caliber of its neck, and thus make the individualization of the head of its venomous little self all the more apparent.

Note how beautifully these young snakes are marked, and how different the pattern is in the case of each. For scientific illustrations, they are just what the naturalist needs; and were they properly colored, they would be far ahead of anything that could be accomplished by brush or pencil. It is only by means of the photographic camera that we can get the arrangement of the skin pattern, the number and disposition of the scales and other characters so perfectly.

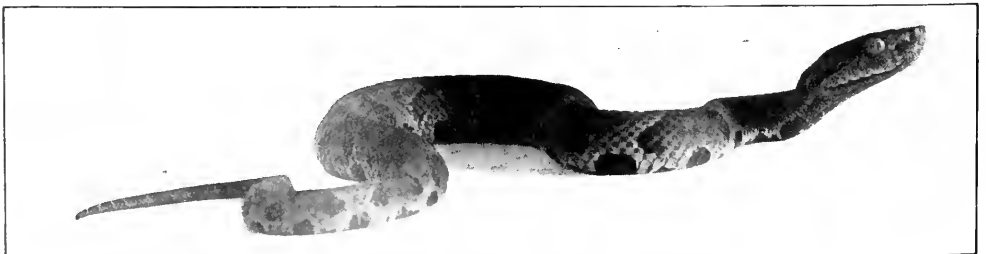


FIG. 7. A YOUNG COPPERHEAD SNAKE.
Life size seen on lateral view.



Established 1875

Incorporated, Massachusetts, 1892

Incorporated, Connecticut, 1910

The Agassiz Yucca at Arcadia.

In November, 1908, a Washington, D. C., friend of The Agassiz Association sent to the home office a clipping from a Washington newspaper giving an extended account of the annual flower show of the Florists' Club of that city, at which the attendance, it was stated, was nearly 35,000. Our attention was particularly requested to the following paragraph:

"A novel plant, which was exhibited, but which escaped the notice of a great many persons, is the 'Resurrection' plant, or scientifically known as the Agassiz Yucca, from Brazil. The first plant of this variety was brought from Brazil in 1866 by Prof. Agassiz and his wife, who made an immense collection of specimens for the Harvard museum. William Falconer, then curator of the botanic garden at Cambridge, secured several sprouts from the plant, one of which he brought to this city. The plant which was exhibited at the show, is the property of Mrs. Walcott, wife of the secretary of the Smithsonian Institution."

Inquiry was at once made to the Smithsonian Institution for further particulars. That letter was referred to the United States Botanic Garden. The Superintendent, Mr. W. R. Smith, under date of February 1st, 1909, wrote as follows:

"The Agassiz Yucca or Resurrection plant is a provisional name, it being an unknown species. The Yucca was brought from Brazil, by Professor Agassiz, in 1866. After being apparently dead for two years, it was placed in a damp place, and commenced to grow; hence the name Resurrection plant. Both Mr. Falconer and myself obtained some shoots from this plant, and propagated them. I should be pleased to present one to your friend, on hearing further from you."

Under date of April 23, 1909, the following letter from the Superintendent was received:

"Yesterday we shipped a box by mail to you containing one *Yucca Agassiz*, as promised, and trust you will receive same in good condition."

The plant has since been in good condition at the entrance door of the Agassiz Home at Arcadia, and examined and touched by hundreds of visitors. A direct bit of life from the hands of Louis Agassiz should enliven any one's interest in nature.

Among Our Chapters.

RE-ORGANIZATION OF MANOR SCHOOL CHAPTER (NO. 1041), STAMFORD, CONN.

Officers: President, Alwyn G. Levy; Vice-President, Lathrop F. Berry; Secretary, Welles H. Newlands; Curator, Daniel Moore; Treasurer, Oliver K. Church.

The total membership of this chapter is forty-two. The interests consist chiefly of walks, talks and original observations, especially in the care of aquaria. Some of the members have made good original studies of various kinds of fungi. Others have valuable studies on insects, especially of the Hymenoptera family. The president is especially expert in electricity and photography. We are hoping for specific, detailed reports later.

E. F. B.

The Wendell Phillips High School (Chicago) Chapter.

The Chapter, under two most able officers, the president and vice-president, has made a good start this year. A contest is going on for the best collection of natural specimens. All of the individual members are making collections and as prizes are soon to be awarded everyone is striving to do his

best. Besides this the ever generous Mr. Hand has offered to give the Chapter all the shells which its members are able to correctly name out of his own immense assortment of fresh- and salt-water bi- and univalves. These, together with the aforementioned, praiseworthy collections, will greatly add to the Chapter's museum.

The day after Thanksgiving Day, there being no school, the Agassiz Chapter, together with the Camera and Walking Clubs, also of the Wendell Phillips High School, took a trip into the country. They started about nine in the morning, took a car to the city limits and then walked eleven miles along a country road till they came to a thick woods just the other side of Willow Springs. Including one of the girl's mother, there were twenty-two of us. We built a fire amidst the woods and roasted potatoes, sweet potatoes, turkey, "wenies," apples, etc., which together with the hearty lunch which the girls had brought, and coffee which we made over the fire, was a regular second Thanksgiving dinner. We then played games around the fire and contributed one to another our knowledge of the woods and its creatures.

About four-thirty we started home and a jolly time we had. All except six, four of whom were boys, walked all the way back to the city, making somewhat over twenty-five miles the day's walk.

The adventure was so widely pronounced a success that it is to be repeated with slight variations sometime during the Christmas vacation.

Robert P. Vanderpoel.

Great Gulliver Bound by a Lilliputian.

It will be recalled that when Gulliver visited the land of the Lilliputians he took a nap, and when he awoke he found himself bound by tiny "ligatures" put on by little human creatures about six inches high. He tells us of the condition in which he found himself:

"I was extremely tired; and with that, and the heat of the weather, and about a half a pint of brandy that I drank as I left the ship, I found myself much inclined to sleep. I lay down on the grass, which was very short and soft, where I slept sounder than ever

I remembered to have done in my life, and, as I reckoned, about nine hours; for when I awaked it was just daylight. I attempted to rise, but was not able to stir; for, as I happened to lie on my back, I found my arms and legs were



THE GRASSHOPPER IN THE SPIDER'S MESH.

strongly fastened on each side to the ground; and my hair, which was long and thick, tied down in the same manner. I likewise felt several slender ligatures across my body, from my arm-pits to my thighs. I could only look upwards; the sun began to grow hot, and the light offended my eyes. I heard a confused noise about me, but, in the posture I lay, could see nothing except the sky."

It is possible that Dean Swift in writing his wonderful satire on the human race must have taken the notion of the binding of Gulliver from the spider and the grasshopper. At any rate there is a close parallel. In the grounds of Arcadia this year we have seen many a Gulliver grasshopper firmly bound by a Lilliputian spider.

But unlike the original Lilliputians these do not need to wait till their victim is asleep; they can start even the slightest of gossamer threads despite the active movements of the grasshopper. What a strange world! And the more we study it the more remarkable it becomes. Into a spider's web flies a big grasshopper. From this he could probably free himself by his own struggles if not attacked by the spider. But the spider does attack, and the struggle becomes worth watching. The spider

seems to know that the grasshopper's legs are the principal point. Note in the accompanying illustration how the slender threads are lashed alongside of the body to prevent the straightening out of the leg. It is good to study this picture. It tells us of the spider's ingenuity, but far better will it be for you, O reader, if you can have the pleasure of watching the entire process. If, perchance, a grasshopper does not happen to jump into the web just as you pass by then make the experiment. Catch a grasshopper, toss it into the web, and notice how greedily and fiercely the inhabitant thereof will greet your co-operation.

The Foundation's Mute Appeal.

Without a cover, except a mantle of snow, lies the foundation wall of the Assembly Hall at Arcadia. From this

sire to see the many and various attractions of the place. We are glad to show these things to every one, but we lack proper facilities. As we are now situated, we cannot do justice to our friends, ourselves, nor the objects that are so attractive, and at the same time carry on the work in the office. We want our office and our laboratory work to go on undisturbed, and we want to be able to show these pleasing things in the realm of nature, not to one person at a time, but to an entire group. Are we unreasonable when we appeal for so good and altruistic a Cause? We ask for only \$2,000 for the building and its equipment, not half the cost of one of the automobiles that go whizzing by at about the rate of ten a minute on roads not far from Arcadia. In a hall we could and would effectively take our visitors to the realms of na-



THE FOUNDATION COVERED WITH SNOW.
Beautiful but not Efficient!

cover that nature has spread over them, the stones make their mute appeal to every passer-by. They, and the management and members of The Agassiz Association, ask for a building in which may be done more and better work for every interested person, and for the general public. Long before the end of this new year, we hope to have that building. Every day brings visitors to Arcadia, visitors prompted by their de-

ture. Our restrictions are so great that at the present time we cannot do this, but we want to do it. Please do not lose sight of the fact that all scientific presentation within this hall is to be free to the public. You are cordially invited to come and to come soon. There is a special interest at the present time. Non-members will please come during visiting hours on Wednesdays and Saturdays from 3.00 to 5.00

P. M., or make an appointment by telephone.

Members with their friends are welcome at any time on any day.

The Agassiz Association, Inc.,
EDWARD F. BIGELOW,
President.

Telephone 1597-4.

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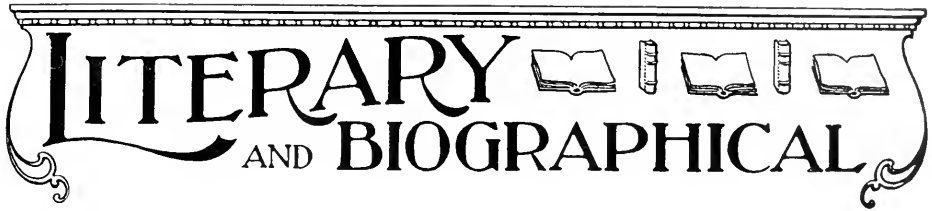
\$341.84

Actual Occurrences, Not Prophecies.

The weekly newspapers are published in the latter part of the week, most of them on Friday, many of them on Saturday, just in time for the readers to get an account of the events of the week. The daily morning papers professedly give, early that morning, the news of the previous day. They do not attempt to chronicle the news for the day on which they are dated. The papers that do this are, of course, published in the evening, or as late in the day as is possible in order to cover the complete news of the previous twenty-four hours.

But when we come to the magazines what a strange anomaly we have! Most of them are inconsistently published two or three weeks before the month for which they are dated. What possible reason can there be for dating any publication several weeks after it is published? THE GUIDE TO NATURE publishes a resume of what has taken place in the realm of nature for that month, and thereby becomes a guide for the following month. It tells of things done, not of things predicted, nor, least of all, of visions and dreams that may happen but probably never will. Yet, strange to say, when we publish a magazine at the very time when it should be published, the last of the month, some people think that we are inconsistent. But it is not we that are incongruous. Here is the last of the month, and our magazine goes to the post office for the month on which it is dated, and at the same time there come to my desk magazines dealing with events in outdoor life and with allied topics that are to occur during the following month. How do the editors know that such a month will ever come, or if it does, how do they know that a catastrophe will not destroy all nature? Inconsistent? Our correspondents must look elsewhere for that.

LITERARY AND BIOGRAPHICAL



The Birds' Convention. By Harriet Williams Myers. Los Angeles, California: Western Publishing Company.

This book is beautifully printed on tinted, soft finish paper. The photographic illustrations are good from the naturalist's point of view, and the conversation at the convention contains much of ornithological interest. The reviewer is not pleased when birds and quadrupeds talk like human beings, nor when human beings talk like the lower animals, but he knows that many students of nature take delight in all such artistic fiction. To them this beautiful book will be welcome. The final chapter pays a well-deserved tribute from the birds to the Audubon Society, in grateful recognition of the Society's protection.

Woodland Idyls. By W. S. Blatchley. Indianapolis: The Nature Publishing Company.

This is an amplification of the author's motto, "Be ye satisfied with little things." He believes that this precept should be set before the eyes of every one who in the woods seeks fancies for his brain, contentment for his soul. The author has recorded the thoughts that have come to him as he has walked in nature's realms. The book is in the form of a diary and describes his rambles at various times of the year. It contains few of those philosophical remarks about nature that so endeared his previous books to hosts of naturalists. He seems to think that, as in some of Whitman's poems, a catalogue of observation may embody a philosophy. He allows the objects of nature to speak for themselves, as they do effectively.

The Mechanistic Conception of Life. Biological Essays by Jacques Loeb, M.D., Ph.D., Sc.D. Chicago: The University of Chicago Press.

The reader will probably recall the fact that the author has achieved no little scientific distinction, and almost as much newspaper notoriety, for his experiments on the artificial fertilization of the egg of the sea urchin and of other forms of marine life. This book, as its title implies, explains the mechanical point of view of life dealt with wholly as a physico-chemical affair. It is a popular presentation, in a series of readable essays, of the results of the author's investigations. He does not assert that any life phenomenon has yet found a physico-chemical explanation. He thinks that the veil that covers the proof of this hypothesis may sometime be lifted, and that we shall then be surprised because "we did not guess from the first what was behind it."

Principles of Economic Zoology. By L. S. Daugherty, M. S., Ph. D., and M. C. Daugherty. With 201 illustrations. Philadelphia: W. B. Saunders Company. Cloth, \$2.00 net.

Not only are the salient facts of structural zoology and the development of the various branches of animals here given, but also such facts of natural history—or the life and habits of animals—as show the interrelations of structure, habit and environment. The authors have laid much stress upon principles and their application. The book is a useful adjunct to the "Field and Laboratory Guide."

The Book of Grasses. By Mary Evans Francis. Garden City: Doubleday, Page & Company.

Previous books on the grasses have referred to their economic importance, their value to the farmer as a part of his agricultural work, or have been technical treatises for the scientific man. This is a welcome book intended for the student, and has long been needed. It is accurate, and not too scientific to be appreciated by the general reader. With its descriptions are combined illustrations that effectively show the beauty of the grasses. The grasses are the most decorative of our plants, and the study of them should appeal to every one interested in nature. We are glad that so convenient a book is made available. It should stimulate a deeper interest in this fascinating family of plants.

A Popular Guide to Minerals. By L. P. Gratacap, A.M., American Museum of Natural History. With Chapters on the Bement Collection of Minerals in the American Museum of Natural History, and The Development of Mineralogy; for use of visitors to public cabinets of minerals and for elementary teaching in mineralogy. With 400 Text Illustrations, and 74 Photographic Plates. New York: D. Van Nostrand Company.

This guide, while primarily intended for the use of visitors to collections of minerals, contains much matter of general interest on some of the scientific aspects of mineralogy in relation to crystallography, optics, chemistry and geology. Much of the book is readable aside from its use as a guide to a collection, and undoubtedly will greatly stimulate readers to a more careful inspection of public collections of minerals. One of the most interesting features of the book is the extensive map which gives a "bird's-eye" view of the principal locations of minerals throughout the United States.

Pitrè's The Swallow Book. By Dr. Giuseppe Pitrè. Translated from the Italian by Ada Walker Camehl. Cloth, 12mo, 158 pages, 60 illustrations. Price 35 cents. New York; American Book Company.

This supplementary reader for the upper grammar grades consists of an introductory chapter describing the swallow, followed by a collection of interesting myths, legends, fables, folk-songs, proverbs, and superstitions of many lands, about the swallow.

Heredity and Eugenics. A course of lectures summarizing recent advances in knowledge in variation, heredity, and evolution and its relation to plant, animal, and human improvement and welfare. By William Ernest Castle, John Merle Coulter, Charles Benedict Davenport, Edward Murray East, William Lawrence Tower. Chicago; The University of Chicago Press.

The lectures which constitute this book were not intended exclusively for those trained in biology, but for a general university audience, interested in the progress of genetics as a matter of information rather than for study. Consequently a much larger audience than the one originally addressed will be interested in this summary of results in one of the important and most recently cultivated fields of biology.

Field and Laboratory Guide...Part I. Principles of Economic Zoology. By L. S. Daugherty, M. S. Ph. D., and M. C. Daugherty. Philadelphia; W. B. Saunders Company. Cloth. \$1.25 net.

Part I is designed to bring the student into contact with the animal world in its manifold relations, and contains many valuable and practical suggestions. It is, of course, self-evident that things that the student cannot get from the animal in the laboratory, he should get from the study of the animal in the field. The two parts constitute an admirable method of obtaining material and arriving at the principles pertaining thereto.

Everyday Birds. By Bradford Torrey. Boston; Houghton Mifflin Company.

This is an elementary treatment of a few of our common birds. It speaks in a manner as simple as that of a teacher in a primary school. The descriptions and the anecdotes are from original observations by the famous author, whose charming descriptions and philosophies regarding nature in "A Rambler's Lease," and "The Clerk of the Woods," have endeared him to thousands of students and lovers of nature. The illustrations are in colors.

Practical, if not Poetic.

The popular supposition that all authors are, by nature, unpractical is disproved by the story of the unpoetic novelist that Mr. W. D. Howells tells in the Washington Star. McMasters was walking with a beautiful girl in a wild New England wood.

"What is your favorite flower, Mr. McMasters?" the girl asked, softly.

McMasters thought a moment, then cleared his throat and answered:

"Well, I believe I like the whole wheat best."—Youth's Companion.

The Genuine and the Counterfeit.

We have none too many books pertaining to nature. Indeed, could the habit of reading them be more generally induced that publisher who would offer extra inducements for their writing would be a philanthropist, for that way lies health and medicine of spirit and much needed relief from life's fretful fever. Nature, in this sense, is the great mother of us all, and happy is he who does not wander too far away to sometimes relish in a homecoming.

Those who produce nature literature are of two kinds—the genuine and the counterfeit. The latter is one who with a pale, reflected knowledge of nature, uses it as a peg on which to hang fine writing. The former has his unmistakable traits, and is known of all his brethren. If he is permeated to the core with love of the all-mother; if in his communion with her visible forms she really speaks to him a varied language; if, under her spell thoughts are liberated and inspiration gleams, then the fact will out, no matter what the style of expression.—*The Indianapolis News.*

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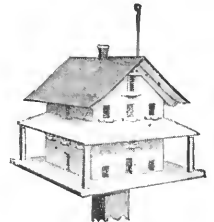
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THE GUIDE TO NATURE

Vol. V.

FEBRUARY, 1913

No. 10



THE BREVITY OF THE DAY

The uses of the birds of America are discussed in this issue. The birds of the world are also mentioned. The birds of the world are also mentioned. The birds of the world are also mentioned.

EDWARD F. BIGELOW, Managing Editor

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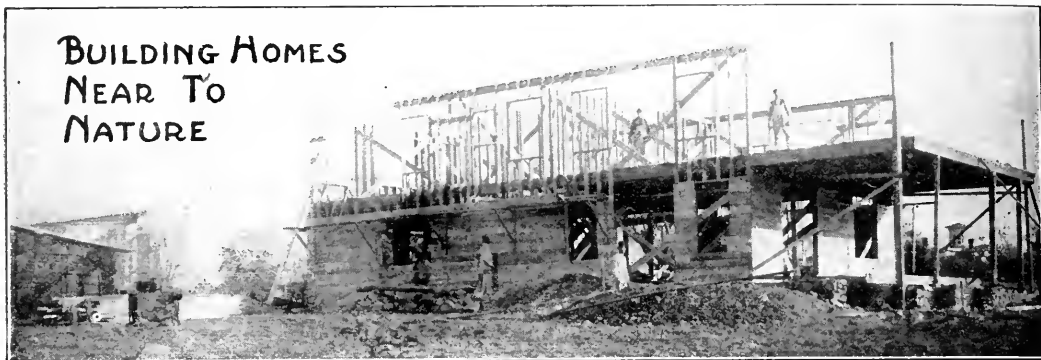
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The Camera

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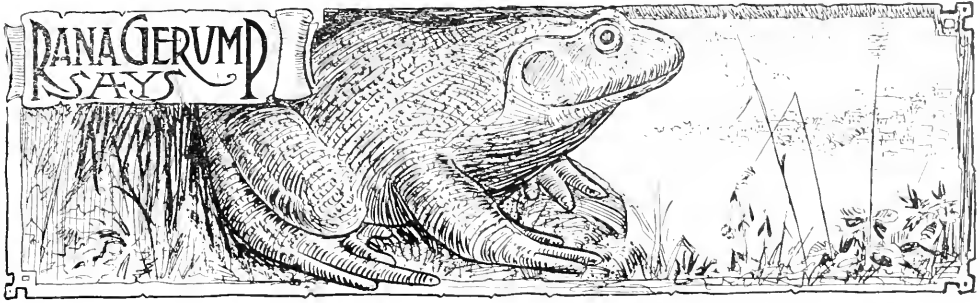
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Fire Escapes on Connecticut School-Houses.

The most surprising part, and perhaps the only surprising part of the bill to be presented in our Connecticut State Legislature by Senator Hanford S. Weed of New Canaan, is the fact that such a law is not already on our books. Every school in the land should be supplied with a fire escape. Our people will never forget that awful catastrophe in Collinwood, Ohio, only a few years ago, where a schoolhouse was burned, and one hundred and sixty-five children met their death. Language is not strong enough to express all that should be stated in regard to any school board who will pen up children in any schoolhouse from which they could not readily escape in case of fire. It is said that for every school day in the year a schoolhouse burns somewhere in the United States. If that is true, then certainly the laws regarding fire escapes cannot be too strenuous, nor too rigidly enforced. If on our law books in Connecticut, there is no statute providing for this, then we cannot comprehend why any legislature should vote against Senator Weed's bill, or a revision of it, if that may be necessary. By all means let us have a law and have that law enforced, that shall make it impossible for any school officials, by the laws of compulsory education, to expose the children to the danger of being burned alive.

An Invitation to Arcadia.

You are cordially invited to call soon at Arcadia. There is a **special interest** at the present time. Non-members will please come during visiting hours, or make an appointment by telephone in accepting this invitation.

Furnishing Homes Near to Nature.

It is a pretty little compliment to one's guests to have posted on the walls that, "The ornaments of a home are the guests who frequent it." Undoubtedly there is good literary, even classical authority for the statement. Such a motto looks well when engraved on a bronze tablet or cut in rustic letters in a stone of the fireplace. It adds to the happiness of the guests, and produces in the host a feeling that he has said the proper thing in a picturesque way at the proper time. "What," says Emerson, "is the end of all this apparatus of living—what but to get a number of persons who shall be happy in each other's society, and be seated at the same table?"

But like most similar statements that may be true, it is only in part true, and in this particular case only a very small part. The ornaments of a home are the furnishings, good, substantial, attractive furniture. Those who come to appreciate and enjoy these furnishings, as well as the hosts' hospitality, are the real guests. What homes innumerable along the Connecticut coast, and in other perhaps distant places, bear record to the good taste of those that have secured the furniture and the pictures from the long existent store of Lyman Hoyt's Son & Company, of Stamford Connecticut. No longer does Mr. Hoyt or his son preside. Years ago they passed into the unknown, but the work continues, increasing and improving under the skilled management of the brothers, Charles H. and William H. Martin. Their success has been largely due to their understanding of the fact that the first essentials toward making a home or a store attractive, are geniality and cordiality and a general spirit of good will, united with quiet, refined, dignified taste. These

qualities shine in every nook and corner of this capacious store, and are practiced not only by the proprietors but by their efficient assistants. None of our Stamford readers needs to be told in *THE GUIDE TO NATURE* that this is the elite furniture store and so acknowledged by the trade of the best families for decades. But the fact, well-known to the long time resident of Stamford, should be put in printed words for the benefit of the newcomers to our rapidly growing city and surrounding territory. It should also be definitely stated to those who have not been accustomed to trade at this store, that the prices are as low as can be found in any other store of similar excellence. The house does not carry worthless, cheap-John goods, but it does carry a large supply of moderate priced, thoroughly substantial goods that are neither gaudy nor showy, but in refined, quiet, cultured taste. I do not know a store better equipped, nor one more willing to give fair and honest return for dollars whether few or many, and I do not know a store more completely pervaded by a homelike spirit. The show windows are generally recognized as the art galleries of Stamford. Before these large, plate glass alcoves may often be seen crowds of admiring people gazing upon the art treasures there displayed. People who have gone into the suburbs to build bungalows or log cabins near to nature have placed their orders for the furniture with this store. The result of the increasing interest of those whose homes are near to nature is manifested in stock especially adapted to broad, capacious verandas in attractive nearness to the woods. This stock has been steadily increasing year after year.

The Undertaking Department.

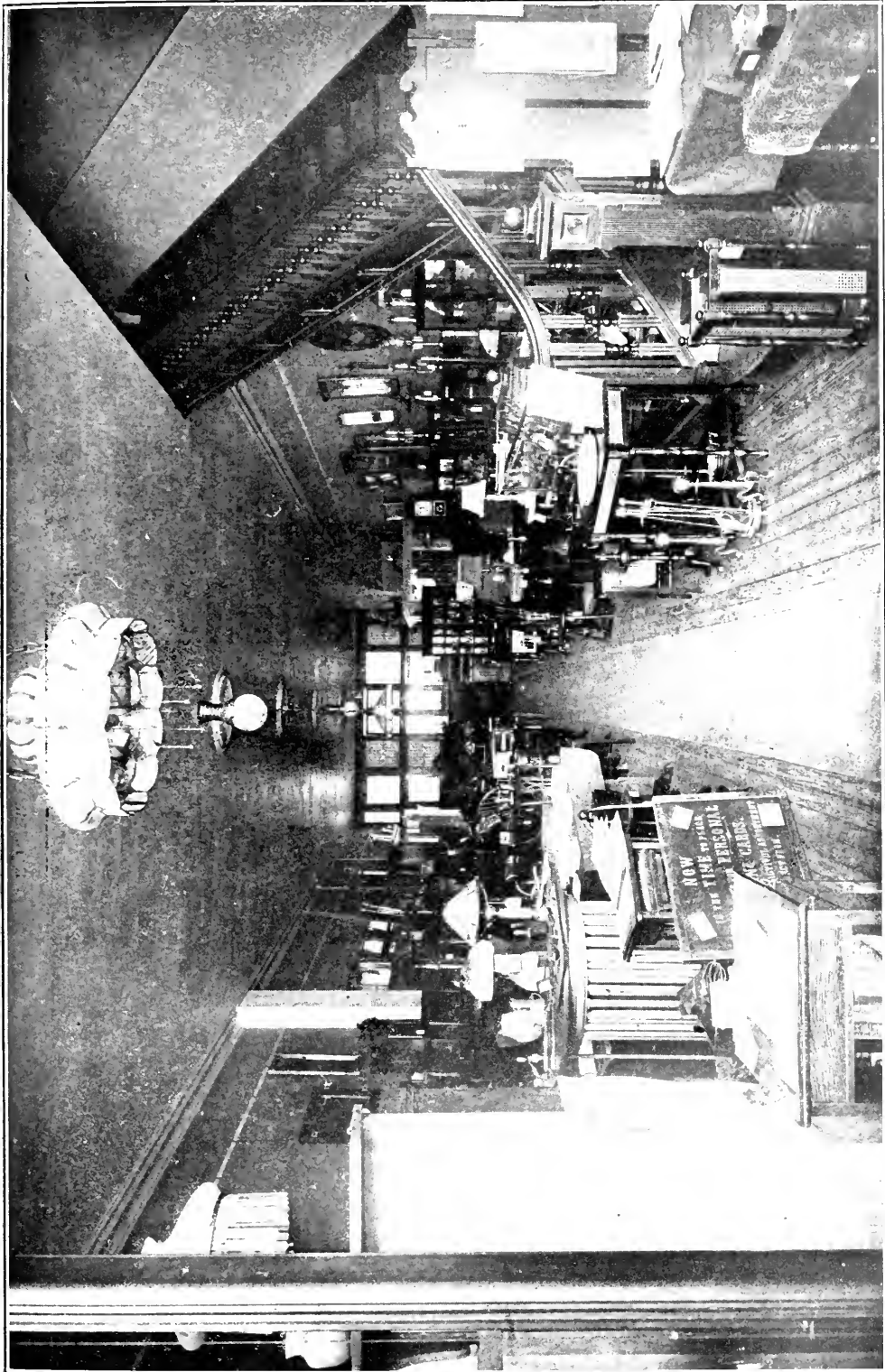
And now let us say a word of commendation for their undertaking department.

One who thoroughly loves old Mother Nature and is on intimate terms with her realizes more and more that she never betrays the heart that loves her, nor is harsh in her dealings. Affectionate acquaintance with her dispels superstition; yes, even the fear of death, for she teaches that nothing is more natural nor more friendly. It is

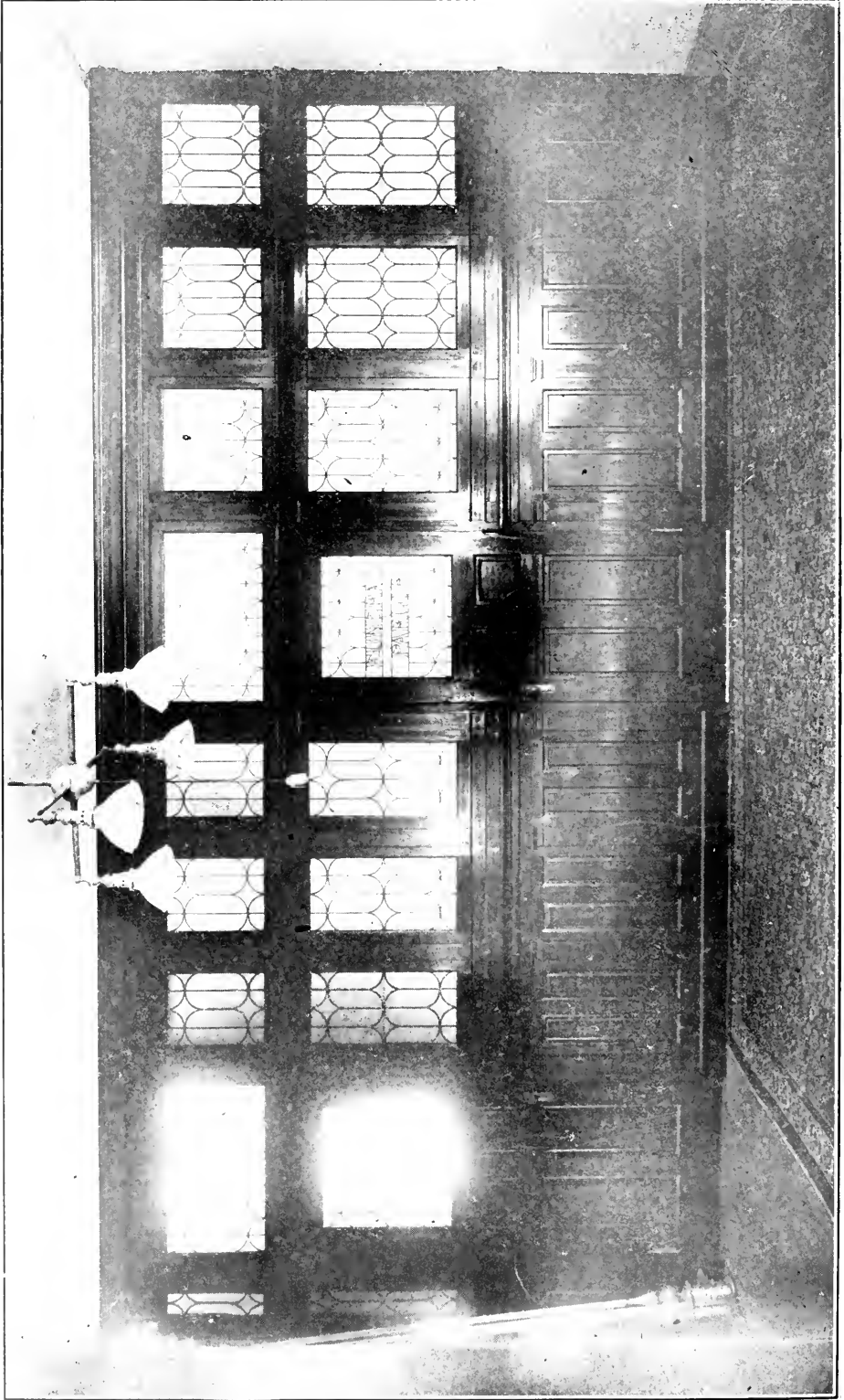
but the open door to another home still nearer to the bosom of Mother Nature. Those who thoroughly love nature are freed from any hatred of death because they recognize it as but one of nature's many kindly manifestations of appreciation of her own. As George Eliot has very exactly expressed it, "Those only can thoroughly feel the meaning of death who know what is perfect love." Those who look upon death as a manifestation of love of a friend will recognize the fitness of a word of praise for those who in kindly, dignified manner care for the entertainment of this friend. Bacon has said, "Death is a friend of ours; and he that is not ready to entertain him is not at home."

It is generally recognized as fitting that praise should be given to all who care for the living and inspire them to higher planes of thought or action, and yet when death enters a home, who stops to commend the one who helps us entertain that friend? The world praises an efficient teacher whether that teaching is in the school-room or by books. There is praise for the efficient physician or surgeon; there is praise of the highest kind for the one who can inspire to a holy life; but why limit our praises to those who minister to life? Yet while we shower words of praise upon almost everybody who serves the living, we have few for those who serve the dead. There are many in this world who can get along without a lawyer or doctor, teacher or preacher, or even a naturalist, but no one can long postpone the call of the undertaker. Let him come in for his share of commendation. If it is meritorious to provide even a temporary home for a living friend, it is even more praiseworthy to provide a permanent home for that friend when he leaves us. Prominent in service of this kind are the Messrs. Martin. Hundreds have expressed their appreciation with tears and hearty hand grasp in the privacy of stricken homes. Then why not let us put it on record in public print that none the less than those to help us to live well is one who cares for us after what we call living?

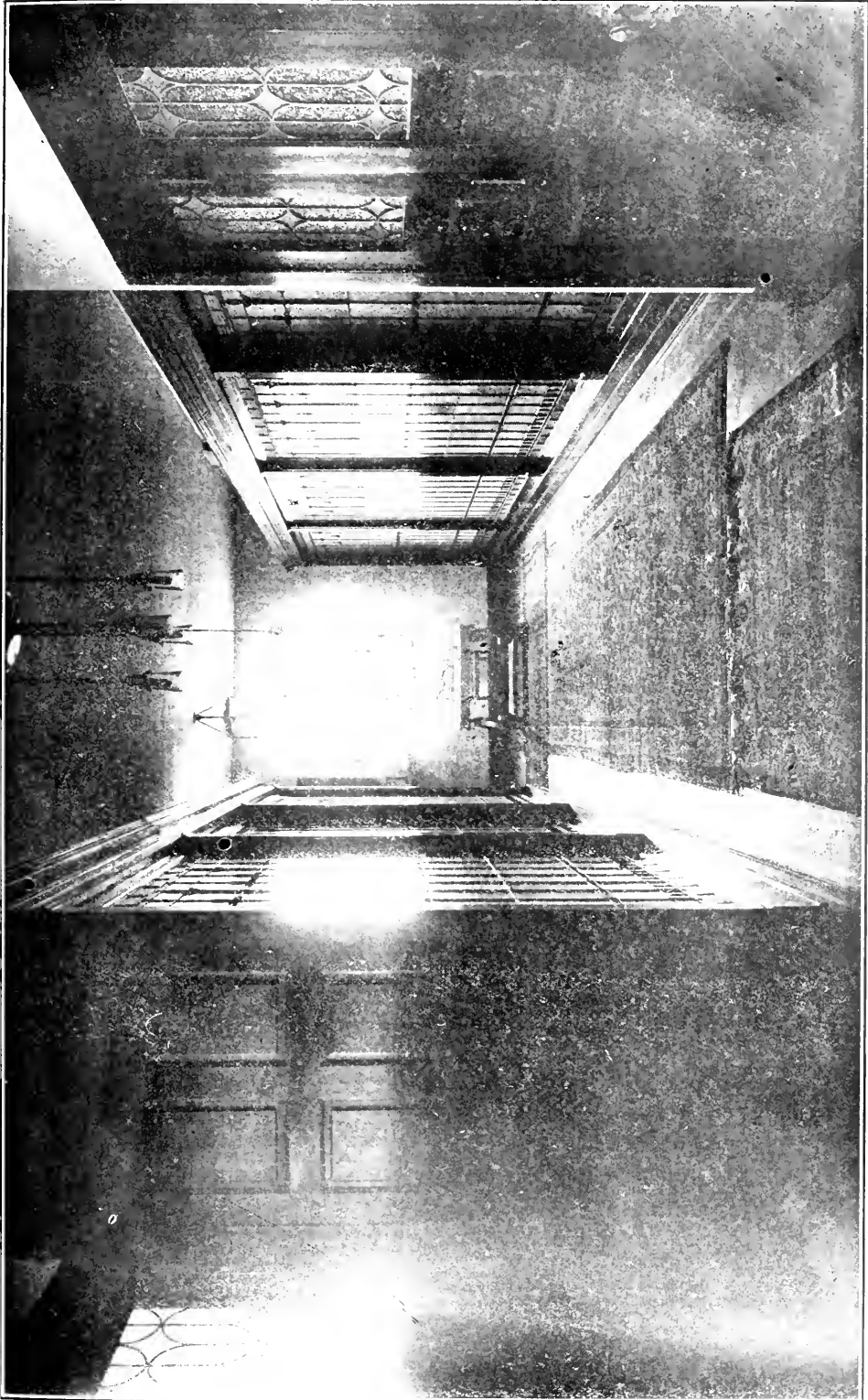
Should not a home near to nature through endless ages be as much appreciated as a home near to nature for a few decades?



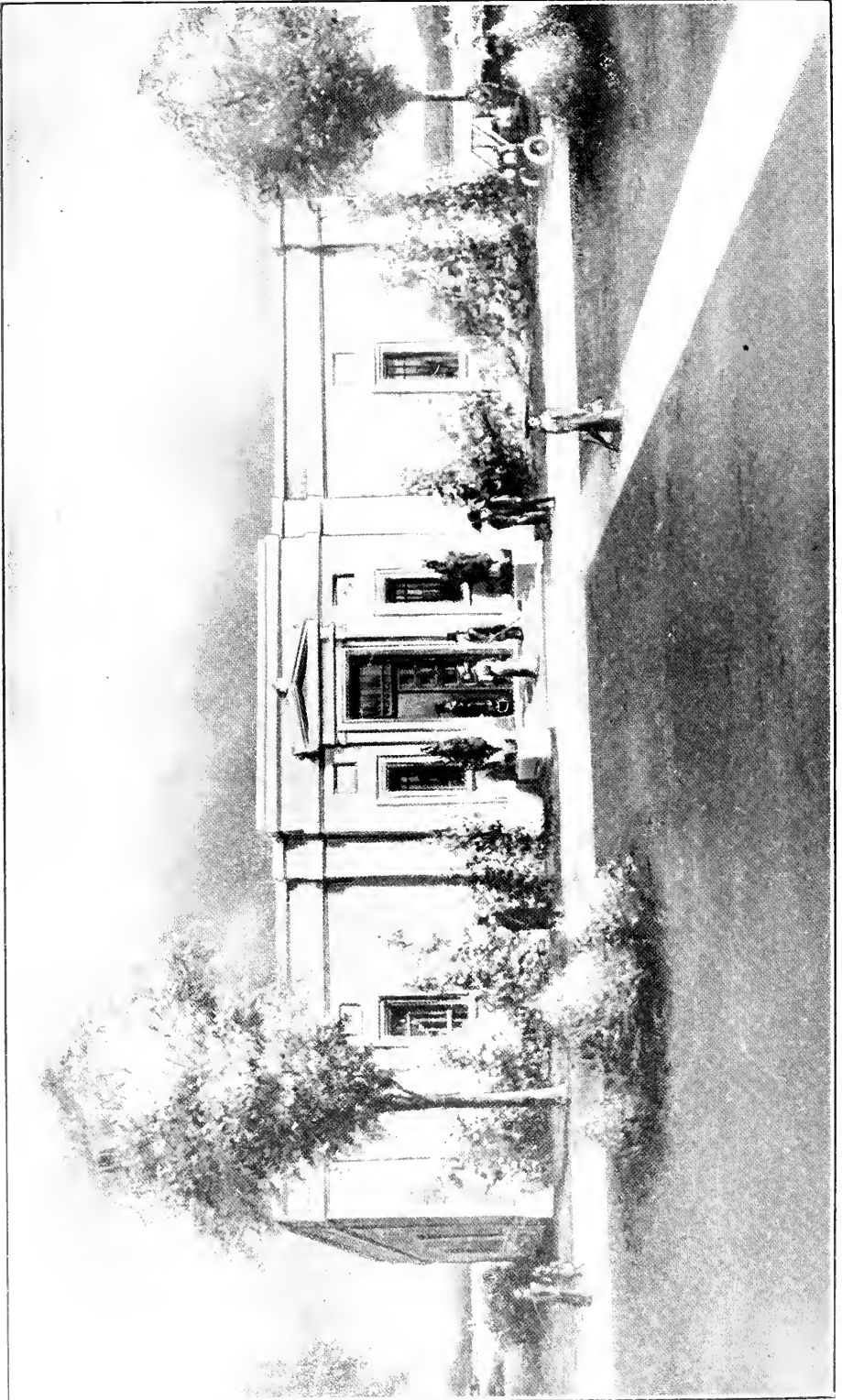
THE ATTRACTIVE ENTRANCE TO THE STORE OF LYMAN HOYT'S SON & COMPANY



THE ENTRANCE TO THE FUNERAL PARLOR.



A QUIET AND DIGNIFIED "LITTLE CHAPEL" WHERE FUNERALS ARE HELD WITHIN THE ESTABLISHMENT OF LYMAN HOYT'S SON & COMPANY.



THE MAUSOLEUM TO BE ERECTED IN WOODLAND CEMETERY.

A Mausoleum in Woodland Cemetery

On the opposite page is shown an illustration of the mausoleum to be erected in Woodland Cemetery by the Eastern Mausoleum Company, which has offices at Ellicott Square, Buffalo, New York, and 452 Fifth Avenue, New York City. This company owns the patent rights necessary for the construction of a sanitary mausoleum and operates in various states. The men at the head of this organization and its board of directors are well-known in the commercial world and have been in close touch with the ever increasing public demand for above ground entombment.

This elaborate building will undoubtedly be a great improvement to Woodland Cemetery. Those of our readers who wish to obtain full particulars regarding it may do so by calling on or corresponding with Lyman Hoyt's Son & Company, Stamford, Connecticut.

Some Suggestions

To those who object to being placed in the earth after life departs; to those who desire a permanent home for the bodies of their loved ones, and to all who are interested in the most recent developments toward sanitary burial and insurance against desecration, this information will be much appreciated.

The idea of above-ground entombment is not new. The people of today, in adopting the mausoleum method of disposing of the dead, are reviving a practice as old as history itself. All nations, during their most advanced stages of civilization, have erected tombs or hewn vaults out of solid rock for the final resting places of their loved ones. The abhorrence of the ground as a burial place has always been common among most enlightened peoples.

Earth burial is a custom which has been inherited from the middle ages. During the last decade public sentiment has been demanding the abolition of this practice. Only the more wealthy have been able to satisfy themselves in this respect, as they alone could afford the expense of constructing mausoleums.

Recently the inventive genius of man has devised a method of entombment to satisfy the demands of the public. Modern construction and sanitation have made possible the erection of beautiful buildings for the dead, where every man can provide for himself and family, that which heretofore only the few have been able to provide.

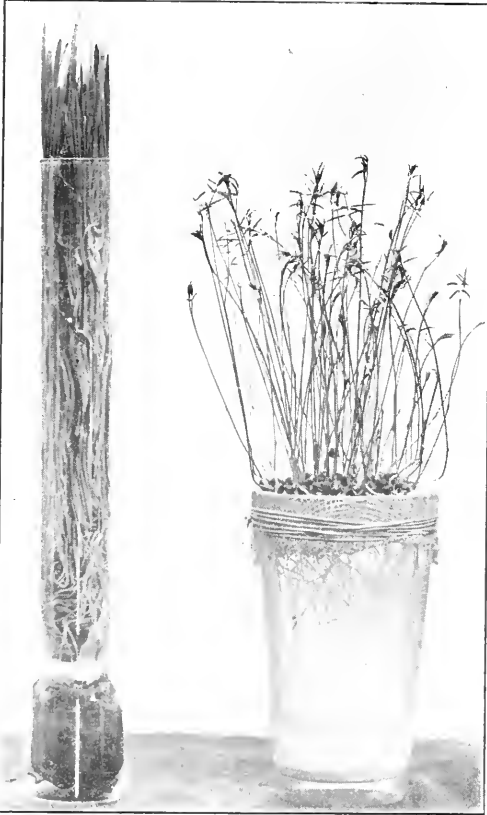
Endowment Fund

A very important feature one must consider in weighing the merits of mausoleum entombment, is the endowment fund. Every building constructed by this company is provided with a fund amply sufficient to guarantee its upkeep for all time. This fund is placed in the hands of trustees, acceptable to the compartment owners, and is invested in approved securities. The original cost of compartments embodies this endowment feature, and there is no future assessment.

Earth burial is merely temporary. Cemeteries come and go with the passing generations. Hamlets grow into towns, and towns into cities. The once revered burial spot passes in the growth, and is enveloped by the onward march of the city. Had our forefathers foreseen the future, they would have hesitated about burying their loved ones in the lots adjoining their homes and churches. But that was impossible. Today we can profit by the experiences of the past. Future generations cannot obliterate these above-ground resting places of our dead. Today the traveler visits ancient tombs which have withstood the ravages of many centuries, but he is unable to locate many cemeteries which were in existence not more than 100 years ago.

To Grow Plants with Sachs Tablets.

The accompanying illustration shows two points of view in the germination of seeds. At the left is a lamp chimney in which has been placed a roll of cotton, some black dress lining being wrapped around it and the whole kept moist by a solution of the Sachs tablets. The cotton is to retain the moisture and take it up by capillary attraction, and also to make an elastic packing that will "give" so as to supply the



PLANTS GROWN IN LAMP CHIMNEY AND ON TUMBLER BY AID OF THE TABLET SOLUTION.

proper room between the roll and the glass. Black dress lining is used because the black sets off the white roots to good advantage, and it is so firm, and hard that the tiny roots cannot get among the fibers of the cloth, and thus become knotted and gnarled as they will when the cloth is rough or fuzzy. Seeds thus grown in a lamp chimney may be used to exemplify the Darwinian principle of the struggle for existence and the survival of the fittest, and yet this principle is not wholly ap-

licable. As with people so with plants, here is applicable the Shakespearean teaching that "There is a tide in the affairs of man which taken at its flood leads on to fortune." Some of the seeds that are far down the chimney will be more successful than those near the top, because chance has placed a clear way in front of them.

At the right, in the illustration, is shown a tumbler filled with the tablet solution over which has been tied some mosquito netting. On this flax seeds were sown and are growing luxuriantly.

These nutrient tablets are supplied by The Agassiz Association, Arcadia: Sound Beach, Connecticut, at the following prices:

Box containing 30 tablets mailed postpaid with full directions for 10c. Prices in bulk as follows:

500 Tablets, \$1.25; 1,000 Tablets, \$2.00; 2,000 Tablets, \$3.50; additional 1,000, \$1.25. Less than 500 tablets not supplied in bulk.

NATURE AND CULTURE

is an illustrated monthly devoted to NATURE-STUDY and BIRD PROTECTION.

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- ☞ Subscription price one dollar (\$1.00) a year, twelve numbers.
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NATURE and CULTURE
4 W. Seventh Ave., Cincinnati, O.

Feed the Winter Birds

A Good Arcadian Suggestion. From a Postal Card Issued by Mr. Neil Morroze Ladd, Greenwich, Conn.

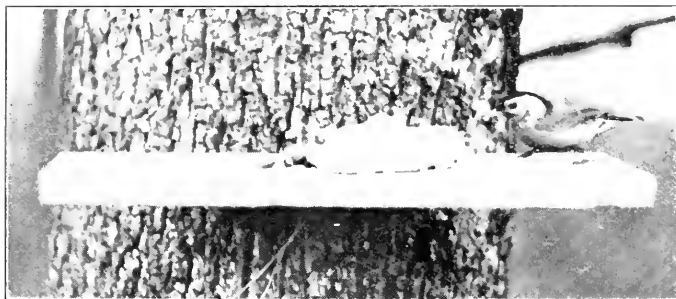
Fasten a piece of suet to a tree five feet above the ground, or make a lunch-counter shelf and attract the birds about your house.

Chickadees, Nuthatches, Downy Woodpeckers, Brown Creepers, Bluebirds, Starlings and perhaps Blue Jays and Robins will accept your hospitality and reward you by their tameness, confidence and cheerfulness.

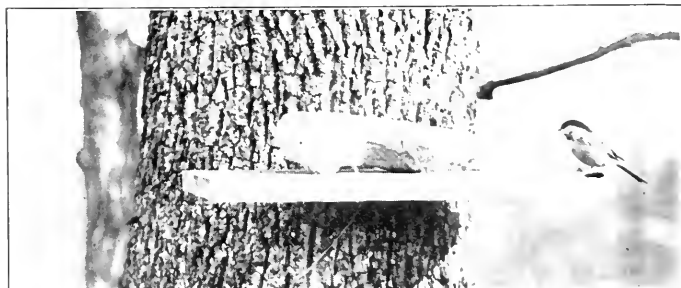
Bird seed, crumbs, sunflower seed scattered on bare ground will attract Song Sparrows, Juncos and a few other birds.

Help feed our winter visitors that some may be persuaded to build about your house in the spring.

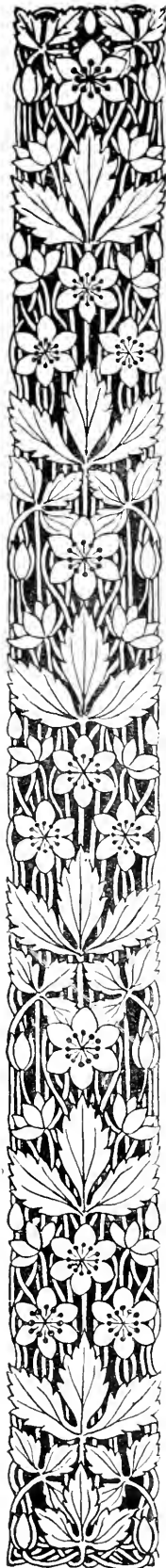
Self-appointed Guardian of our disappearing song birds.

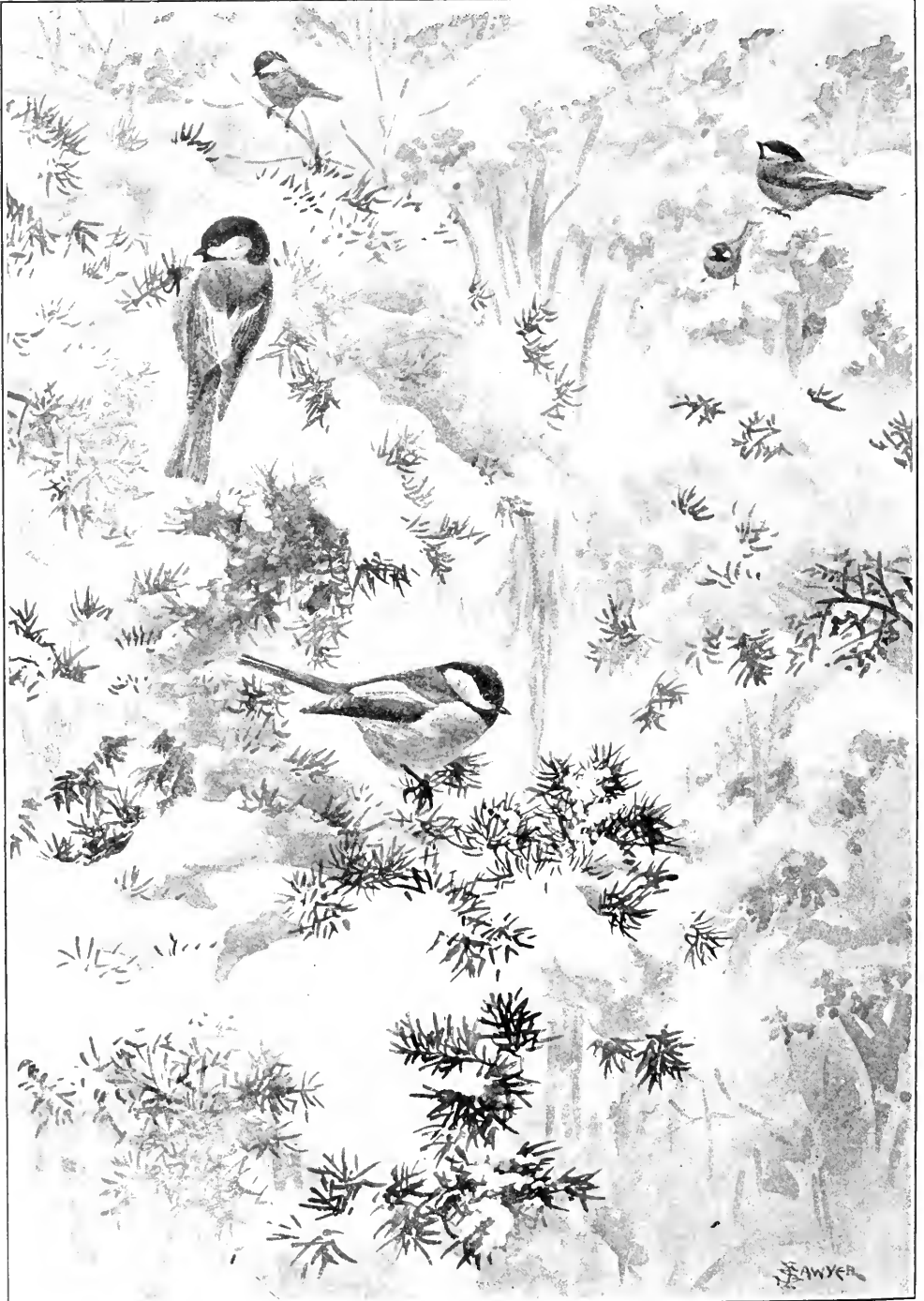


AN APPRECIATIVE WHITE BREASTED NUTHATCH.



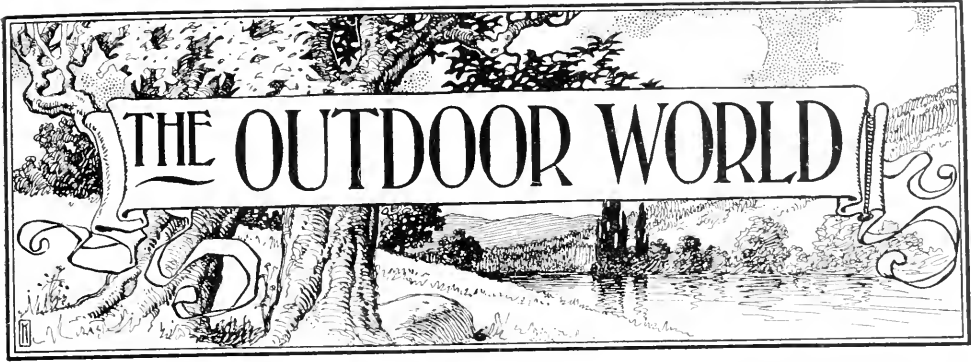
CHICKADEE AT LUNCH COUNTER.





THE CHICKADEES IN WINTER.





Volume V

FEBRUARY, 1913

Number 10

Chickadees in Winter.

BY EDMUND J. SAWYER, ADAMS,
NEW YORK.



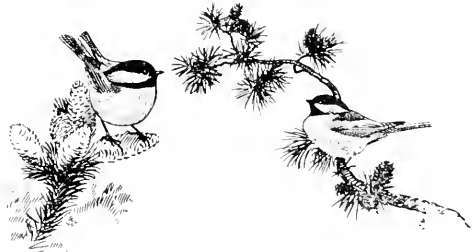
One of the mysteries of bird life is that, while many of the largest and apparently hardiest forms flee southward like swallows, on the approach of winter, the little chickadees that seem so frail remain through the coldest weather. The nature of a bird's food generally plays a more or less important part in its migrations.

But cold alone seems to daunt even the crows, whose broken ranks, beating a retreat at the first appearance of winter, are so characteristic of the season. It is probably because there are so few other birds present at that time to attract one's attention that the number of brave little titmice seem to be augmented with the increasing severity of the weather.

To be sure, the big and little black and white woodpeckers—hairy and downy—are still about; also fidgety nuthatches of the white-breasted species; shrinking little brown creepers (more gray than brown), and of course the ruffed grouse and an occasional owl. But they are few in number as they are in kind, and in his walks through the snowy woods one usually sees more chickadees than all other birds combined. A flock of siskins or goldfinches may be spied in some birch

top, while crossbills and pine grosbeaks are bare possibilities. Chickadee, however, will be on hand, never fear. Even if you do not find him he will find you.

From any clump of spruce or hemlock or pine, he is apt to fly saucily near, giving to his "dee-dees" a new tone and vigor that bring all the chickadees within hearing to see what he has found and, having seen, to add their own "dee-dees" to the alarm, while hopping among the twigs, tipping their puffy, black-capped heads for a more critical inspection. In a minute or two, each having had his look from front and back and both sides, and the small to-do having spent itself in a final protest of sharp "dee-dees," away they go as if word had been passed that the trouble was not worth the pains.



It is that saucy pose, with sidewise head and impudent glance, that captivates. Clinging, back downward, at the end of the twig is another of the bird's frequent poses, more characteristic still, but common to the siskin, goldfinch, redpolls and others, including many of the warblers, whose food like the chickadees's, must often be

secured in this way. "Pose," suggesting as it does the patience of an artist's model, is scarcely a happy word for this bird's momentary attitudes.

This relentlessness probably has not a little to do with the fact already mentioned, their greater apparent abun-



dance at this season than at others. Being "everywhere at once," a few chickadees in winter will seem to make a small wood populous with their numbers. It is but a poor stick of a wood, and certainly a forsaken and forbidding one, that can boast not even a single titmouse to relieve the monotony of its general bareness, the sighing of its hemlocks and pines, or the cold rattle of its skeleton branches.

Tameness in a bird or other animal may be pleasing, even when it is the result of training, but how delightful the entirely natural tameness of chickadees!

He is as bold in his way as any sparrow of the street, with none of the latter's fox-like guardedness and stealth. One of them, having just got into a trap-cage set for blue jays, called out his "dee-dee-dee," merry as you please, even while I was taking him out, and didn't he fall to eating the bait through the wire bottom of his late prison while, with one hand inside and only a foot from him, I was resetting it!



To my cabin in the woods they come many times daily, to eat from a piece of beef suet which I keep a few feet out from my south window. Soon

after they had found this food station, I walked quietly up to one of the feeding birds by way of experiment. Without once leaving the food, he continued to peck away, until finally I felt his bill touch my finger as it rested on the lump of meat. From the first they were not disturbed by my presence at the window, continuing their feast while I scraped the frost from the glass for a better look.

They will even fly to the window sash a few inches from my face, with evidence of having been stopped only by the glass from perching on my nose. I have really been forced to believe that they rather like to see me. They are always up and about before I am out in the morning, their insistent "dee-dee-dees" sounding like a summons.

Let no one imagine that this bird has only the notes which have earned him his name. Like many other birds, chickadee has his everyday, undertone whistle for general use. It is this that



we hear as he feeds along, or at dusk searches for a place in which to spend the night, apparently the sum of his usual winter activities. It indicates that there is a fair head of steam on and that all is well. To his messmates it probably says, "Hello?" or "words to that effect." The reply is the same as the query and so small talk goes on all day long. They seem like children reassuring one another on the dark stairs. Only, the chickadees' fears are well grounded enough, and many a time no doubt, one or the other of the little lisps drop out, apprising the rest of the company that a shrike or other highwayman of the wild is about. Probably, however, even the shrike seldom consummates his purpose before word of his presence has been passed; for the chickadee has a special alarm note, the effect of which I have often observed on his fellows. A prac-

ticed ear is at once aware of it, but, on paper, it is still only a peep or a chirp. He has yet another note, rather frequent, though less so than those already mentioned,—or rather a sort of musical couplet,—to hear which at this season is like finding a cluster of delicate little wild flowers growing in the snow. For, when once he starts, he is like to repeat the performance several times, as if it were a sudden and happy thought. Just so I have heard, and so have you, a woman pipe up and sing at her work, or a man whistle, and the work go with a will. I myself have done it many a time.

And then, toward spring, the weather moderating just a little, how sweet the first utterance of his nuptial song! What infinite tenderness (that is the proper word) in those two notes of his, and how full of springtime sentiment! After these few mild days the song crops out of him as spontaneously as grass out of April ground. Again those two notes, how full of his new message! And how human! Indeed, the manner of their delivery, occasional at first, half suppressed, perfectly non-committal, yet none the less telltale, and lastly the very notes themselves—their pitch, tone, key and all that—all are exactly those of a boy "smitten" for the first time, who whistles at a certain gate, scarcely knowing why, ready enough to turn and run should he hear but the creak of a latch! Every village street has its chickadee song.

Winter, with us, still lingers; but to a chickadee, always so heedless of snow and sleet, it must be as a thing of the past, and spring a verity, when he can voice such a sentiment in such a way.



The Nature Faker.

Sentimental Young Lady—Ah, professor, what would this old oak say if it could talk?

Professor—It would say, "I am an elm."—*Successful Farming.*

Boulder Split by Cherry Tree.

BY CHARLES E. BESSEY, LINCOLN, NEBR.

Forty-six years ago last June I saw by the roadside between Lansing, Michigan, and the Agricultural College, a large granite boulder, six to



PROFESSOR CHARLES E. BESSEY.

eight feet in diameter with a little wild cherry tree (*Prunus scrotina*) growing from a small crack in its upper surface. It was only a foot or two high, and not more than a third of an inch in diameter, and the crack in the boulder was not over a half an inch wide, and it did not extend through it. From time to time I saw this tree, and watched its increase in diameter, and with its growth the widening of the crack. Gradually the crack extended downward and finally split the great boulder in two, and after that the young tree had no further trouble. It is now a sturdy tree about a foot in diameter, and twenty to thirty feet in height. It has been known for many years as an interesting curiosity, and thousands of college students look upon it as one of the notable college landmarks. A few years ago when a dealer painted his advertisement on the boulder the college boys promptly

erased it the first night afterwards, and this they did again when the obnoxious advertisement was repeated. A little later the college authorities



THE BOULDER SPLIT BY A CHERRY TREE. Cut by courtesy of "The M. A. C. Record," East Lansing, Michigan.

took a hand in the matter and the stone has not been molested since either by advertisers or righteously indignant students.

Nature and a Sanitarium.

BY A JAPANESE REST CURER, M. HONDA,
NEW YORK CITY.

A sanitarium is really an ideal place for observing and studying nature, especially in the warmer months of the year, for its inmates, usually amid country surroundings, are required to relax as far as possible from all human worries and vexations. More than this they themselves are obliged to live a life of nature, spending the day time in the woods or perhaps in hammocks like some insects, and sleeping in the moving air under a glass roof and behind screened windows like vegetables or flowers, while at night they can count the stars of the heavens, gaze at a bright moon, listen to the frogs, the katydids and the crickets, or watch the mosquitoes hungrily eyeing the humans from outside the screen, with their mouths watering as it were. Resting both mind and body to the full extent it is not wise even to consider one's fellow inmates seriously as fellow

beings, for then they are sure to arouse sympathetic joys and sorrows in one's heart. To a rest-curer, men and women are mere impersonal parts of nature, a kind of vegetation the human is taught to be.

I came to Wildwood Sanitarium on the outskirts of Hartford, Conn., in the last days of apple blossoms. I saw the corn planted and reaped; I picked wild strawberries, blackberries, and chestnuts and gathered the last apples of the season from the grass covered, bedewed ground, and saw jonquil and crocus bulbs, planted.

Close by is a woodland with corn fields and pastures and vegetable patches round about. The forest, separated from the Sanitarium by spacious lawns and farm land, presents a series of Turner-like landscapes set in the frames of the long rectangular windows. Beyond a dale in one direction, the sight of Cedar Hill Cemetery where J. P. Morgan's family vault occupies a prominent position, feeds the esthetic eye as well as the philosophical mind.

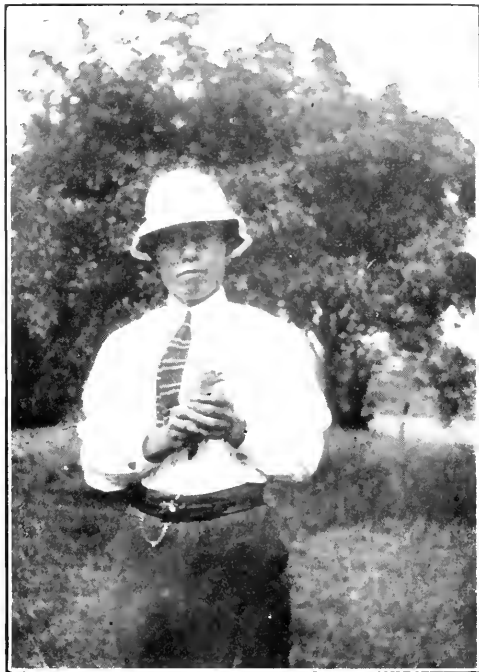
In the matron of the institution, we find a rare combination of a gracious hostess or a liberal landlady, an instructor in hygienic living, and a sympathetic friend of selfish and unreasonable patients, for physical ills make one more or less egotistic and unbalanced. Miss Kernan besides being an excellent nurse and a capable business manager, is particularly fitted to the position she occupies from the fact that she loves nature and unconsciously imparts that love to others. Her garden is a wonder land, for she seems to charm the flowers out of the ground. The rooms are ever fragrant poises; patients are soothed with dainty gifts and those who are well enough are permitted to learn the mysteries of her art—a refinement of nature study. Through her I learned to watch the growth of that waxy white Indian pipe, to keep spotted winter green in a small jar, and enjoy its tiny fragrant blossoms, or to plant partridge or twin berries in fine moss and put them in glass bowls as our cheery companions in frosty and snowy months.

Early in the spring Miss Kernan had noticed a bird build its nest in a low bush near her miniature green-

house, and late in May after I came to the place we heard young woodpeckers peeping in the dense foliage. But one morning in June we were surprised and pained to find feathers of the parent bird scattered on the ground near the nest. Naturally we concluded that the poor mother bird had been eaten by a cat, and the thought of the little ones apparently doomed to starvation made their cry heartrending. Pushing aside thick poison ivy, the nest was located hidden in the trunk of a dead tree. The wood was cut away and behold, four young woodpeckers were rescued and made as comfortable as possible in a small basket. But they refused the milk and bread we offered them and our attendant physician Dr. Bartlett, good amateur ornithologist as he is, could not enlighten us as to how to feed them. For a day or two we were in despair, and then we noticed a grown-up woodpecker perching on top of the bush screaming piteously as if missing the little ones. The basket was put on a branch and soon we had the great satisfaction of hearing the joyous noise of their being supplied with proper food. Day by day I watched with fascination the progress of the youngsters, but one afternoon I was again startled to hear the same piteous cry of the foster-parent proceeding from the top of the same bush. Did the wicked feline devour all my pets? I hastened to the spot and found the basket overturned on the ground. To my immense relief three of them were still under the basket while one was hopping away in the thick grass. They were safely restored to their former abode although the old bird did not recognize this for some time. It flew excitedly from one tree to another continuing its pathetic appeal, until I wished I might have caught it and showed it how to cut short its sorrows.

After fully half an hour of this tragic scene, the woodpecker tentatively approached the bush three times before its plaintive tones turned to the indescribably happy ones in the recovery of the lost children. Two weeks later I found one of the rising generation gone and in the afternoon of the same day the others followed: In the ensuing days I saw them learning to fly from one apple tree to another, and once

I found and caught one of them resting its wings in the grass, which caused a protest of alarm and anxiety from the teacher bird. But who was this teacher bird after all? Could it be the father of the little ones? If so, we humans are wrong in concluding that only the mother could rear her babes. If it were a maternal aunt, we ought



M. HONDA.

The illustration also shows the bush and one of the young birds mentioned in his article.

to learn from nature a good lesson in family instinct and sentiment!

Late in the summer my attention was called to a strange insect apparently boring through the bark of a dead hickory tree, at a point about a foot above the ground. It had a long slender body, resembling a wasp, from the middle of which projected a needle reaching beyond the tail and sheathed in two pieces of horn-like covers. When in use this needle is held at right angles to the body and is driven with great muscular exertion to the extent of almost an inch. We found another of these insects quite dead on the same tree, with its needle firmly planted in the bark, and again from the fact that the first one was engaged in the same labor on another part of the tree, when we looked for it a few hours later,

we could safely infer that only one egg is laid to a hole, and that as soon as this final labor of procreation is over the insect immediately dies. Through a specialist at Clark University in Mass., I learned that its name was pigeon-tremex—and then in a book suggested by him it is described as belonging to the genus commonly called horn tails. But why it is a pigeon or *coluuba* I have yet to learn. For a long time I have been wondering why egg plant was so called, and only this summer while I visited the county fair in Hartford, I discovered one exactly of the shape, size and color of a hen's egg. In a similar way it took years before I found out why grape fruit and pineapples were so named.

In the sanitarium we are not permitted to keep singing pets for they might disturb the patients in the prescribed quiet hour after the midday meal, so one day I bought half a dozen small gold fish which I kept in a glass globe. It became my duty and pleasure every morning to change the water and to give them a pinch of specially prepared food. For about three weeks nothing happened to them until one warm day I found it necessary to post the following notice in the hall where all patients resort at one time or another.

Ladies and Friends:

It is my sorrowful duty to announce to you that one of my pets, that silvery beauty of a gold fish died yesterday of acute congestion of the brain, caused by my criminal carelessness in leaving the glass bowl in the hot sun the whole morning. Please do not blame me severely for my heart is almost broken. My only solace, however, is the fact that the poor dear passed away peacefully without apparent suffering, after a few feeble attempts at balancing itself in the water. The remains lay in state in the slop bucket of my room until this morning, when they were tenderly buried in the waste can of the men's dining room. I shall observe the customary mourning for three days, by refraining from social occasions where fish stories are likely to be told.

(Signed)

A few days later I was told by a Japanese friend who came to see me that an entire change of water was injurious to their health and would often result in loss of scales; that the water should be changed gradually, or else a pitcherful kept in the same room so that the old and new might always be of the same temperature. It had been my original intention to watch all my goldfish carefully and christen them each according to their moral or intellectual peculiarities, for they must have individualities no less marked than we humans!

So far, however, I had no time sufficient for completing this observation, though I have no doubt this will insure hours of close attention which will carry me far beyond the reach of worldly cares and worries. Another source of harmless pleasure for me was to take snapshot pictures of cows and calves in the pasture, of ducks and rabbits, of pigs and turkeys on the farm, of a snake in the midst of swallowing a toad, and of dogs and chickens of rare or ordinary varieties.

But of keener interest to me was the making of mental sketches of my fellow patients and sanitarium workers, for they formed a true microcosmos of at least a miniature of the United States of America in the process of her nation building, representing as they did more than a dozen racial or national origins, gathered here in a community of about sixty people. But I will not narrate my story along this line for fear my good friends might be offended were I to include them in my nature study! Suffice it to conclude here with a point in real natural history of ourselves. We often speak about "every drop of blood" in our veins—but how many drops of it do we actually carry in our bodies? Our medical authority Dr. Bartlett already referred to, kindly and patiently figured out for me that approximately one-thirteenth of the weight of the whole body is blood, that there are about eight pounds or pints of blood in a person weighing 105 pounds, that eight pints is equal to 128 ounces, and that there being 480 drops to an ounce, that person would have 61,440 drops of blood.

THE HEAVENS IN MARCH

The Heavens in March.

BY PROF. ERIC DOLITTLE OF THE UNIVERSITY OF PENNSYLVANIA.

This is the last month of the year in which the brilliant winter constellations may all be seen in the early evening sky. Already these bright groups have, with one exception, all reached

months has passed through the highest point of the evening heavens, now begins its slow declension toward the west, and in one month more will lie so closely along the western horizon that it can only be observed with difficulty.

Meanwhile the extreme western end of the very large, faint constellation

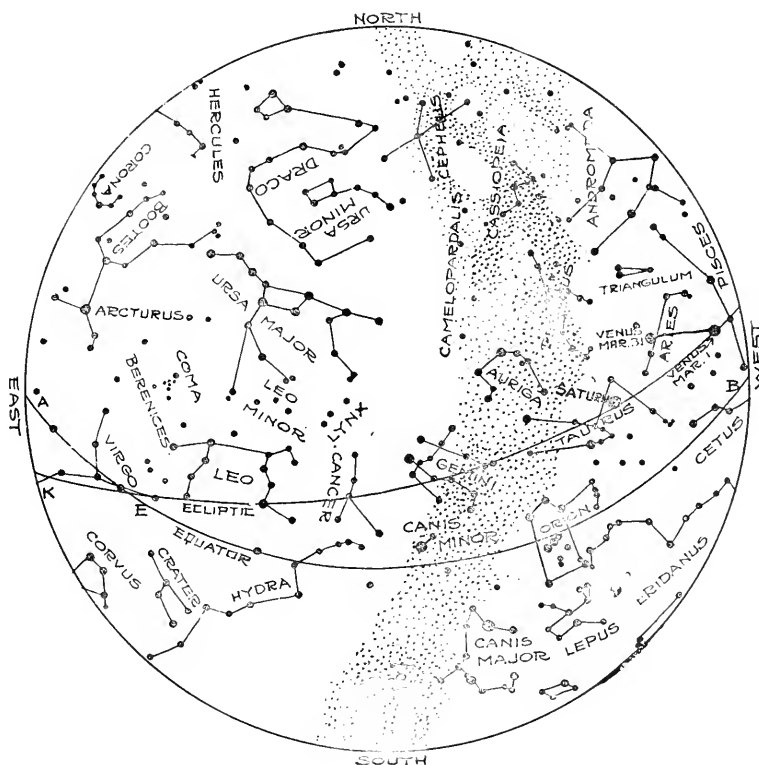


Figure 1.—The Constellations, March 1, 9 P. M.

(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 western part of the heavens, and as April approaches the great Taurus, the leader of the winter train of constellations, will have drawn so near the sun that it will be seen beginning to sink below the ground in the early evening. The wonderful winter branch of the Milky Way, which for so many

of the Virgin—the leader of the summer groups of stars—has pushed its way well into the evening sky in the east, while above this may be seen the very beautiful golden-yellow star, Arcturus, which as the months go by will remain one of the most conspicuous of our summer stars, reaching

its highest position in the southern heavens early in June.

This wonderful star is one of the most remarkable objects in the great cloud of stars around us. Its great brilliance does not arise from its near-

stars are many remarkable though faint nebulas and which is remarkable also for the large number of double stars of contrasting colors which it contains. To the Arabians this faintly shining area of the sky was the Pond, into

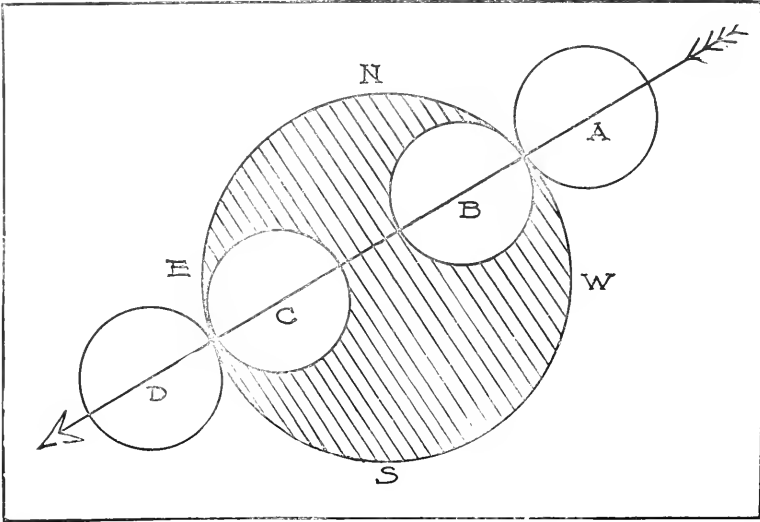


Figure 2.— Passage of the moon through the earth's shadow on the morning of March 22.

ness to us; in fact, it is so very far away that its distance cannot be directly measured by any instrument which we at present possess, and it is therefore evident that its intrinsic light and heat must be many thousands of times as great as those of our own sun. And yet, in spite of its inconceivably great distance away from us, this great sun is rushing along through the depths of space with such remarkable speed that in only a very few years its change of position upon the celestial sphere can easily be observed, even in a very small telescope. This drift of Arcturus among the stars is so great that in only 800 years its position is changed an amount as great as the apparent distance across the full moon. But very few even of the stars nearest to us have an apparent motion so large as this, and when the great distance away of Arcturus is considered, it is evident that so great a displacement must arise from a real motion of hundreds of miles a second.

Between Arcturus and the Lion there is the delicate little group known as Coma Berenices, among whose faint

which their Gazelle was springing to escape from the Lion, the group of stars called by them the Gazelle being those faint stars lying between the Great Bear and Leo, and known to us as the Lesser Lion.

This continual change in the face of the heavens, the constellations seeming to draw ever westward toward the sun, is due in reality to the fact that as seen from our moving earth the sun appears to pass steadily across the sky, completing the circuit in exactly one year. During the coming months, the center of the sun will move along the path VEK of Figure 1, reaching its greatest distance above the celestial equator while in the constellation Gemini on June 21 and crossing to below the equator at the point E on September 23. The sun in its eastward motion has now nearly reached the point of the heavens which is exactly opposite to E; this is the point occupied by the center of the sun as it crosses the equator in passing from the southern to the northern hemisphere. The sun will reach this point at 18 minutes past midnight on March 21 (Eastern standard

time); this night and the following day will hence be of equal lengths, and at this instant winter will end and spring will begin.

The Total Eclipse of the Moon.

Six hours after the sun has passed the Vernal Equinox the moon will enter the earth's shadow and a total eclipse of our satellite will begin. As may be seen from Figure 2, the moon will pass through almost the center of the earth's great shadow cone; the eclipse will therefore not only be a total one, but it will last an unusually long time. The moon will reach the point A and the eclipse begin on March 22 at 5 hours 13 minutes A. M.; it will reach the point B and the eclipse become total at 6 hours 11 minutes A. M.; it will reach the position C and begin to emerge from the shadow at 7 hours 44 minutes A. M.; and it will finally wholly emerge from the shadow and the eclipse will end at 8 hours 43 minutes A. M. (Eastern standard time). The eclipse will therefore last no less than three and one-half hours, the moon remaining wholly within the shadow for 1 hour and 33 minutes.

Observers in the Eastern States will thus see the eclipse begin in the early morning when the full moon has sunk

more of the eclipse will be visible to him. Those who are on the Pacific coast will be able to watch the entire phenomenon from its beginning to the end of totality.

The Planets in March

The planet Mercury will reach its greatest distance east of the sun on the afternoon of March 11. For a few evenings before and after this date it may be seen shining low in the twilight glow, almost exactly above the west point of the horizon, for somewhat more than one hour after sunset.

The beautiful planet Venus still shines with great brilliance in the western heavens and although it is now drawing continually nearer the sun it is still by far the most conspicuous object in the sky. During the month it will move eastward among the stars, almost entirely across the constellation of Aries; on April 3 its eastward motion will cease and it will then begin to move rapidly westward again. At this time this bright, silvery planet, with the Hyades and Pleiades shining in the sky to the left of it, will make a beautiful and striking figure in the western heavens.

Venus will attain its greatest bright-

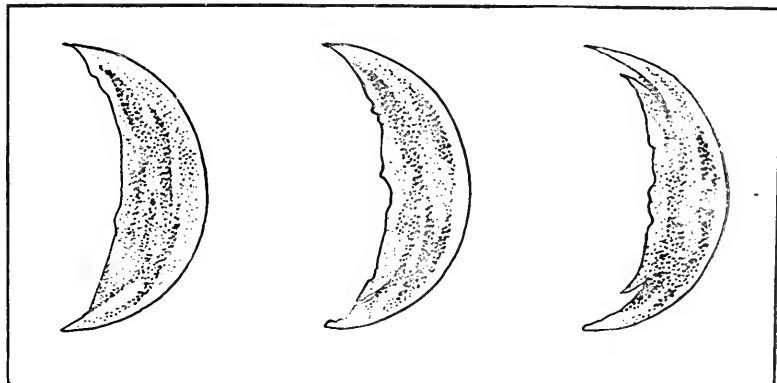


Figure 3.—Drawings of Venus when in its present position. The irregularity of the line dividing the day side from the night side of the planet is clearly seen. This is probably a twilight effect.

low toward the western horizon. Our satellite will unfortunately have set to them before the moon is wholly hidden, and therefore the greater part of the eclipse will be invisible to them. But while the moon is setting to the eastern observers it will still be high in the early morning sky to those in the western parts of our country, and so the farther west the observer is situated the

ness on March 19, at which time it will shine with 21 times the brightness of a first magnitude star. The observer should not fail to examine this beautiful object from time to time with a small telescope during the present month and for the first two weeks in April. He will see how, as it draws nearer the earth, it seems to grow steadily larger, and how as its sunlit

side becomes turned more and more away from us its apparent shape becomes that of an ever-narrowing, brilliant crescent. Throughout the early part of April it is the night side of the planet which is turned almost directly toward us. This dark portion has been seen at times to be very faintly illuminated from some source originating in the atmosphere of the planet itself and which is very probably an electrical display more or less closely resembling our own Aurora Borealis. Venus will pass to the west of the sun and become a morning star on the morning of April 24.

The planet Saturn is now moving slowly eastward in Taurus, nearly midway between the Hyades and Pleiades. The rings are very widely opened out, and this whole wonderful system is still excellently situated for observation.

Jupiter and Mars are still in the

morning sky, the former rising about three hours and the latter about two hours before sunrise. It will be many months before these objects will be seen in our evening heavens.

The remarkable variable star, Mira, which lies in the constellation of the Whale, will reach its greatest brightness this year on April 12. At this time it is expected that this usually very faint star will shine out with a somewhat greater brightness than that of Polaris. Unfortunately, during April the sun will be so near this part of the sky that the variable can hardly be observed. During March, however, it may be seen in the southwest for more than two hours after sunset, and the observer who is familiar with its usual appearance cannot fail to be struck by its sudden and wonderful increase in brightness.



THOUGH NOT
THE DOG STAR,
I AM A "STAR"
DOG.

And this is a remarkable "star" photograph of a startled expression.

Cut by courtesy of
"Our Dumb Animals," Boston.

THE CAMERA



How to Use a Camera in the Study of Nature.

BY THE REVEREND J. I. WILLIAMS, DENVER COLORADO.

In order to do satisfactory work with a camera in the study of nature, it is necessary that one's instrument have certain adjustments not always found



PRAYING MANTIS OR DEVIL'S RIDING HORSE. Note the praying attitude of his front legs. He assumes this position whenever disturbed.

on the ordinary hand camera. These adjustments are: a long bellows, at least a little more than double the focal length of the lens; a rapid rectilinear lens set in an easy shutter operated by bulb and hose; and ground glass for focusing. Rising and falling front and swing back usually go with such an instrument, and are valuable aids, but not necessities. A metal tripod with tilting head will be found indispensable for photographing small objects on the ground, as it is about the only convenient device for lowering the camera to within a few inches of the earth. If one can buy an anastigmat lens and a back focusing instrument so much are

better, but excellent work can be done with an ordinary amateur outfit costing twenty dollars or even less. For the present article, we shall assume that the reader is supplied with a 4x5 outfit of about this grade or better. A cheaper outfit will be of little use in this kind of work.

The manipulation of the camera in nature work is governed by the same principles that hold in every field of photography. The objects however are different, and owing to their liability to move, the certainty of good results is greatly diminished. An animal is sure to move, and the wind almost certain to stir the leaves just as the shutter is opened. The result is a blurred and useless negative. For our first picture, let us choose a rigid plant like a mushroom, so that the results may not be endangered by movements. A small mushroom will also make a good



YUCCA GLAUCA.

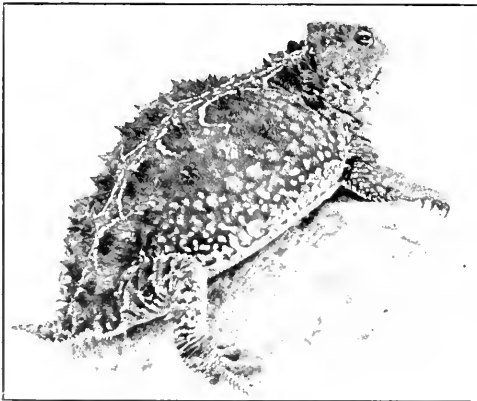
The sacred weed of the Indians, used in their religious ceremonies.



BEARD-TONGUE.

A very beautiful and persistent flower that grows abundantly along the dry ravines in the Rocky Mountain deserts.

life size picture on our 4 x 5 plate. We now set up our instrument, and as the picture is to be life size, we measure so that the distance from the ground glass to the middle of the mushroom is just four times the focal length of the lens. Thus, if the focal length is six inches, which it usually is in a 4 x 5



A HORNED TOAD.

camera, then the distance from the ground glass to the mushroom should be twenty-four inches. Since our object is small and near the ground, only the upper joints of the tripod can be

used, and even then we shall probably need to tip the camera a little on the tilting head, to bring the image on the ground glass. After the camera has been set firmly, run out the front until it is about midway between the ground glass and the object, and focus on the ground glass. The focusing must be very accurately done, because all lenses used at this distance from the things to be photographed, have little depth of focus. Focus neither on the nearer nor on the farther parts, but about half-way between, otherwise some part of the finished picture will be out of focus. Be careful as we may on this point, some part of our image will be blurred unless the whole object lies near the same plane. This difficulty is overcome to a great degree by the use of smaller stops. Of course the length of exposure is greatly increased, as well as the danger of losing plates and films from motion. But one must choose between the loss of a few plates with some clear pictures, and having all the pictures fuzzy. For all my work I prefer to use stop 128, giving full time, and running the risk of a little waste.

The light should be neither behind nor in front of the camera, but at the

side. The more diffused the light the softer will be the shadows in the picture. Early morning is especially favorable for nature pictures, both because of the even diffusion of light, and the stillness of the air. Still, cloudy days are favorable. A high table or shelf on the shady side of the house will be found convenient for those things that are not to be taken in their natural habitat.

Even with the smallest stop, most of the background will be seen to be out of focus on the ground glass. To leave it in will detract from the beauty of the picture. To cut it out is to hide some of the natural environment. An artificial background in color contrast with the object, will shut off the unsightly blur, and also aid in giving sharp detail to the picture. Dark objects, yellow, green and red, are brought out best on a light ground, and light objects by dark ground. A piece of sheeting rolled on a round stick makes a serviceable and convenient background. A sheet of brown paper rolled with it may be used for light colored objects.

To find the proper length of exposure is probably the most difficult task for beginners in photography. The task is doubly difficult here, because when the bellows is extended so far, the time is greatly increased. A rule that will be found sufficiently accurate for most cases, is to determine from one's head or from a table the approximate time for an ordinary landscape under similar light conditions, and multiply this time by from two to six according to the color of the objects. Double will be found about right for light colored objects. Six times will not be found too much when dark colors prevail in



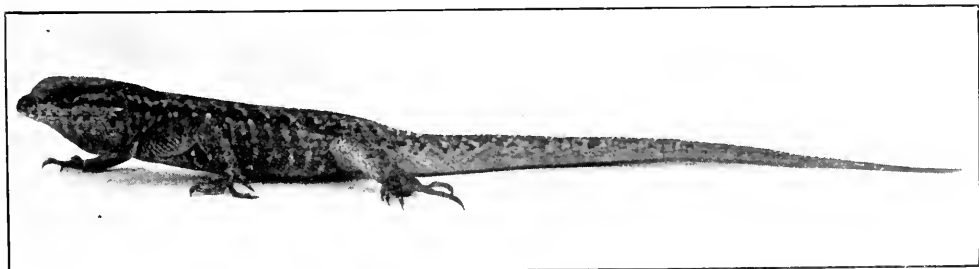
A COMMON GRASSHOPPER.

This specimen had to be tied to prevent his escape. He was first allowed to fly until tired, after which he posed readily.

the main part of the picture. Always beware of under- and over-exposures. Get the time as nearly accurate as is possible, and use your watch for timing. Never guess at time.

The development of the plate and the printing of the picture must be left largely to the taste of each worker. The best developer and paper are those that you can work best. They are all fine when they are properly understood and handled.

So far, I have spoken only of life-size work and how to obtain it. Larger objects of course cannot be photographed life-size, but it will not be difficult, after a little practice, to adjust the instrument so that the image will cover the right proportion of the plate. The instrument is to be set further



A LIZARD OF THE WESTERN PLATEAUS—COMMONLY CALLED A SWIFT.

A shy and nervous poser that had to be stupefied by cold before it would consent to have its picture taken.



A NIGHT-BLOOMING CEREUS.

from the object than in life-size work, and the bellows will not need to be extended so far. The depth of focus will increase very rapidly as the distance from camera to the object increases. This will overcome the fuzziness of the natural background, and do away with the necessity of an artificial background. The problem to be solved in photographing larger things is the determination of the relative size of the object and the picture. This may be ascertained by the law of similar triangles. Divide the distance from the ground glass to the lens by the distance from the lens to the object, and the fraction will represent comparative size. Thus, if it is ninety-six inches from the lens to the object, and eight inches from the ground glass to the lens, the image on the ground glass will be one-twelfth as high as the object itself. I do not advocate the taking of pictures larger than life-size with the ordinary outfit, as it requires a very long bellows, and the depth of focus of the lens is so little that some of the image is likely to be blurred. Besides this, enlarging has become simple, and will produce results just about as good as direct photography. I think the best

plan, when dealing with small objects, is to make the negative as large as possible to have every part clear, and then enlarge from that negative to the size desired, either by a Brownie enlarger or a projection instrument, as one may prefer.

The Night Blooming Cereus.

South Glens Falls, New York.
To the Editor:

In the December issue of *THE GUIDE TO NATURE* I saw a half-tone picture of a single flower of a night-blooming cereus which I consider a rare treat to flower-lovers, as I presume all know that these beautiful flowers remain open and live for only a short time after blooming.

As you published a single flower, I am enclosing a photograph of a night-blooming cereus with three blossoms on it. I took the picture with a rapid rectilinear lens at $F. 8$ opening and used an Eastman No. 2 flash powder in making the exposure.

I placed the camera about three and one-half feet from the flowers, and held the flash about three feet from one side of the camera when making the exposure. I developed the negative in

the Eastman plate tank with a twenty minute developer, made the negative on a Cramer crown plate which is as fast as a Seed 30, and the print on professional soft Cyko paper, glossy finish. I dropped the lace curtains behind the plant before making the exposure, which, in my estimation, gives the picture a pleasing background.

I trust that this information about photographing flowers may be helpful to some of your readers.

Very truly your,

HARRY F. BLANCHARD.

Mr. Blanchard desires to correspond with any of our photographers who have photographs to sell—especially of odd things or life in the country.—
Ed.

The Treasures of the Snow.

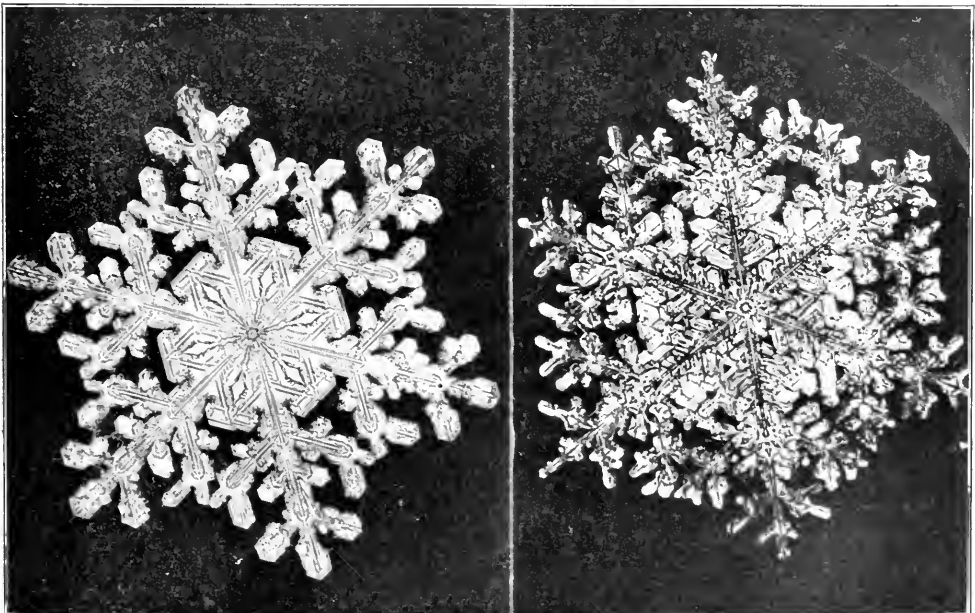
BY THE REVEREND MANLEY B. TOWNSEND,
NASHUA, NEW HAMPSHIRE.

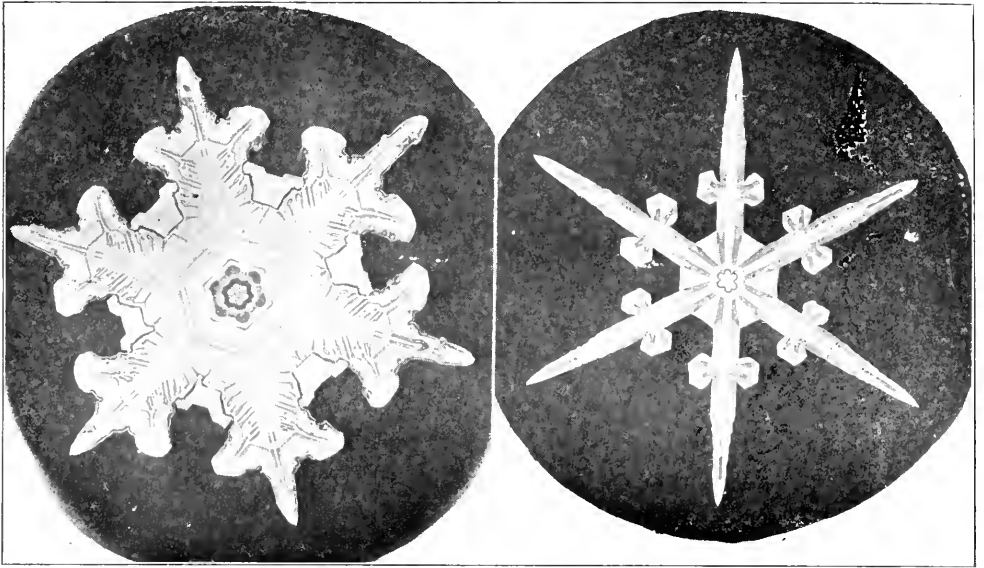
In the book of Job occurs the query, "Hast thou entered into the treasures of the snow?" The treasures of the snow! What riches of hidden treasure can be revealed to us by the cold, white frozen vapor that we call snow? The author of Job found beauty, poetry and lessons of transcendent value in the snow. He was right. Even in so common a thing as the snow on the

ground we may find marvels to excite our keenest admiration, and lessons to incite us to high and noble reflections.

Did you ever examine a flake of snow under a microscope? What a revelation of beauty! What a marvel of symmetry and grace! Not every flake will be suitable for the purpose, for the greater number become damaged in their fall. But there are always plenty left, some of them marvelously perfect. Perhaps your most wonderful discovery will be that no two snowflakes are exactly alike. They present an infinite variety of geometrical designs, always hexagonal in form. Always they have six sides in the tabular forms and six points in all others. What a marvel! Always hexagonal in form, yet no two ever alike! Evidently there is here at work some constant law that we do not understand, a law that gives eternal unity in endless variety.

Tyndall called snowflakes "frost-flowers." In fact, a study of snow crystals is a direct road to fairyland. To such a student a winter storm is no gloomy thing to be dreaded, but a source of inspiration and joy. Even a blizzard becomes a source of keenest enjoyment, for it brings to him from the surging ocean of clouds, forms that thrill his eager soul with pleasure. It



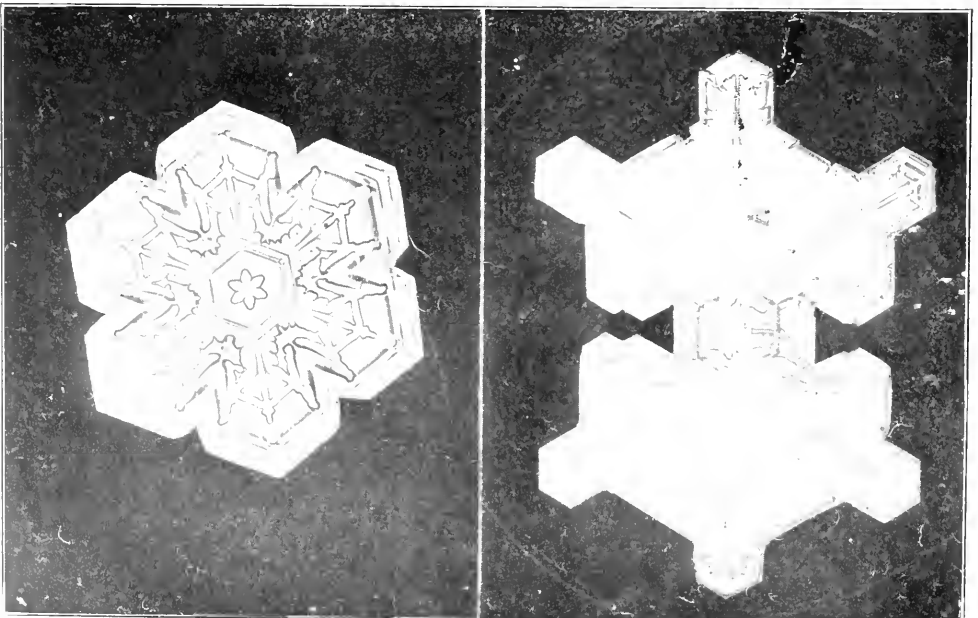


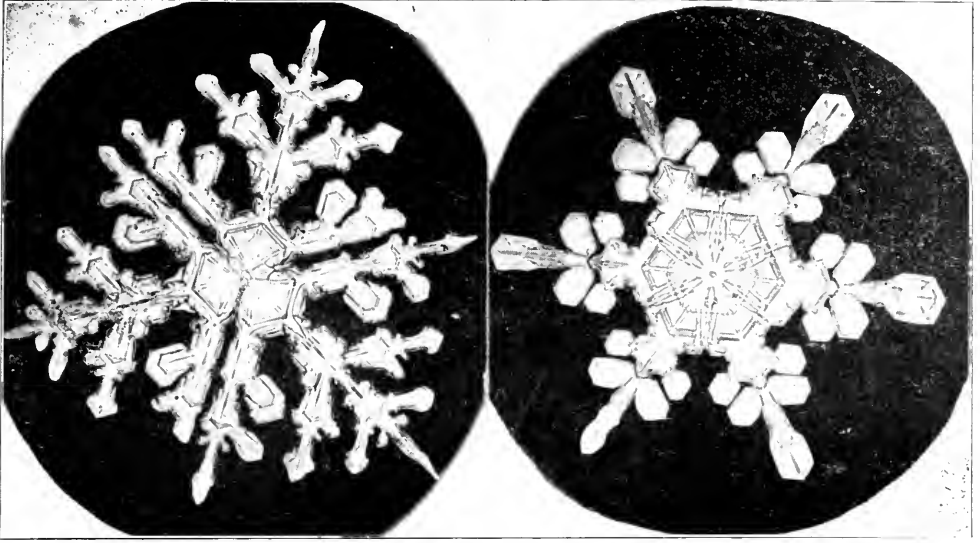
leads him to "the treasures of the snow."

Can we not perceive the spiritual significance of even the tiniest snowflake? Matchless in beauty, perfect in workmanship, does it not speak to the soul of the matchless beauty of Him that made it? Does it not prefigure the perfection of Him that planned its design and gave it its beauty? That

snowflake is God's snowflake, fresh from his workshop. Behind it you may perceive the dim outlines of the Great Designer, the Almighty Artificer. Your soul is deeply stirred. You have found God, led to Him by one of His beautiful creations. *Per naturam ad Deum.*

Thus should nature speak to us, in every drop of dew, in every springing





blade of grass, in every opening flower, in every shining star, in every falling snowflake. Listen to her and she will sing to you a wonderful song. She will tell

you many a marvelous tale. And every song she will close with the rapturous refrain, "The hand that made us is divine."

These photographs of snow crystals are by Wilson A. Bentley, Jericho, Vermont.



A GOOD STUDY OF POMERANIAN DOGS.

Cut by courtesy of Mrs. Williamson. Name of photographer unknown. If he will write, credit will be given.



IN THE WINTER WOODS.

Photographic Study of a Yoke of Oxen.
New York City.

To the Editor:

I am enclosing a photograph taken in November at Adams Corners, Putnam County, New York.

Yours truly,

CHARLES HENRY LEVY.

This is a well-balanced photograph of the natural pose of the oxen in a picturesque path in the woods. Possibly it would have been improved if the driver's attention had not been so firmly fixed on the camera, but in other respects it is a good study of a fine and interesting yoke of oxen. Twenty-five years ago oxen at work were common in all parts of New England, but now they are becoming so rare that they are a curiosity.—*Ed.*

Elon and Metol.

I recollect that when I first heard these two terms they were a little puzzling. I found the formulæ gave Elon or Metol and naturally the question arose whether Elon and Metol are two chemicals or one chemical with two names. If two, I wondered which should be preferred and in what they differed. Strange to say, neither word is given in the dictionaries, and neither is mentioned in Murphy's catalogue of chemicals, but I there find Enol. An-

other point arose that seemed not clear. Several of the little dark room hand-books referred vaguely and somewhat mysteriously to the poisonous qualities of Metol, stating that it is disagreeable and troublesome to some people. I remember that soon after obtaining my first bottle of Metol, I inquired of a local photographer as to its poisonous qualities. He evidently had no desire to encourage developing for one's self, for he shook his head ominously, and told me of a certain man of his acquaintance who had had both hands terribly swollen, and had then discontinued the use of the chemical. Lowering his voice to tones of deep mystery, he said, "The strange thing is that just one year from that date, and two years from that date, though he had not been using the chemical, the swelling came back." So you see, my reader, myths may originate in the present day. We cannot lay that superstition about Metol to the ancients because, alas, the ancients knew nothing about Metol, unless in the rush of modern things we count a few years ago as ancient.

But Metol is a good chemical and it is not dangerous. It is simply a little annoying to perhaps one person in five thousand. Rubber tips on the fingers will prevent the trouble. A letter of

inquiry to the Eastman Kodak Company brings the following:

January 7th, 1913.

Mr. Edward F. Bigelow,
Sound Beach, Conn.

Dear Sir:

Elon, a chemical which we refer to in various printed matter, and in connection with formulae, is one of our own products, that, chemically speaking is identical with Metol, and if used in the same proportion and manner will produce the same photographic results. This is a coined name the same as Metol and is used for trade purposes only. This, no doubt, accounts for the fact that you were unable to find it in any of the standard dictionaries. Eñol which you refer to as having been noted in Murphy's catalogue, is the name that we formerly used for this chemical, but were compelled to change it on account of trade-mark complications.

Pyro which you inquire about, is conceded to be the best developer for plates and films that is at present marketed. Probably 75 per cent. or more of the professional photographers of the country use it exclusively for

this purpose, and while it has some staining qualities, if one exercises care and does not use a solution that has stood for some time, it very seldom follows that the resulting stain is so bad that it cannot be readily removed.

Elon, Metol and other coal tar preparations of like nature, for some reason that no one seems to be sure of, affects some users, producing an irritated condition of the fingers; others are immune. We know of photographers that have used Elon or Metol practically for the better part of their life without having suffered any ill effects from it. On the other hand, some people become poisoned by simply using 4 ozs. of solution containing this chemical for the making of a few prints. It is not a serious proposition at all, and of course the poison disappears shortly after the use of the chemical is discontinued. A great many photographers get around this feature by using rubber gloves or finger tips. From the above you will note that it is not possible for us to state plainly as to what extent Metol is poisonous or why it is poisonous.

Yours very truly,

EASTMAN KODAK CO.



A GOOD PHOTOGRAPH, BUT THE NAME OF THE PHOTOGRAPHER IS UNKNOWN TO US.

The photograph bears no name and has become separated from the correspondence.



THE MOOSE BIRD OR CAMP ROBBER.

Photographic Winter Studies of Birds.
Elk City, Idaho.

To the Editor:

As a suggestion to your readers that the camera should not be laid aside even for bird studies in the winter, I am sending to you a photograph of a Canada spruce grouse taken at a distance of only six feet from the camera. The grouse is called fool hen in this country, and deserves its name, be-

cause it is so indifferent to the approach of man, yet it seems well able to take care of itself, as its numbers do not diminish.

Another study that I am enclosing is a good character pose of a Clarke's nutcracker, taken with a long focus 5 x 7 at a distance of ten feet; time one-twenty-fifth second, bright sunlight, stop U. S. 8. The Clarke's nutcracker is variously called moose bird, camp robber, etc., and is a native of the entire Rocky Mountain section, frequenting the high snow regions, and living on insects, meat and small nuts.

Yours very truly,

E. V. BARGAMIN.

Where the Snow Packs are Deep.

Rutland, Vermont.

To the Editor:

The accompanying photograph is of a snow pack at the end of a glacier, and though small, it shows, to a certain extent, the amount of snow that falls in this locality.

Where this picture was taken the average fall of several hundred feet during the snow season was augmented by the amount which is being continually pushed from the mountain tops. The crevices in these packs are made by divides in the mountains, and vary from fifty to a hundred feet in width. A camera in this region is cumbersome, hence photographs of this type are not common.

Your very truly,

FRANKLYN WADE.



THE CANADA SPRUCE GROUSE.



A SNOW PACK AT THE END OF A GLACIER.

Photographs That Show Coldness.

Kane, Pennsylvania.

To the Editor:

I am sending you two photographs which represent typical winter scenes at one of the highest points, 2,260 feet, in the Alleghenys. The one showing the rustic bridge is a view in our Evergreen Park, which has been left much as nature made it. The other, showing the road, is of an old, little used passage way through a belt of virgin forest, and extends, with an average width



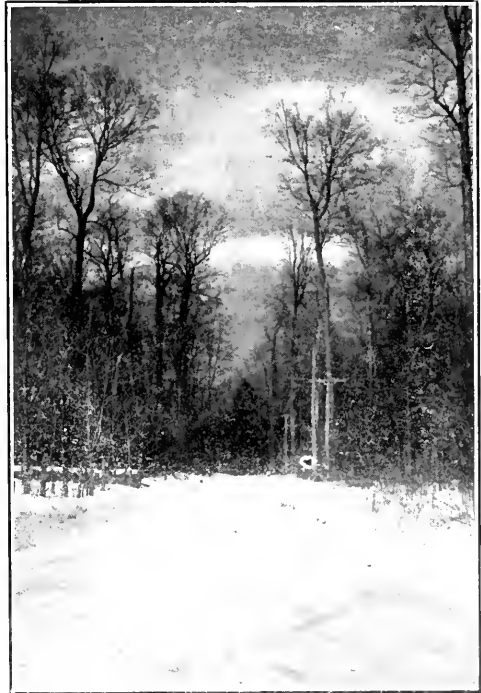
THE RUSTIC BRIDGE IN EVERGREEN PARK.

of half a mile, around on three sides of our little city of Kane.

Yours truly,

A. T. STRONG.

These are good studies, not only of forest scenes and snow, but of cold weather. The one of the path through the forest is especially good, with its general atmosphere of coldness, and its beautiful snow effect on the branches of the trees outlined against the frigid clouds. The distant vista down the path is especially attractive. Both pictures will bear careful examination. The one of the bridge, which shows nature alone, without a footprint in sight, would elicit the enthusiasm of a poet of winter. It is natural, cold, snowy beauty. The path in the forest



A COLD INVITATION TO EXPLORE THE FOREST.

urges us to explore the cold, dark, unknown depths, but at the bridge we stand, and have no desire to go further.

A Protecting Home Deserted By Its Builders.

This huge hornets' nest seems strong and cozy enough to merit occupancy by the builders during the winter. But the white-faced hornets work all summer long, and, when cold weather

comes, they by a strange instinct leave their nest, well built, well designed and many layered, and go to some sheltered place under a fence rail or the limb of a tree, where, according



HOT AND COLD—A HORNETS' NEST IN THE SNOW.

Photograph by Rollin Blackman, Albion, Indiana.

to human notions, the protection is much less complete than in the abandoned nest. Sometimes when we take down these nests in mid-winter, we find that flies and wasps have appreciated the home more than its builders. Note how firmly this nest has been placed among the branches and twigs.

An Astonishing Printer's Error.

By one of the mysteries of printer-

dom, the entire heading, name and address of the author of the article on photographing snakes, in our January number, was omitted. The title should have been: "The Scientific Photography of Snakes," by R. W. Shufeldt, M. D., 3356 Eighteenth Street, Washington, D. C. Dr. Shufeldt is not only an expert with the camera, but an expert in matters of reptilian anatomy, and a diligent student in many departments of nature.

Skunks' Tails.

That is the name of the black, coarse, fur-like growths to be found abundantly in many places in marshy lowlands. As these are by country people commonly referred to as skunks' tails, I in my boyhood always supposed that they really were skunks' tails, and that these interesting animals shed those appendages much as a snake sheds its skin. Some forty years ago almost any assertion regarding nature could be circulated and be more generally accepted than in these modern days of more careful observation. This name, and the erroneous belief, originated many years before the beginning of the careful study of nature by the Agassiz Association. In these objects there is an imperfect suggestion of the tail of a skunk. But the fact is that the fuzzy appearance which suggests the tail does not suggest the skunk, although the broken ends of these growths are sometimes remotely suggestive of the nose and the pose of the skunk's head.

Our students of nature readily recognize these growths as the root masses of ferns.



THE FERN ROOT MASSES.

From "The Daily Advocate," Stamford, Conn.

A VISIT TO ARCADIA

Nature's Wonderful Methods Exhibited

DR. BIGELOW'S WORK

An Appreciative Observer Says It Has a Distinct Educational Value, and Deserves Commendation and Substantial Support of People for That Reason.

To the Editors of the Daily Advocate:

A short time ago, the undersigned visited ArcADIA, and was impressed at once with the scope, the completeness and perfect system of the establishment, which speaks volumes for the enthusiasm and energy of Dr. Edward F. Bigelow, the founder. There were so many interesting exhibits, that it is impossible to go into details. Suffice it to say that, under the guidance of Dr. Bigelow, the hours slipped away like minutes. There were such numerous specimens and such varied phenomena to be observed that the interest was not allowed to lag for one instant.

Some of nature's wonderful methods are here shown in many surprising details, opening up vistas which are not even suspected and indeed many new thoughts and reflections are bound to arise in the most casual observer who may visit this interesting place. Dr.

Bigelow has undertaken a great task in a most devoted and unselfish manner. Comparatively few people realize the importance as well as the practical applicability of what he is teaching. In furnishing instruction and facilities for nature study, accessible to anyone who cares to avail himself, he is furthering education in one of its most useful and fascinating branches, and his efforts deserve not only the highest commendation but also material support in order to enable him to enlarge his facilities and procure housing and accessories for research and for demonstration. One of the most startling phenomena, and one which deeply impressed the writer, was a demonstration of the blood circulation in the young trout. We have all been taught about the circulation of the blood, the different cavities of the heart, the blood-vessels and their distribution throughout the body, the return of the blood to the heart, its passage through the lungs for oxygenation, etc., but to see the whole process taking place right under your eye, to follow the blood corpuscles through the whole system, and see them return in a steady stream, to pass through the gills of the young fish which are to him, the lungs—all this is startling and wonderful. This one sight alone is worth a trip to ArcADIA, and there are any number of equally interesting things.

It is the sincere wish of the writer and undoubtedly of everyone who has visited ArcADIA, that Dr. Bigelow may continue in his splendid work and that he may never lack for means and the co-operation of all who are lovers of nature.

Frederick Schavior, M. D.

The COLLECTORS' JOURNAL

is a handsomely printed and lavishly illustrated monthly magazine devoted to stamp collecting.

No one interested in this fascinating hobby should be without it. Sample copies 5 cents. Subscription, 50 cents per year.

H. L. LINDQUIST, Editor

700 East 40th Street - - - CHICAGO

Dear Friend:

I have learned that you are interested, and I write in haste to tell you the good news. You can get a four month's trial subscription to "The Guide to Nature" Arcadia; Sound Beach, Conn. for 25c.

E. F. B.

ENTOMOLOGICAL NEWS

A forty-eight page illustrated monthly magazine, devoted to the study of **INSECT LIFE**. It contains a resume of the proceedings of a number of Entomological Societies, and also articles by the leading Entomologists in the United States and Canada. Valuable information for the beginner, the economic entomologist and the systematist. **Two Dollars** a year in advance. Single copies 25 cents. Address,

ENTOMOLOGICAL NEWS, The Academy of Natural Sciences, 1900 Race St., Philadelphia, Pa.

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NATURE—for Enjoyment and Instruction,

AGRICULTURE—for Human Culture and Inspiration,

PEDAGOGY—for Parents as well as Teachers

CORDIAL GOOD WILL—for Everybody (except those
who don't deserve it!)

EDWARD F. BIGELOW

ARCAD'A:

SOUND BEACH, CONNECTICUT

From L. E. Opliger, Superintendent Adams County, Decatur, Indiana.

Dr. Edward F. Bigelow is an Institute Instructor of great ability. He gave evidence of that fact during our county Institute this year. His personality, wide experience, love and knowledge of nature, and enthusiasm are such as to suggest, direct and inspire teachers to become closer observers and make a systematic study of nature and its uses.

Dr Bigelow has a keen interest and great sympathy for children, and throughout his talks he makes an earnest plea for proper consideration of the child's rights and its proper treatment. *Our teachers were well pleased with his week's work.*

It is a pleasure to recommend him to any county superintendent desiring an Instructor who gives a *sane treatment of nature study with a strong pedagogical thread underlying it*

From Lee A. Dollinger, Principal High School, Sidney, Ohio.

The teachers of Shelby County, Ohio, had as one of their instructors in their annual Institute for 1912, Dr. Edward F. Bigelow of Sound Beach, Conn. Dr. Bigelow not only told us some things, but *showed us how nature study should be taught, and put us right with nature.* The teachers tell me it was one of the most inspiring and best weeks we ever had.

From Arthur J. Marble, Vice-President Worcester County Horticultural Society, Worcester, Mass.

I was more than pleased with your illustrated lecture delivered before our Horticultural Society. All our people were charmed to be taken right into the heart of "The Haunts of Nature." And may I speak of your lantern slides? *They were the finest I have had the pleasure to see in the ten years I have been chairman of our committee on winter meetings.*

From Frank H. Jarvis, County Superintendent of Schools, Wyoming County, Tunkhannock.

Indeed am I grateful to you for the excellent instruction on that most of all important subjects, Nature Study, that you gave our teachers week of December 9-13, 1912. *It was very gratifying to me that you held the attention of the large audience so perfectly.* Why should you not do so considering the most important messages you have to give both old and young? You have caused many of our teachers to put on the rousements whereof much work in Nature Study, I hope, will be accomplished, resulting finally for the good of the children in our public schools.

You are at liberty to refer any County Superintendent in Pennsylvania to me. *I can say only good words of the work that you do.* While your terms are somewhat high, the goods you deliver make you easily worth the cost of the message you bring each time that you talk to teachers.

From Principal Mariah P. Duval, Stuart Hall, Staunton, Virginia.

Your lecture with its exceptional pictures was delightful to our girls and we shall always remember your visit with pleasure. The Ramblers greatly enjoyed their ramble with you.

From Mrs. Alice Algar Flick, of the Cooperative Clubs of Portsmouth and Norfolk, Virginia.

Dr. Bigelow's lecture on "The Haunts of Nature" was one of the best of the kind ever given in our city. Assisted by splendid views, we were conducted through a veritable fairyland of places and things with which we are perfectly familiar, but by which we usually pass with unseeing eyes on our way through the workaday world.

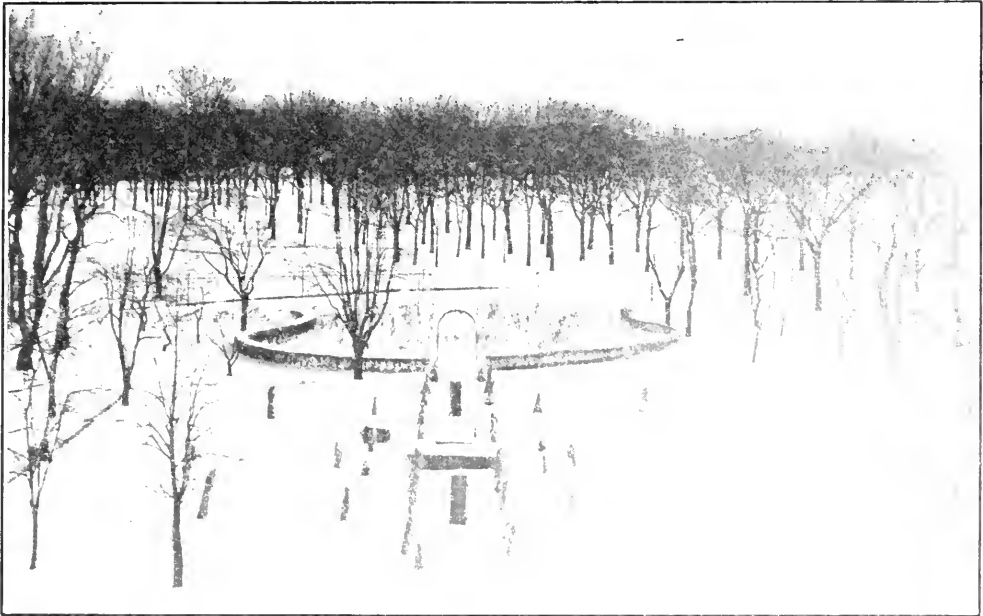
The wonders of winter, the season in which we are apt to regard nature as dormant, were beautifully portrayed. There was fine sentiment without sentimentality, a free fancy devoid of fiction, a persistency in presenting nature as it appeals to the "open mind" of youth, before the contact with the world has, as he says, "taken the edge off" things, that was refreshing. That Dr. Bigelow held the undivided attention of his audience for two hours was proof of its interest.

THE GUIDE TO NATURE

Vol. V.

MARCH, 1913

No. 11



EDWARD F. BIGELOW, Managing Editor

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THE AGASSIZ ASSOCIATION, ARCADIA: Sound Beach, Conn.

Subscription, \$1.00 a Year; Single Copy, 10c

Entered as Second-Class Matter June 12, 1909, at Sound Beach Post Office, under Act of March 3, 1879



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you could buy or rent to advantage and enjoy
living here on the water or among the hills to
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We shall be glad to show intending purchasers through our nursery, as we think it the proper way to see the stock in nursery rows.

Our nursery is located on North Street near the Greenwich Country Club.

We have made a specialty of laying out new places and remodeling old ones, as our records from both sides of the Atlantic will show. Training and long experience have taught us to do this work in the most artistic and effective way. Trees, shrubs, flowers and specimens in lawns must be placed so that they will harmonize, give shade where wanted, hiding unsightly places, but leaving vistas and making display of flowers and foliage and other worthy objects.

We may here mention our connection with the World's Columbian Exposition, the Brooklyn Park Department, the Arnold Arboretum, Boston, and many private parks in and around Greenwich.

SEND FOR CATALOGUE.

GREENWICH NURSERIES

DEHN & BERTOLF Props.

LANDSCAPE GARDENERS AND NURSERYMEN

GREENWICH, CONN.

Increasing Interest in Trees.

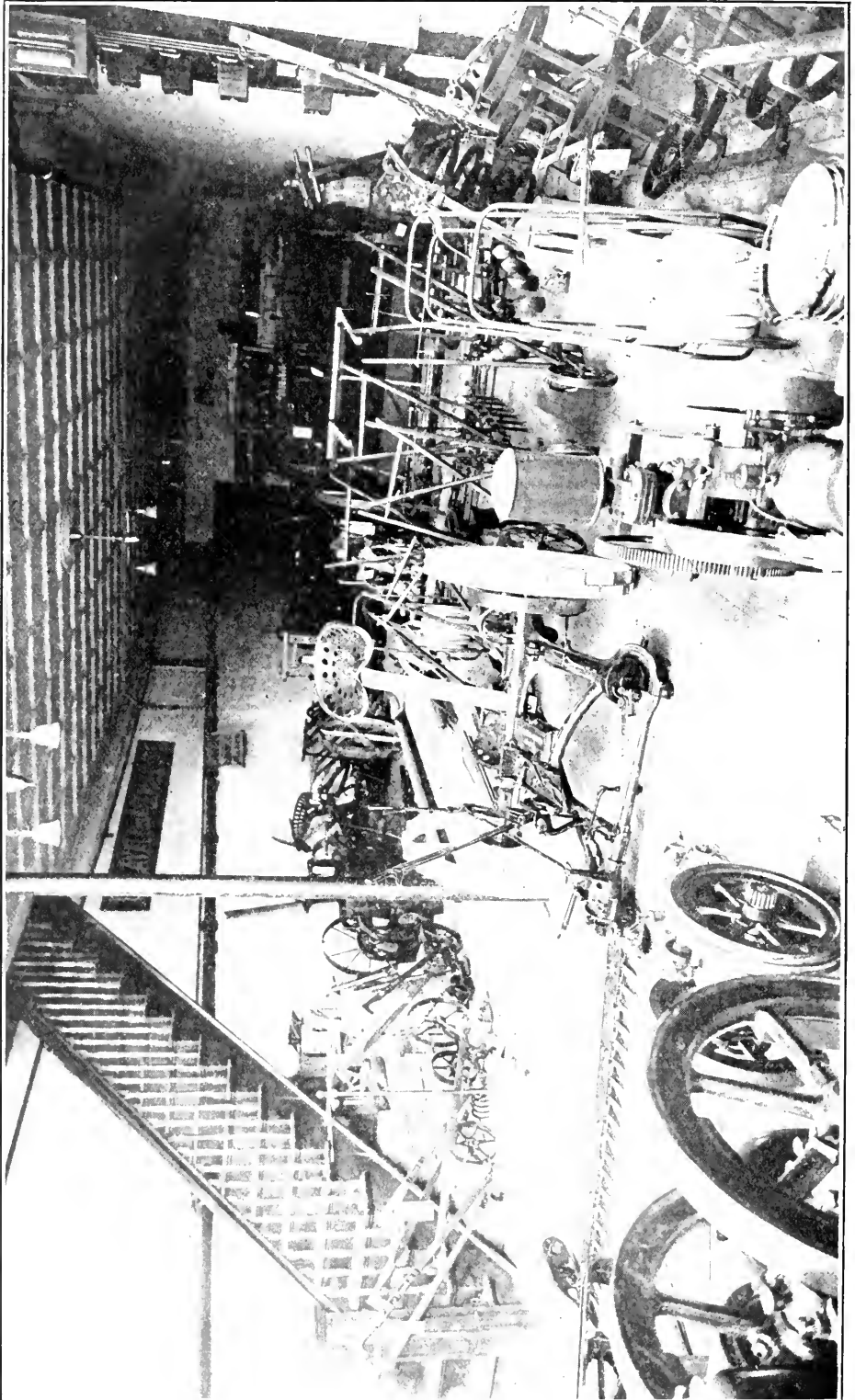
It is pleasing and encouraging to every lover of trees, shrubs and other forms of plant life to note the rapid increase in the business of The Frost & Bartlett Company. This company is now conducting extensive work on trees and other matters pertaining to estates and home grounds. They are in no sense limited to local territory but do work in all parts of the United States. Quite recently Mr. Bartlett was called to New Mexico to take charge of some important work. Speaking of Mr. Bartlett, there comes to mind the words of Emerson, "Every great institution is the lengthened shadow of one man." This is particularly applicable to the growing work of this company. It is largely due

to the indefatigable zeal and superior skill of Mr. F. A. Bartlett. He is a graduate of the Massachusetts Agricultural College and is thoroughly familiar with forestry, agriculture and horticulture. He has given especial attention to the study of insect and fungus pests. He apparently regards every phase of plant life with insects, decay or fungus as a friend in trouble. He loves his work and hence his remarkable success.

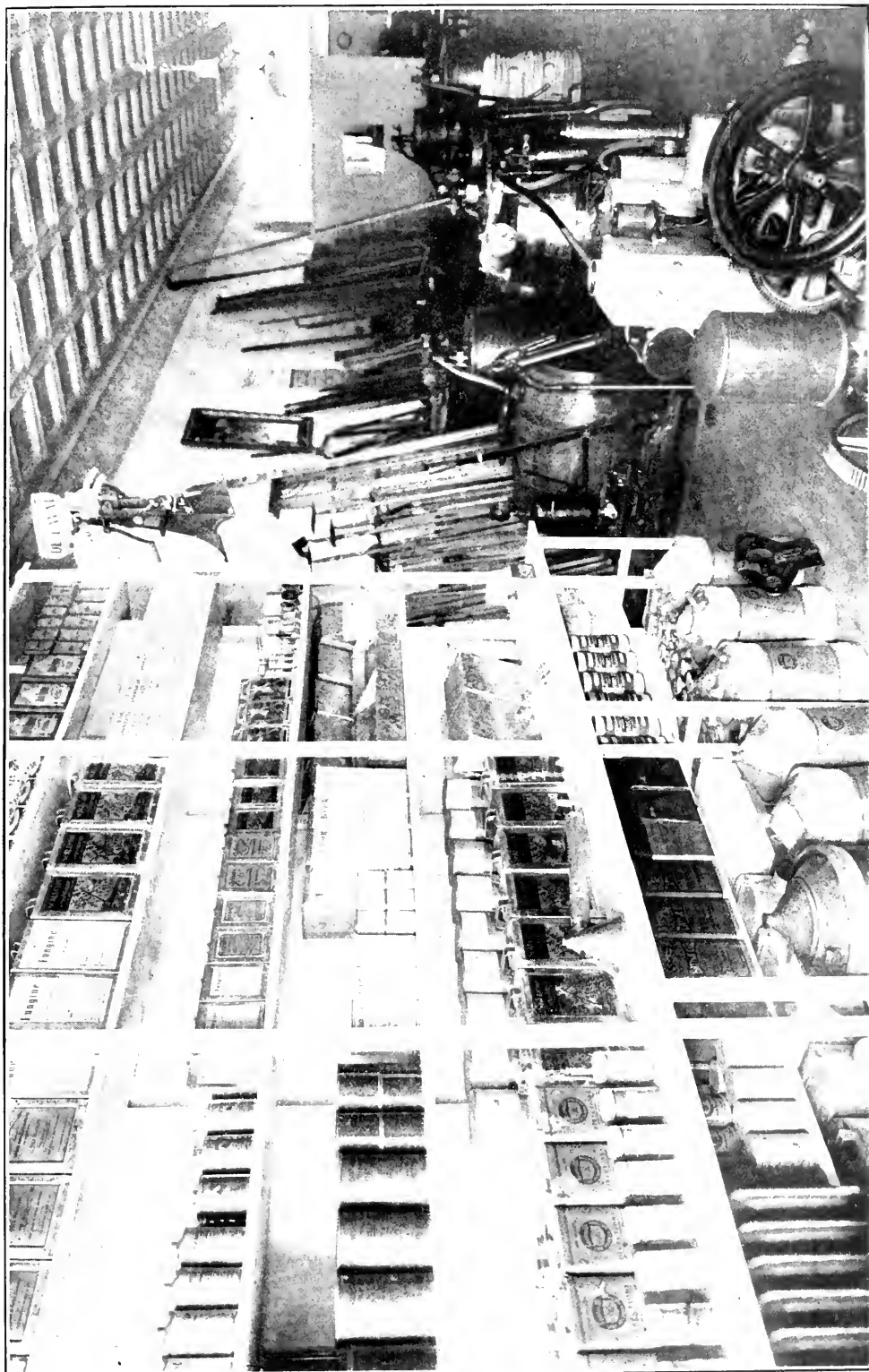
The field work of this company has been growing for a long time, but it is only a few months since the beginning of store developments. These are the logical outcome of the many gangs of workmen in the fields. The store supplements the other work, and thus both grow.



MR. F. A. BARTLETT.



IN THE DEPARTMENT OF AGRICULTURAL MACHINERY AND SPRAYING APPARATUS.



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Dear Friend:

I have learned that you are interested, and I write in haste to tell you the good news. You can get a four month's trial subscription to "The Guide to Nature" ARCADIA; Sound Beach, Conn. for 25c.

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- ¶ Send ten cents (stamps) for a sample copy.

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ENTOMOLOGICAL NEWS

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Our ARCADIA Page

The White Water Lily is the Floral Emblem of The Agassiz Association



Well may the tender buds attract us at this season . . . for they are the hope of the year, the spring rolled up; the summer is all packed in them.—*Henry David Thoreau*

“Never too Old to Learn.”

Ponder them with child-like mind, for children marvel at the phenomena of nature, while grown people often think themselves to wise to wonder, and yet they know little more than the children. But the thoughtful student recognizes the truth of the child's feeling, and with his knowledge of nature his wonder does but grow more and more.—“*Louis Agassiz: His Life and Correspondence*”

The Secret of Happiness.

Would you like to know the secret of happiness—a secret that no navigator ever

brought from the sea; a secret that no merchant prince was ever rich enough to purchase? I will tell you. The secret of happiness is the appreciation of the beautiful in Nature; the appreciation of God's unwritten poetry. Ah! you are disappointed. You expected me to tell you how to make a fortune, how to be famous. Do not be mistaken. The secret of happiness is the love of the beautiful; the secret of happiness is the appreciation of unwritten poetry.

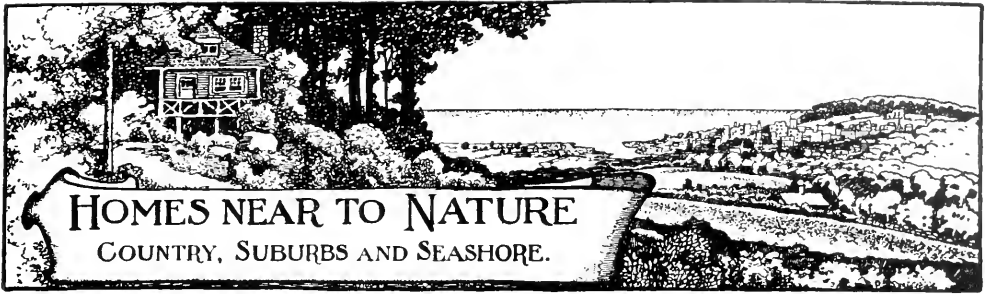
I would say: Learn to read the book of Nature every day around you—all is open before you; and then the books of men will be simple things. The greater includes the less.

Love and comprehend beauty; for then you will love and comprehend the world.—*Joaquin Miller in "The Independent."*





THE HOME NEAR TO NATURE OF MR. J. LANGELOTH AT "WALHALL," RIVERSIDE (TOWN OF GREENWICH), FAIRFIELD COUNTY, CONNECTICUT.



Volume V

MARCH, 1913

Number 11

A Beautiful Home on Fairfield Beach

BY EDWARD F. BIGELOW, Arcadia: Sound Beach, Conn.



THE northern coast of Long Island Sound has long been famous for its attractive residences. Nowhere on the beach of Fairfield County have disfiguring buildings, factories or manufacturing establishments been placed on the points that jut into the Sound. We already have called attention to one beautiful home at Indian Harbor, a point of land projecting from the southern coast of Greenwich. Toward the

Point, and still farther east there are Wallack's Point, Collender's Point and others.

It seems as if Mother Nature must have been looking well into the future when she erected these capes or peninsulas and prepared them for beautiful estates where the busy and successful man of New York City might flee from the turmoil and the stress and strain of business care in that great and ever widening metropolis.

Among all these places of refuge



THE ENTRANCE TO "WALHALL."

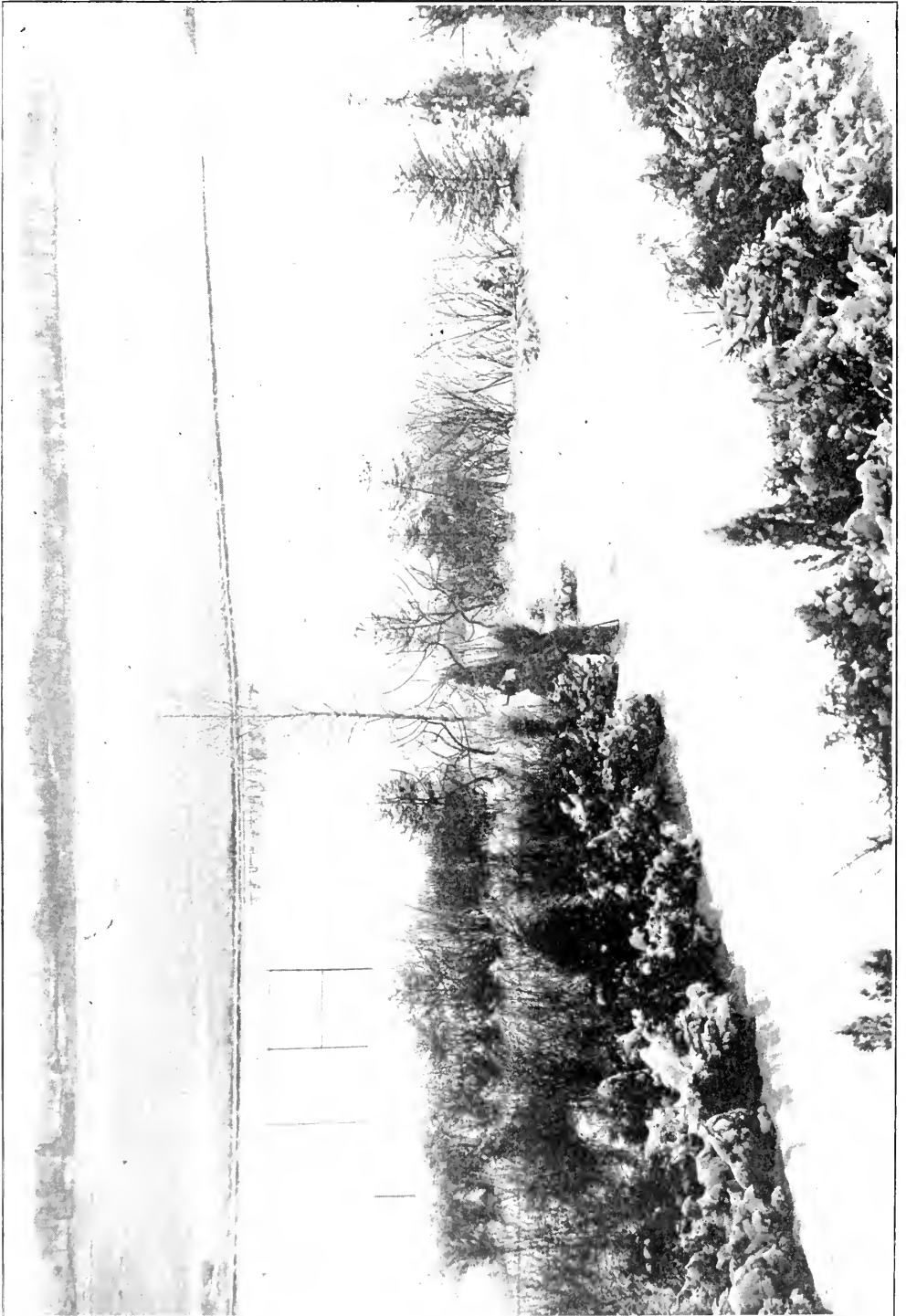
east there are several such points. Greenwich is also preeminently favored with her Riverside and Sound Beach, which are practically capes spreading wide into the Sound. Eastward Stamford has the well-known Shippan

one of the most attractive is that of "Walhall" at Riverside, Connecticut, occupied by Mr. J. Langeloth, President of The American Metal Company, Ltd., New York, and a well-known expert in all matters pertaining to mining

and to metallurgical engineering. Mr. Langeloth a few years ago was fortunate in obtaining this section of the Connecticut shore so favorably adapted to a home near to nature, where he

might find and enjoy the strongest possible contrasts with the busy life of New York City.

In the summer it would seem as if the Bermudian climate came quietly



across the sea, and gentle breezes and soft tropical airs breathed gently there, and brought with them a suggestion of southern birds and flowers.

In the winter one could well imagine one's self exploring the poles so far as scenic effects are concerned, yet here one is protected from cold winds and wintery gales by the precipitous, fortress-like rocks that jut into the Sound. A winter home in such surroundings suggests, in the warm and sunny days, a conservatory against the southern side of some great edifice. On the beach, even in the coldest days, when the sun shines on the southern expos-

only to one's sensitiveness to warmth or cold. The panorama as spread before the eyes and viewed through the camera lens, was that of a winter scene in Labrador where huge ice floes struggled together to pack themselves closer and closer, and to rear higher their gigantic castles.

It would, indeed, be greatly regrettable if such attractive midwinter scenes should be neglected by the occupants of this country home, and the place abandoned for the season, as are so many country estates. Mr. and Mrs. Langeloth visit their home every Saturday and Sunday, even in the coldest

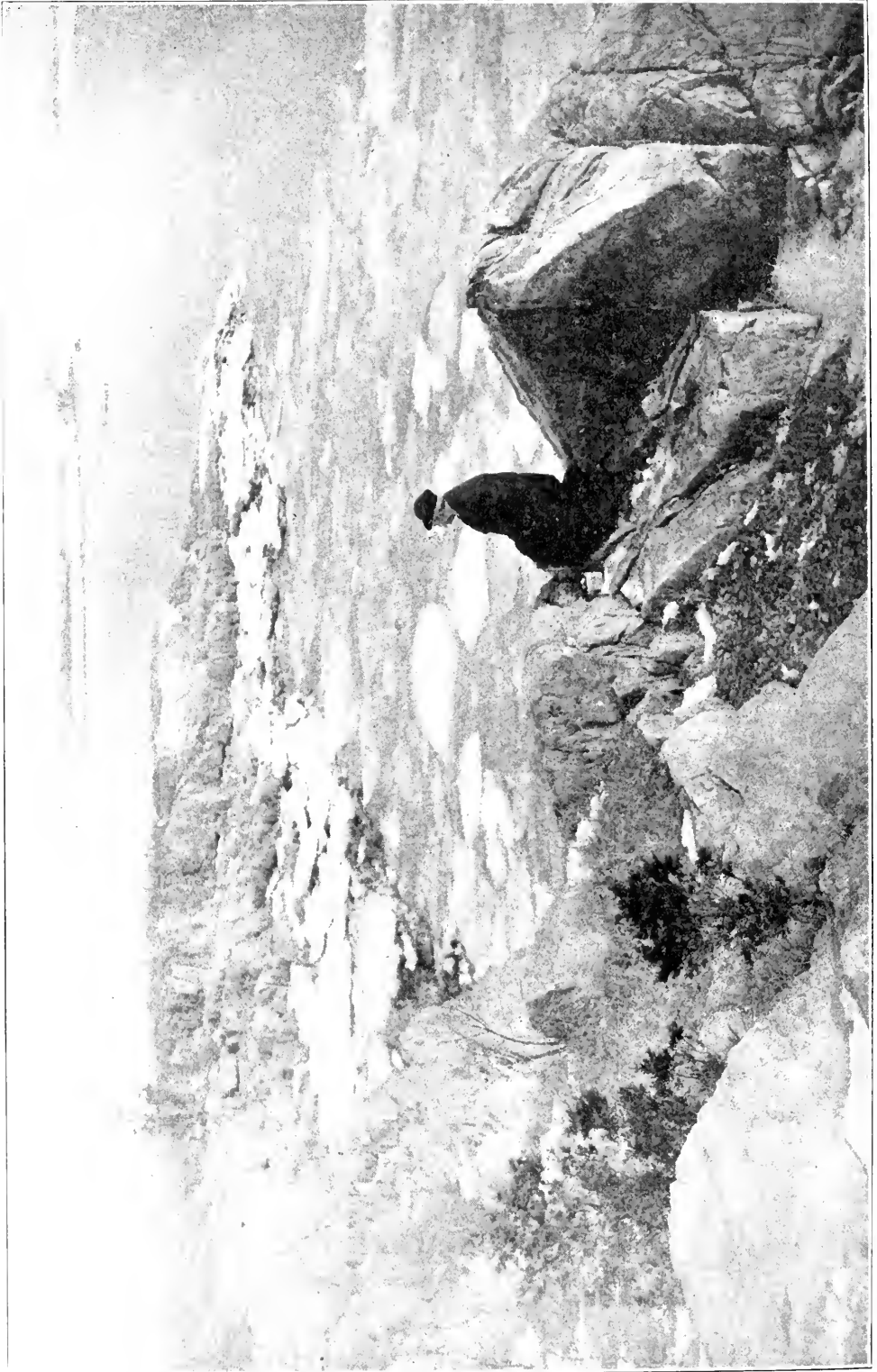


"EXPLORING THE POLES" IN ACRES OF HUGE CAKES OF ICE.

ure of these rocky banks, there are a calmness and a balminess in the air that make it delightfully comfortable and alluring. I recall vividly and happily the surprising experience in using a camera on the beach at about midday of what had been in the forenoon, away from the coast, a frigid winter day, yet here, protected by the hills at the north and the many trees and perhaps more especially by the rocky bluffs along the coast, I seemed to be where the sun had moved northward several degrees. And yet, such an effect presented itself

days, and find its rugged and picturesque winter beauties fully equal to the attractions that the summer presents. Indeed, this lover of a nearness to nature is enthusiastic about the picturesque way in which acres and acres of ice are packed and heaped in peaks and crags in the bay. Here on this rocky point, in a spot that for beauty can probably not be excelled by any other place in the world, is isolation, real, actual, yet filled with companionship. Far toward the east are vistas of other projecting capes, while toward

the south is a long, narrow, beautiful peninsula terminated by a beautiful residence and grove. This projecting arm with the widened end protects the bay from the bleak, rough winds of winter, and affords a picturesque scene





LOOKING EASTWARD ON THE PICTURESQUE COAST.



A VISTA OF THE BAY.

for the camera. As a realm for photography, I have loved this spot perhaps more than any other on the Connecticut beach. I have visited it in mid-winter when the sun was sparkling delightfully from the tiny ripples that danced across the bay, and when in the foreground was a picturesqueness of detail and on every object a wealth of "ermine too dear for an earl." scenes that I have never elsewhere seen equalled. To my fellow photographers of nature I point with no little satisfaction to this winter scene in which are combined the warmth of the sun and the

the coziness and the cheerfulness and the beauty of the home on the distant peninsula. That picture and the one that shows the definite foreground of rocks and grinding cakes of ice, with the dreamy distance, I offer with no little satisfaction to our lovers of nature, as one of the best portrayals of natural scenery that I have ever studied. Photographers who have pictured footpaths in the snow and cart paths into the marshes of forests to portray coldness, and a winter atmosphere with daintiness of outline, and dreamy distance,

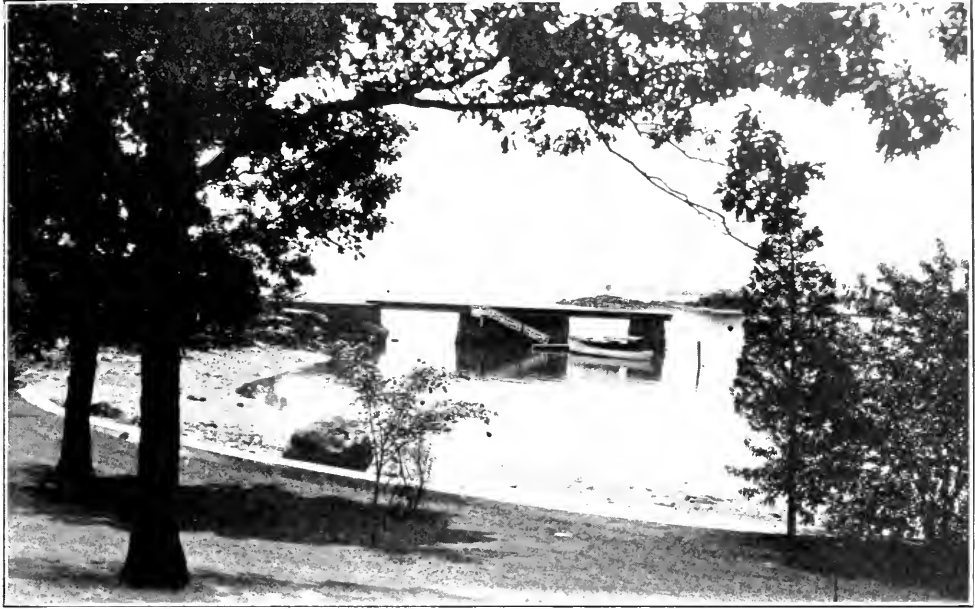


FROM THE VERANDA.

coldness of the snow. Do not, I beg you, pass it idly by. It is attractive even at first glance, but the more you study it from the photographer's point of view, the more distinctly you will see that here is a fascinating exhibition of winter nature. Can any portrayal in black and white excel the foreground for perfect detail and an atmosphere of coldness? Can anything surpass the glinting and glittering of the sun on the water in picturesque coziness and cheeriness? Nothing perhaps, except the thought of what must be

carefully examine these scenes and tell me if in all your views of nature in any photograph showing details, you have ever seen a more perfect or a more impressive effect. Aside from showing the territory as it is, such views suggest thoughts too deep for utterance.

What a scene not only for the photographer but for the poet. I often wish I were a builder of rhythmical lines that might express such dreams as must come to one in magnificent scenes like this, where there are the



THE DOCK AND A DREAMLAND BAY.

rush of the past, the clashing combats
of wave and ice floes

"And all so still! so still the air
That duty drops the web of care."

* * * * *
"Here toil has pitched his camp to rest."

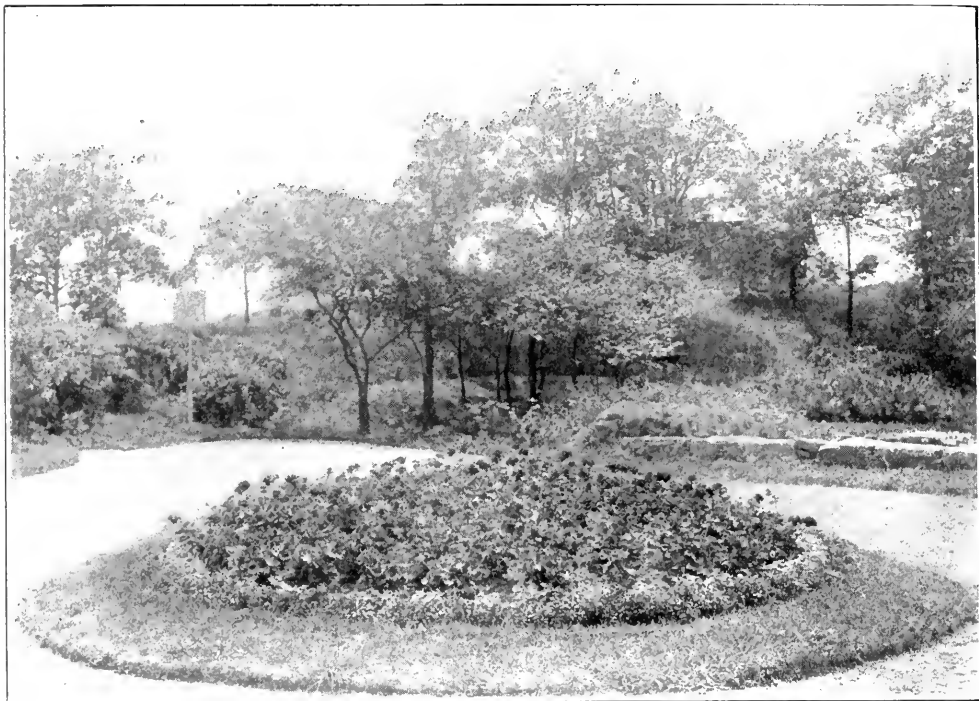
The picturesque view of the dock as
seen only through the vista under the
trees, could not probably be excelled
anywhere along the coast. When one
thinks of it, how much of remarkable

beauty there is in this world that is all
the more beautiful because it is natural.
Take this view of the dock where the
only artificial thing is the dock. The
surroundings, the bay, the island, the
distant indefiniteness, give an ideal set-
ting to the suggestion of rowing away,
away,—the boat is so easy of access
and the harbor is so inviting.

The house is to be torn down.



THE GARDEN IN WINTER.



THE GUIDEPOST VR ON THE WAY TO THE COTTAGE.

though most people would think that the present one is beautiful enough. But it is the passing of the olden type of fine homes. It must be replaced by the newer type more elaborate and more conveniently planned, with more modern conveniences. It is expected

that the new home will be ready in the latter part of this year.

Especially interesting to me was a photographic view of the garden in summer and in winter. The accompanying pictures show the house and garden as seen from the horseshoe, and again,



THE RUSTIC COTTAGE ON THE PICTURESQUE LEDGE.



"VALERIA'S REST" ON THE "HALF ISLAND."

from the steps of the house, the horse-shoe and the garden are shown in mid-winter.

The "half island," as the picturesque, stony extension to the southwest is sometimes called, is a most effective chart of what the schools and dictionaries tell us in the statement that "a peninsula is almost an island."

The guidepost, bearing the monogram VR, by the path leading to the summit of the ledge, excites one's cu-

riosity as to its significance, and brings up the suggestion of Victoria Regina. However, it is not designed to give an English effect but merely to tell the visitor that the picturesque ledge and cottage are named in honor of Mrs. Langeloth—"Valeria's Rest."

The rustic cottage is particularly happy in design and in adaptability to the surroundings, occupying, as it does, the highest point of a huge ledge, giving view south, east and west.



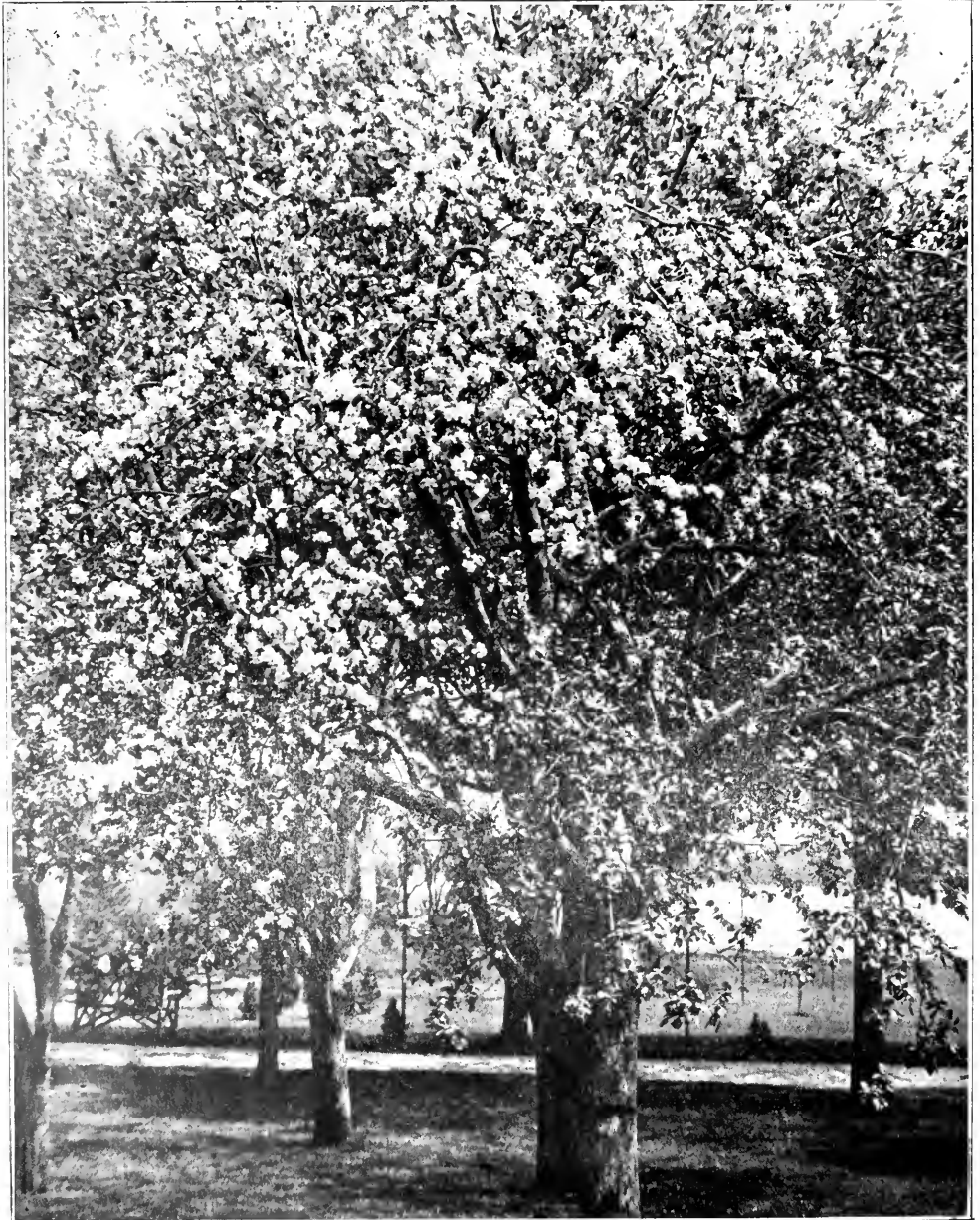
THE ROAD UNDER SHADY TREES.

In the springtime the orchard is a marvel of floral magnificence. I do not recall the time when I have seen a more perfect or denser mass of bloom than that presented by these beautiful trees. While wandering in the orchard I happened to pass a small apple tree in full bloom, and through these blossom-burdened branches the house was so picturesque that the impulse to make a permanent record of it was in-

resistible. And here it is for the enjoyment of our readers.

The greenhouse, while not extensive, is ideal in construction, of picturesque appearance, harmonizing well with the landscape and fitted with all needed appliances and with choice plants.

Mr. Langeloth, while not laying claim to any specific scientific interest in nature, has the general appreciation that perhaps even more than anything



A SECTION OF THE ORCHARD.



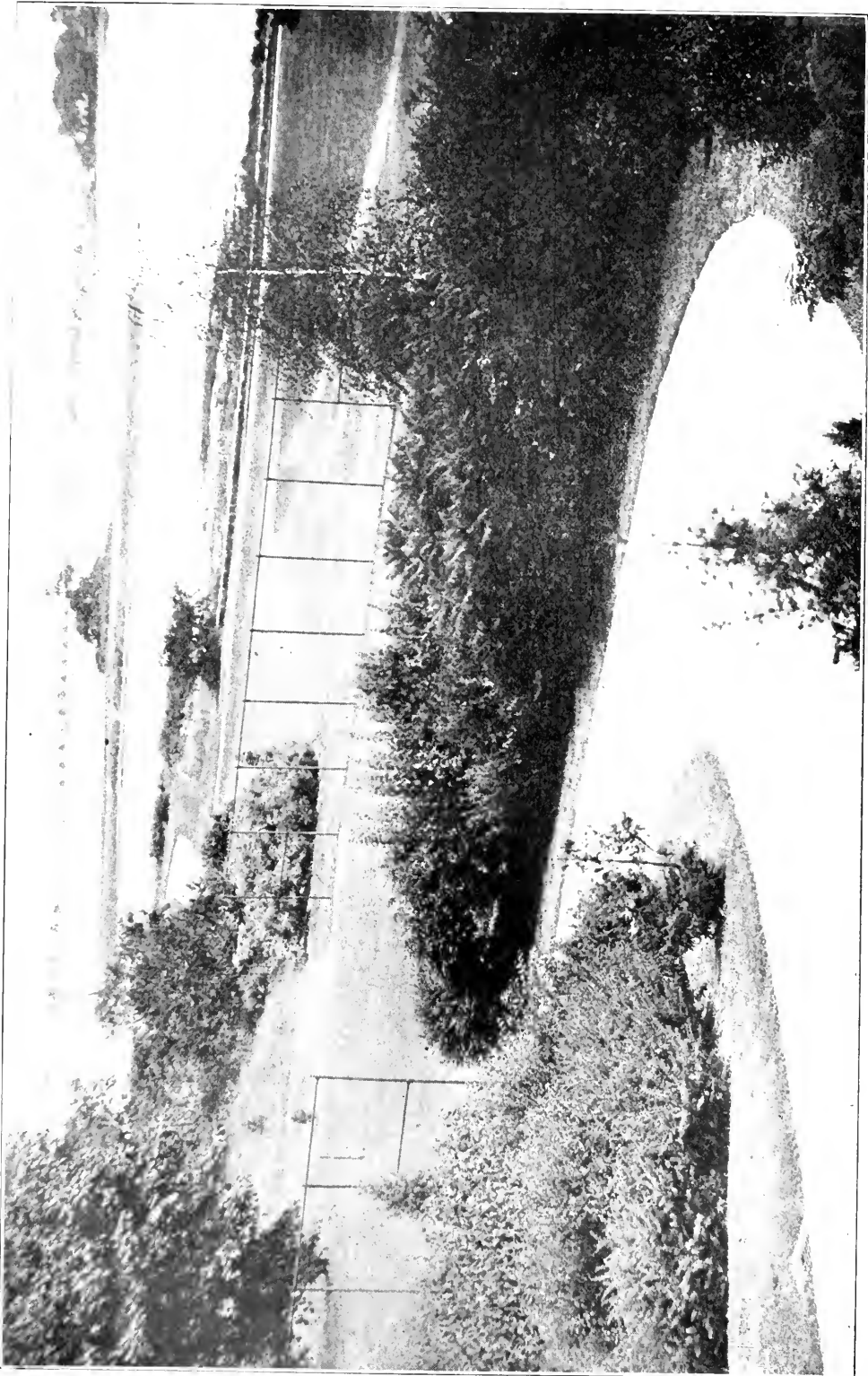
THE HOUSE IN BLOOM.

else tends to the enjoyment of her varied forms at all seasons. He is primarily a business man and a thorough-

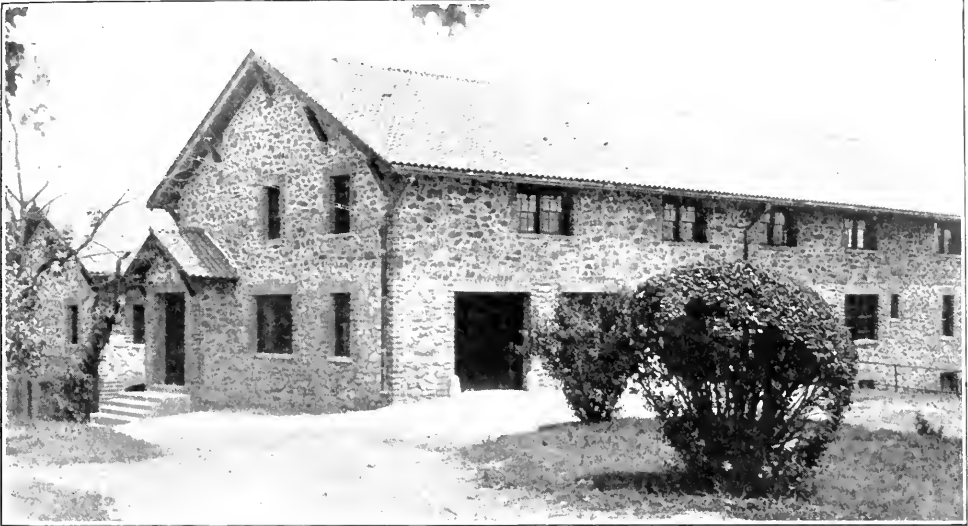
ly good, energetic, efficient business man, who has acquired his wealth by thoroughly understanding his busi-



ACROSS THE GARDEN.



ACROSS THE BAY IN SUMMERTIME.

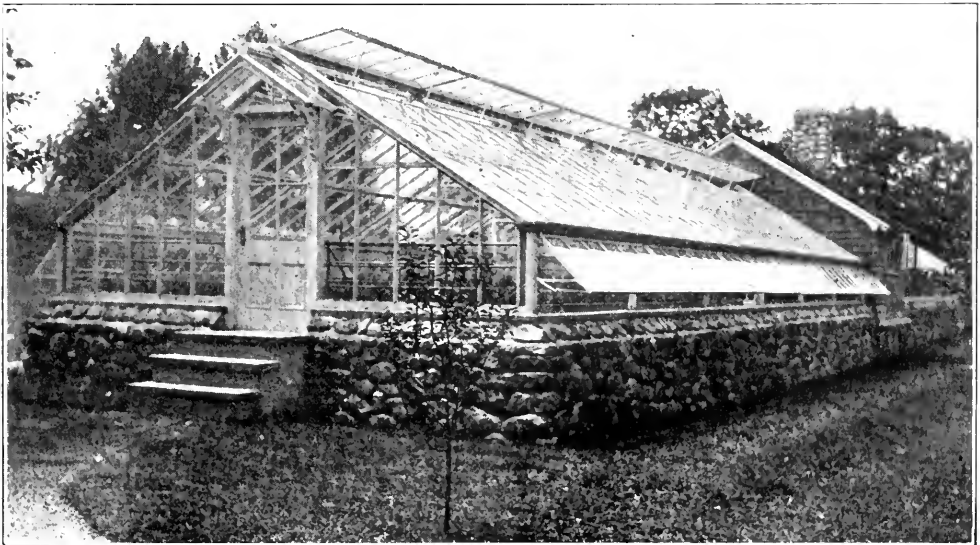


THE GARAGE AND BARN.

ness and by managing it energetically for the greatest public good. The story of his business achievements is so well told by the "Successful American" that we here republish the entire article. Mr. Langeloth is a hard worker and in his business dealings lives at the high pressure of effective work. His home on Long Island Sound is a safety valve for the stress and strain inevitable in the management of so large a business. Here he and Mrs. Langeloth enjoy nature either alone or with some of their friends. Mr. Langeloth personally impresses one as a man of intense,

pent up energy, combined with a kindly spirit and a genial regard for all those with whom he comes in contact. His preeminent quality his keen insight whether he is considering the intricacies of a business deal or the intentions of a stranger. He is a good reader of human nature, a quality that has been an important factor in his financial success. It requires a good observer to read human nature, and those same faculties he applies to good advantage in the observation of nature around his home.

The article from the "Successful



THE PICTURESQUE GREENHOUSE.



MR. J. LANGELOTH, RIVERSIDE, CONNECTICUT.

An efficient and successful business man who greatly enjoys his home near to nature.

American," giving a history of his business career, is as follows:

"A native of Manheim, Germany,

where the subject of this sketch was educated, Mr. Langeloth entered business life toward the end of the sixties,

at Manheim, acquiring that general knowledge which one of his wideawake and ambitious propensities would necessarily command; and thus equipped he, in 1873, turned his footsteps toward London to make himself more minutely acquainted with the commerce of the world, the banking, exporting and importing trade. Mr. Langeloth was fortunate in making a connection with one of the best houses in that most important European capital, and filling in that establishment several positions of trust and responsibility, he secured a business education which well adapted him for his subsequent career.

"In 1881 Mr. Langeloth received a favorable proposition from Metallgesellschaft, of Frankfurt-on-the-Main, a firm very prominent in the metal trade in Europe, and, having accepted the same, in a very short time his excellent business qualifications secured for him promotion to the position of Assistant Manager, in the pursuit of the duties of which responsible post he travelled extensively all over Europe and gained a thorough knowledge of the mining and metallurgical conditions of the Old World, especially as far as copper, lead and spelter are concerned.

"Thus fully equipped with the knowledge and experience that well-fitted him to master the business he has ever had in mind, Mr. Langeloth came to America in 1887, to take advantage of the wider field of operation that here presented itself, and he at once took steps for the organization of the American Metal Company, 'Limited,' whose President he has since been, and which Company is now well known throughout the length and breadth of the United States, not only as being very enterprising and largely interested in the refining and marketing of different metals, but as a leader in that branch of mercantile industries. The Company is indeed among the largest exporters and importers of copper, tin, lead and spelter in this country.

"The greatest performances of human art, which we behold with praise and wonder, are examples of the force of perseverance. It is by this that the unshaped rocks of the quarry are transformed into pyramids, and that distant countries are united with railroads and telegraphs. And it was through

the mastery of that great force and power that the unaided boy of Manheim, Germany, has become a leading merchant, a favorite of fortune, and a successful American."

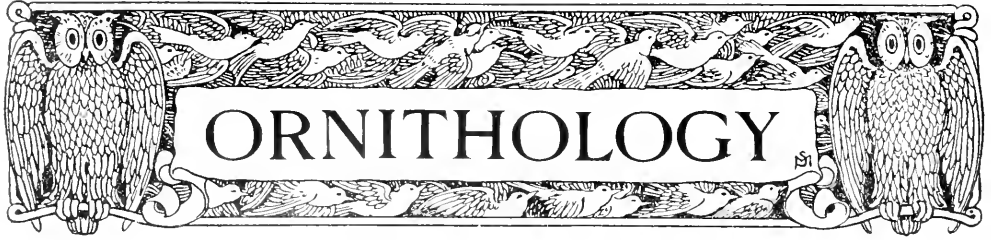
Perishable and Imperishable Beauty.

One of the appreciative friends of the Agassiz Association heartily interested in the doctrine of Christian Science, sends us an article by the Honorable John D. Works, and bearing the foregoing title. We are glad to note that the author recognizes that intimate communion with nature enables one to attain to great and permanent beauty. He says:

"Mankind, because of their lack of understanding of the spiritual, are far from perfect. They have to make their advance by way of improved beliefs. They must strive for better things, for a higher understanding as a means of advancement and regeneration; and one means to this end would seem to be the cultivation of a truer sense of the beautiful and harmonious in nature with the desire to see in it more of the spiritual ideal, perfect and imperishable beauty. By the study of the beautiful and good in the world, the human mind is elevated and the vision broadened and enlightened. The beauties of nature, as we see them, are therefore not to be despised, but cherished as manifestations of Mind, not of matter, and cultivated as a means of attaining to still higher and more permanent beauty."

You will find the same elements of instruction all about you wherever you may be teaching. You can take your classes out, and give them the same lessons, and lead them up to the same subjects you are yourselves studying here. And this mode of teaching children is so natural, so suggestive, so true. That is the charm of teaching from Nature herself. No one can warp her to suit his own views. She brings us back to absolute truth as often as we wander.—*Louis Agassiz: His Life and Correspondence.*"

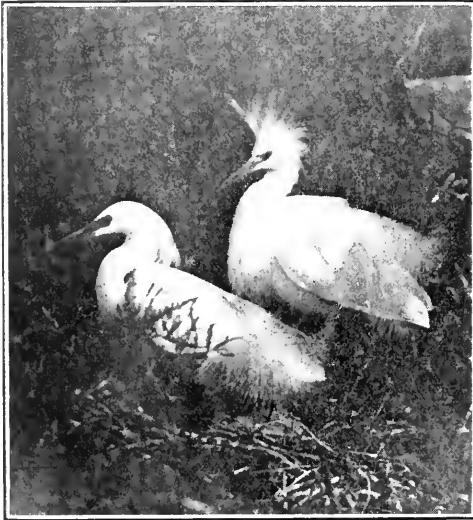
THE GUIDE TO NATURE has been excellent for some months. Your work is deserving of encouragement and I therefore renew my subscription.—*Jefferson Butler, Detroit, Michigan.*



ORNITHOLOGY

Effective Bird Protection.

The Agassiz Association and every one of its friends congratulate Mr. Edward A. McIlhenny, one of our



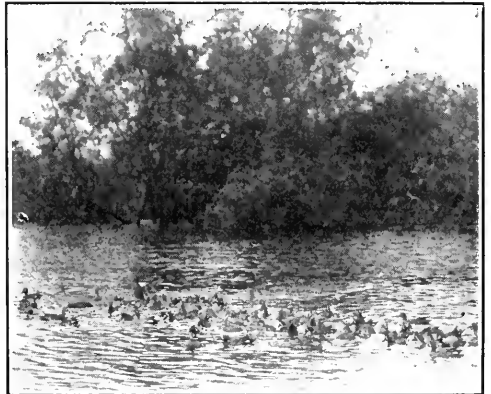
SNOWY HERONS ON NEST.



SNOWY HERON, NEST AND YOUNG.

members, upon his success in securing the purchase of Marsh Island by Mrs. Russell Sage at a cost of \$150,000. This is to be set aside as a home for birds where they may live and be happy, and not be slaughtered as so many of them have been.

Marsh Island is about eighteen miles in length and about nine in width, and contains about seventy-five thousand acres. For more than half a century it has been the greatest slaughtering ground for ducks in all North America, with the exception of Currituck Sound, North Carolina. About seventy mar-



BLUE WINGED TEAL FEEDING.

ket gunners have regularly been killing the birds there. Every year countless thousands of ducks and geese are shot for the markets of New Orleans, St. Louis, Cincinnati and Chicago. It was the great winter killing ground of the south. The game birds most commonly taken were mallards, black ducks, teal and canvasback ducks, blue geese and snow geese. Besides these the island is frequented by thousands of herons of four species, bitterns, loons, rails and shore birds.

To Marsh Island the ducks of the north resorted in winter to find food and shelter when the northern lakes and streams were locked fast under ice.

and food was there no longer obtainable. In hundreds of thousands they concentrated on Marsh Island and also in the marsh of the adjacent mainland.

To wild birds it is a delightful sylvan

Sage. The details of this purchase have already been fully explained in the newspapers. In an interesting article Mr. William T. Hornaday writes as follows:



A PART OF THE SNOWY HERONRY.

labyrinth studded with lakes, ponds, bayous and creaks innumerable, with sand ridges and beaches of great value to bird life. Natural food for birds is abundant. The place affords shelter and feeding grounds for myriads of migratory birds, woodpeckers and shore birds, all of which become of great service in the north when the insect millions of spring, summer and autumn are busiest in field, orchard and garden.

Mr. McIlhenny of Avery Island, Louisiana, who has acquired money and fame in the manufacture of Tabasco Sauce, decided long ago that this island should be converted into a perpetual bird sanctuary by outright purchase. Through a series of prolonged and intense efforts against many discouragements, he finally secured the contribution of \$150,000 from Mrs.

"It is very probable that eventually the new sanctuary will be offered to the nation as a free gift, on condition that the government, national or state, will protect it perpetually against poachers. Beyond a doubt the Department of Agriculture would gladly accept such a proposal if made, and in the near future we may expect to see the Marsh Island bird refuge pass into the custody of the representatives of the American people.

"The gift by which this dedication is made possible is the second largest ever made by one individual for the cause of wild life. The largest gift ever made for wild life protection in America was the bequest of Mr. David Wilcox to the National Association of Audubon Societies, which amounted to \$322,000."

This is the real advance in the cause,

and we are glad that the financial help came from a woman, because women and their desire to decorate their hats with egrets, have been among the greatest enemies of certain birds, the white herons for example. We are glad that the commendable deed was accomplished by a man, especially by one who has acquired fame by making the things of the table more appetizing. The greatest enemies of the wild ducks have been men, especially those who have sought for a table luxury.

Mr. McIlhenny is an honored member of the Agassiz Association. We are glad of that, because this is great and good work in behalf of an exceedingly important phase of nature. His example cannot fail to be inspiring to others.

Winged Prophets of Spring.

BY EDMUND J. SAWYER, ADAMS, N. Y.

If by "first signs" we mean "first prophecies" of spring, then must we take from merle and mavis their long worn laurels, and bestow them on "the blackest of them all." The high flying recruits, the regular morning and evening flights to or from a common roosting place, a something new in the more frequent "caws," have made spring already an old story. The first robin or bluebird tells me nothing that I had not heard, their news is old. The chickadee and the white-breasted nut-

hatch have sung it and the downy woodpecker has hammered it out long weeks ago.



THE WHITE-BREASTED NUTHATCH.



"THE BLACKEST OF THEM ALL."

These first new notes of the birds are the first indications that a gentler season, of which as yet we have had no sign, has already made its coming known and felt by them, and how di-

rectly the music goes to the heart and cheers the whole man! My eye is more pleased by the first high flying March crow than by the most gorgeous bird of summer. Better the flicker's loud



"DOUBTLESS THE SURROUNDING BARENESS ACCOUNTS LARGELY FOR THE PLEASURE."

spring calling than the wood thrush's later song. The latter fills the mind and satisfies the soul; but the former



"THE WOODPECKER STILL HAMMERS AWAY."

does more, it fills the imagination and leads the thoughts into a hundred pleasant fields.

Doubtless the surrounding bareness accounts largely for the pleasure that these simple sounds have for us. Heard in the snow locked woods or along the icebound stream, they strike the ear with peculiar intensity, and are preliminary to a more full-voiced, earnest announcement, but they set vibrating

chords in the heart that are responsive to no later sound.. It is well to enjoy fully the actual bursting of bud into leaf, thrush into first full song, and perhaps nothing previous to these really does so "fill." But by this time the eye is more or less *accustomed*, the ear more or less *used*; the razor edge of these senses has been dulled.

The woodpecker still hammers away on his dry stub, the "yellow-hammer's" call still resounds from wood to wood, the watchful grouse beats even a longer and warmer reveille to the dawning day. But, dulled by usage, our



THE RUFFED GROUSE.

ears will report little but the more obvious music, as of thrush, warbler and oriole. We have forsaken our first love. Something is gone from the chickadee's note, something from the



THE CHICKADEES.

crow's caw. All too quickly their first charm goes from these early sounds, and our ears must undergo a certain process through another winter before they will again stand the test.

Again, the humble crow, the obscure nuthatch, the chickadee and the black and white woodpeckers, are the true prophets of spring; they, too, are without honor in their own country. Other birds "ask a sign;" they must see visions and get hints from earth and sun, which very hints and visions our prophet birds have long foretold.

The Long Crested Jay.

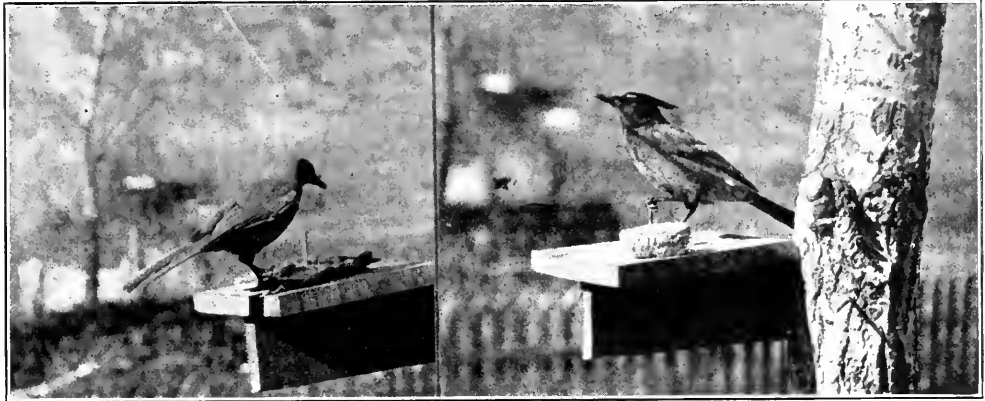
BY H. A. ROGERS, POGASA JUNCTION, COLO.

Among our feathered winter guests, the long crested jay, *Cyanocitta Stelleri*

male are of a very dark blue, almost a black, which shades on the breast and posterior part of the body into a grayish, indigo blue, while the tail and wings are mostly of the dark coloring. Between the eyes of the male there is a grayish white line on either side, and a shorter line above each eye.

The female is much the same in general color but of a lighter hue, being quite plain and modest in her dress. She does not wear an elaborate hat nor possess the facial expression given by the white lines in the male.

They are so very shy and nervous that, to capture them with the camera requires endless patience. It was only by operating the shutter from within the house through a long rubber tube



SOME GOOD STUDIES OF THE LONG-CRESTED JAY

Diademata, receives the most hearty welcome in the late fall, and leaves the deepest regret when he goes to the higher altitudes in the early spring.

They are the most beautiful bird inhabiting the Rocky Mountains. Their size is about that of the robin. In color, the head, crest and neck of the

that photographs were secured. Although we have fed them for several winters, they are still suspicious, and even the faint click of the shutter sends them into a panic. So long as the food could be carried away, patience on our part availed nothing, but by making up a cake of corn meal, bread crumbs and

melted suet and securing it with a nail to their dining table on the tree, the rascals were camera captured.

After this arrangement they seemed to feed on something which they extracted from under the bark of nearby trees, and we wondered what they could be finding in the way of insects in the dead of winter. One old fellow, however, betrayed the secret. While we were watching him through the window, we saw him making rapid trips to and from the table, breaking off whatever sized pieces he could from the cake and storing them under the bark of a tree as a supply to be drawn upon when conditions looked too dangerous to approach the dining table. O, if they could only know!

The beauty of the jay is, I am sorry to say, all in his dress. As a song bird, he is a total failure. Fortunately, unlike the donkey, of whom some one wrote, "The trouble with the donkey does not lie so much in the fact that he cannot sing as in his everlasting conceit in thinking that he can," he seems to know that there is something lacking in his music, and is, as a rule, silent. In addition to two distinct, strident calls, each consisting of a sound resembling "jay," one uttered in a long drawn out call repeated two or three times, the other several times in rapid succession, he has what he seems to consider a song, but it is always given in a subdued tone as though he feared

some one might hear and disapprove.

If any of the readers of *THE GUIDE TO NATURE* have a good photograph of Mr. Jays cousin, the common blue jay of the east, we should be glad to correspond with a view of exchanging for any of the accompanying photographs.



WINTER BIRDS FEEDING IN ARCADIA.

Wandering on the Beach.

The late Bradford Torrey, regarding whose work and death we published an illustrated article in our December number, had in the hands of the publishers at the time of his death, a book entitled, "Field Days in California." This has just been issued. We note the following description of his excitement on a beach three thousand miles away, and some of the daydreams that nature suggested to him.

"At all seasons the beach is an unailing resource for the stroller. No matter how muddy the country roads may sometimes be in winter in (the adhesive adobe parts of them all but impassable on foot—I have lost a rubber overshoe in such places more than once), nor how dusty the worst neglected of them may become in summer, the beach is always at our

service, since it is a wholesome quality of sand to be rain-proof and sun-proof; at the worst of times neither muddy nor dusty. For myself I have had numberless good hours there, and not a few that might truthfully be called exciting.

"If I had a bank full of money, I once in a while find myself thinking (and perhaps wiser men than I might own to the same sort of foolishness), I could do this or that. But, after all, what could I do so very much better, school being dismissed, than to go idling up and down this slightly beach, looking or dreaming—and enjoying myself—as the mood befalls?

"Happy is the man (I may have said it before, but no matter), happy is the man who has acquired an interest in the world out of doors. It is an investment good for both body and soul."

Truth is Better Than False Statements.

Brooklyn, N. Y.

To the Editor:

It is not that your correspondents love birds more than others do, but merely that they hate cats. The first and last enemy of birds is MAN—man with his gun, boys with slings, air guns, and stones. If extermination of any one is necessary, why not dispose of them, instead of the most beautiful of God's creatures, the affectionate, and intelligent cat? I love birds and am a bird student, and I know that cats take very few, and if they did, why not they, as well as we? The men who talk the loudest against cats, kill birds by the score. I. For the pleasure of killing. II. For millinery purposes. III. For collections. IV. For what they call science. Here are facts. One boasts that he killed 158 rose breasted gross-beaks in nesting season, to see what they ate!!! Another killed 152 cedar waxwinks, to ascertain if they ate cherries. Why should they not eat cherries as well as we? A third had 200 king birds killed, and 300 blue jays, under a pretence of economic study. In the south every year 10,000 robins are shot for food, and yet if a cat caught a single one the newspapers would be full of it, and the community in an uproar.

The cat haters claim that it is the song birds that the darling pussies catch; but they fail to say how he knows it is a songster, and whether they taste better than others.

I have kept cats all my life, and in different parts of the country, and have always had birds nesting around my house; and I know that it is very difficult for a cat to catch a bird. The only one that is at all easy to get is the English Sparrow, which spends so much time upon the ground yet that increases at such an enormous rate every year, that it has become a problem. If cats exterminate birds why do they not wipe out the sparrows?

I. In nature all creatures prey upon others. By eating caterpillars the birds deprive us of many beautiful butterflies. Shall we exterminate the birds?

II. Although the greatest enemy of birds is man, yet our dear squirrels, and the red headed woodpecker some-

times eat the nestlings, to say nothing of jays, hawks and shrikes.

III. Granted that a cat does sometimes succeed in catching a bird, why should it not have one, as well as for humans to eat quail, reed birds, or spring chickens?

It is time that all true nature lovers rose up in defence of the dearest of our pets, which Shakespeare calls "the harmless, necessary CAT."

L. FANNY LITTLE.

We fear that our enthusiastic correspondent (who suggests in championing the cat that as last resort it may be well to dispose of men and boys!) has overlooked the fact that no other correspondent thus far has desired to "dispose" of anything but so to regulate the care of cats and birds that not so much disposing will be done. If all cats were properly fed and cared for, and given a standing in law, not only the welfare of birds but that of cats would be improved. A cat, whether worth ten cents or five hundred dollars, should be the property of the owner and so regarded in law. The cat should not be regarded or treated as a vagrant. If the owner will properly care for it, all right. If not, the law should insist, and such law should be enforced.

Our Arcadia is overrun with neglected and deserted cats. The cats eat birds because they must or starve. The same situation prevails in many other places. When summer residents return to the city they should not leave their cats. Cats should not be permitted to roam at will, especially at the bird nesting season.

If any person kills or abuses my cat, there should be redress in law as for any other property. But at present the cat has no standing in law. It is not even afforded the protection given to the wild animals. It is a curious fact that so many people misconstrue the efforts made in behalf of regulating the care and ownership of cats. Does any one regard dog regulations as abuse of these much loved pets? When the first efforts were made to give dogs a standing in law, did any one say it was done by dog haters? It does not remedy one evil to tell about others. When can we get all women to understand that a desire for the proper keeping of cats

is not enmity towards the cats, but a form of appreciation? It must be because of this difficulty that the Audubon Societies, with all their strenuous efforts in behalf of birds, say so little, and make no efforts for laws to govern the cats. Not a state has a law that regards the cat as personal property, and regulates its care.

So far as we know, not a Humane Society, with all the talk about loving cats and loving birds, has made any attempts to obtain a law to regulate

cats in relation to birds. Of all forms of animal life the extremes of care and of neglect are the widest with cats. Some are fondled and cared for with every attention that love can give. Others are neglected and deserted, in the most cruel manner. This magazine does not believe that one evil can be cured by citing another. It believes in the proper appreciation and regulation of cats and birds and men and boys—and, if need be, of women and girls.



THE HEAVENS IN APRIL

The Heavens in April.

BY PROF. ERIC DOOLITTLE OF THE UNIVERSITY OF PENNSYLVANIA.

The most prominent position in the evening sky is now occupied by the bright Leo, which this month reaches its culmination and shines out high up from the ground, exactly in the south. The six stars at the western end of this group form a very perfect figure of a Sickle, the brightest star of all being the great Regulus, a yellowish-white sun which has a companion of a remarkably deep blue color that is itself a double sun. Regulus is so very near the yearly path traced out by our sun in its annual journey among the stars that when our sun reaches this point in its path, were the star not rendered invisible to us by the over-powering brilliance, we would see it almost graze the upper edge of the round sun's disc. This passage will occur this year on next August 22; when the sun is passing through the Sickle the harvest days will begin. It is said that the whole constellation was called the Lion because while the sun was in this part of the heavens the lions left the desert for the banks of the Nile, where they could find relief from the summer's heat.

THE APRIL STARS.

Above Leo we now see the Great Dipper shining down on us from almost

the highest part of the heavens. Below this is the great Bootes, who with upstretched arms is driving the Bear before him, and just below this very large and striking constellation we can now for the first time clearly see the beautiful and delicate little Crown bestowed by Theseus upon Ariadne. The faint stars in the rather vacant part of the heavens below the hollow of the Dipper's handle make up the constellation of the Hunting Dogs, held by Bootes in his "Leash of sidereal fire," of which the brightest, at A, Figure 1, is a beautiful double star in a small telescope. Below these is the delicate filmy cluster known as the Maiden's Hair. At the point B, almost exactly in a straight line between A and Arcturus, and nearly midway between these stars is a beautiful though rather faint cluster of many thousands of stars packed closely together, and it is very remarkable that no less than one in every ten of these distant suns is a variable star.

Below Corona, the large group Hercules has now emerged wholly from the ground, and it is at the point M in this constellation, nearly in a straight line between the stars C and D, that there is the most magnificent star cluster which can be seen in the northern heavens. This is even visible to the naked eye as a faint, light spot on the

heavens, while on photographs of it recently taken with the largest instruments, no less than sixty thousand stars have been counted.

The distinctively summer group of the Serpent is now just entering the heavens in the east, while the very large Virgo has entirely emerged from the ground. The most conspicuous star of this great constellation is the

a small telescope, and the one at F is remarkable because it has a distinctly greenish shade, a very unusual color among the brighter stars. Below Libra will be seen the Water Snake, which has now almost wholly entered our evening sky, and which stretches its great length from the horizon in the southeast, almost all the way to the bright Procyon in the west. All of

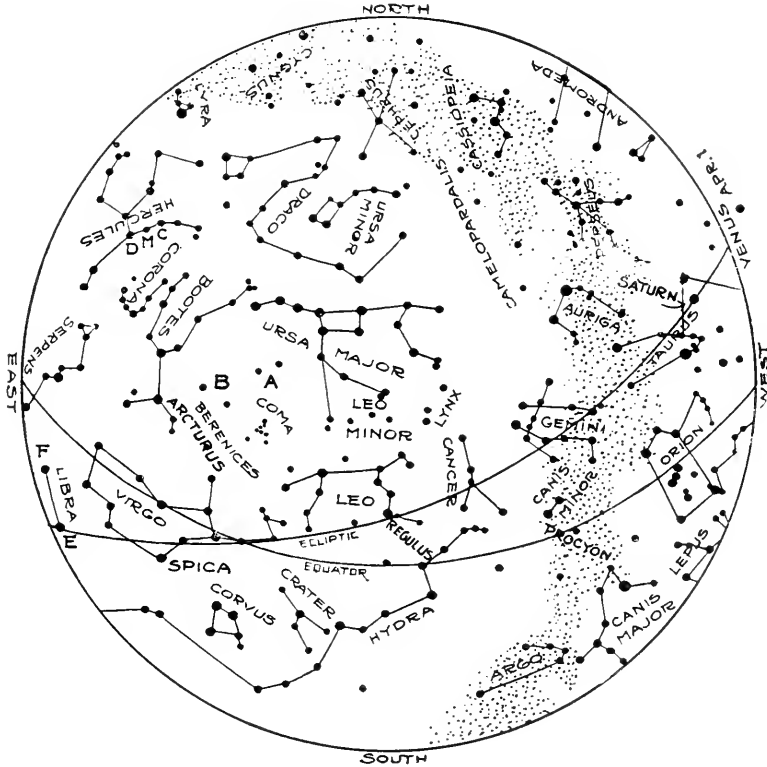


Figure 1. The Constellations at 9 P. M., April 1.

(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.)

bluish Spica, or Ear of Wheat. This is actually a double sun, the companion being so near the bright star and so obscure that it cannot be seen in any telescope, but its presence is made evident by the fact that Spica is forever moving about the common center of gravity of itself and its unseen companion in an orbit of three millions of miles radius with a velocity of more than fifty miles a second. At this speed it completes a revolution in a period of about four days.

Below Virgo are the two brightest stars of the Balances, of which the one at E is a wide double, easily visible in

these constellations are most interesting and will well repay study, though the most conspicuous of the midsummer groups, including the striking Scorpion and the beautiful Northern Cross, will not enter our evening sky until another month has passed away.

THE PLANETS IN APRIL.

During the first two weeks of the month, the most brilliant Venus will continue to shine out in the west, but a very little watching will make it evident, even in a few nights, that this world is now running rapidly toward the sun. For many weeks it has been moving ever northward among the

stars, and thus setting ever further toward the northwest point of the horizon and at a later hour each evening, but both its eastward motion among the stars and its northward motion over the sphere will continue for but a few days after the first of the present month. It will thus be seen to set in the northwest nearly three hours after sunset on April 1, but this interval will diminish with great rapidity, until on April 24 it will pass to the east of the sun and become a morning star. No observer who possesses a small telescope should fail to examine this beautiful object during these few remaining

extreme south before the daylight approached. This is the planet Jupiter, which now rises about 2 A. M., but which lies so very far below the equator of the sky that it will not enter our evening heavens for many months. Throughout the year this planet will be passing over the very southernmost part of the path which it follows in the course of its 12-year journey around the sky, and therefore it will at no time rise far above the southern horizon.

Jupiter is now of almost exactly the same brightness as the brilliant Dog Star Sirius. About two hours after it has risen the far fainter but still conspicuous Mars will be seen emerging

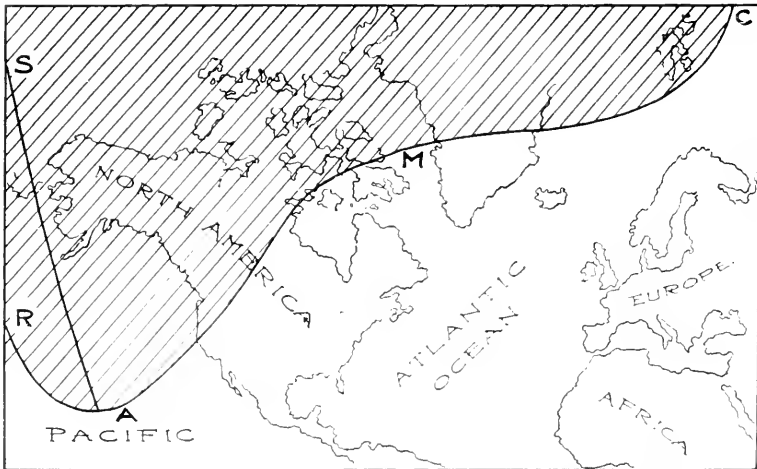


Figure 2. Regions of the earth within which the partial eclipse of April 6 may be seen.

weeks in which it is leaving the evening sky. Its very rapidly narrowing crescent and its increase in size as it draws near to our earth furnish a most interesting object for observation. Venus will remain in the morning sky throughout the remainder of the present year.

Saturn still shines in the west, nearly midway between the Hyades and the Pleiades, and may be well observed, especially during the first part of the month. It also will soon be lost to view in the sun's rays, although it will not finally enter the morning sky until the morning of May 29.

The reader may have noticed a very bright star shining out in the southeastern heavens for a few hours before sunrise, and which advanced but a short distance across the heavens in the

from the ground in the southeast. The former planet rises nearly two hours earlier at the close of the month than at the beginning, but the latter is running so very rapidly eastward that during this time it crosses almost the entire constellation of Capricornus and enters Pisces, so that its time of rising changes but very little.

Mercury is farthest west of the sun on April 24 and may then be detected rising almost exactly at the east point of the horizon a little more than one hour before the sun. At this time it shines as brightly as a first magnitude star.

THE PARTIAL ECLIPSE OF THE SUN.

On April 6 at a little after noon (Eastern time), the moon will pass between the earth and the sun, covering almost half of the sun's disc, but un-

fortunately no part of this eclipse will be visible to observers within the borders of the United States. It can only be seen by those who are within the shaded area indicated in Figure 2; to observers along the line AR, the eclipse will end as the sun is rising; to those along the line AS, the beginning will occur at sunrise, while those to the east of this line and within the area SAC will see the round moon gradually pass over the upper part of the sun's disc and partially hide our sun from view. The entire eclipse will last three hours and eighteen minutes.

THE NATURE OF THE NEBULAS.

One of the most interesting investigations into the nature of the universe about us, and at the same time one of the most difficult, is that which has to do with the real nature of the many thousands of nebulas in the sky. The light from the greenish nebulas shows us clearly that these are true masses of glowing gas, but with the thousands of white nebulas the case is far otherwise. When the spectrum of one of these objects is examined, it is seen to be perfectly continuous, without either bright or dark lines crossing it, a fact which, so far as our knowledge goes, indicates either that these great clouds are solid or liquid masses or else that they are composed of gases under a great pressure. Either assumption seems equally impossible, and hence some astronomers are returning to the old belief that these nebulas are true universes of stars at inconceivably great distances from our own.

It may be remembered that an exceedingly faint and remarkable nebulous cloud extended throughout the little group of stars known as the Pleiades, and very recent and most difficult observations upon the spectrum of this cloud indicate that its spectrum is also a continuous one and identical with that of the stars of the Pleiades themselves. From this it is inferred that the nebula is made up of dark and opaque particles and that we see it faintly shining merely because it is illuminated by the stars with which it is associated. And it is suggested that a great part of the material in the white nebulas may also only shine by the light poured out from the bright central condensation.

What view of the structure of the white nebulas is the true one we do not yet know. It is hoped that with the remarkably sensitive instruments that

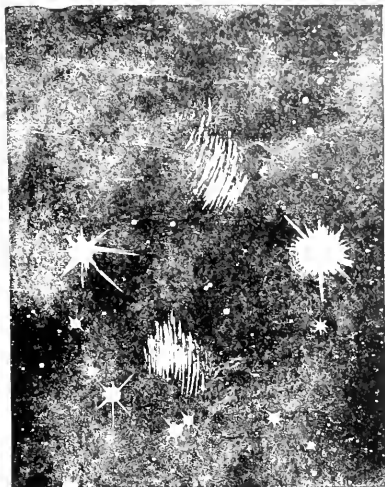


Figure 3. The nebulosity in the Pleiades. Recent observations indicate that this is opaque matter shining by reflected light.

have in recent years become available for their study, we may soon be led to a fuller knowledge of these remarkable and interesting objects.

ERIC DOOLITTLE.

The Agassiz Association. Report of the Glen Ridge (New Jersey) Chapter.

BY MRS. FRANK M. TALBOT, PRESIDENT.

The Glen Ridge Chapter of The Agassiz Association is building or having built bird feeders and bird houses for our parks and yards. We have studied the evergreens best grown in New Jersey; are to study the humming bird and tropical birds at our next meeting, and discuss what our Governor is doing to protect and increase our native birds.

We had one meeting on the mushroom, with a talk on the subject by an able and successful mushroom grower. We are to study the toad, the ostrich, the bee. One meeting will consider our native ferns and orchids.

Men of sixty or seventy who proclaim that they feel just as young as ever they did are mostly liars, I think.—Bradford Torrey in "Field-Days in California."

Free Instruction in Raising Mush-rooms.

"The Agassiz Association's ARCADIA is for study and research, and for giving information upon any phase of nature to any person who desires to know."

Some of the most enjoyable observations for several recent weeks have been the culture of mushrooms in manner so simple that it is available to anyone, even to a boy or a girl. These delicious and nutritious growths are interesting forms of fungi and may be grown with only the slightest trouble in any kind of packing box. The growth, structure and various other particulars pertaining to these vegetables, will be explained to any one who cares to call at ARCADIA.

And the reader is cordially invited to call. Non-members will be received and welcomed during visiting hours—from 3:00 to 5:00 P. M. on Wednesdays and Saturdays, while members and their friends may come at any time and on any day. The workers at ARCADIA will be happy to show the mushrooms to you. They will also be glad to answer any questions pertaining to nature. Some people are afraid of questions. Dr. Bigelow is not. You may fire them at him like bullets out of a Gatling gun, or like spores out of the gills of a mushroom, and he will not flinch.

If you want to see mushrooms in the act of growth, you have only to accept this invitation. The spores are too small to be seen by the naked eye, but they can be shown to you under the microscope.

"Wonder What They do There."

Do you want to gratify your curiosity by the sight of some of nature's most charming and alluring handiwork? Go to ARCADIA, Sound Beach, and do that. It is a praiseworthy purpose. If everybody was without curiosity, the world would be composed of ignoramuses, for nobody would care to learn anything. Love is said to make the world go round. Maybe so. But curiosity comes in as a good second.

Curiosity attracts many people to ARCADIA. This results in a greater knowledge and love of nature.

Yes, curiosity is commendable.

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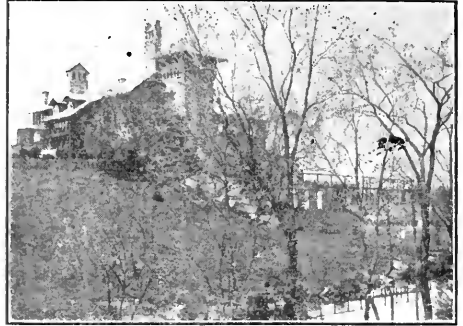
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GREENWICH NURSERIES

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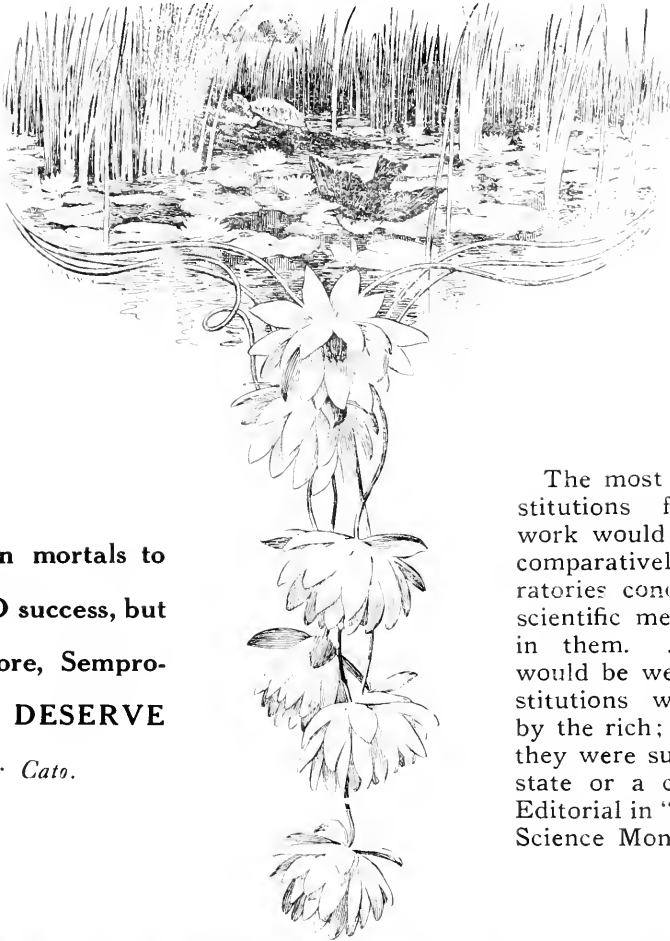
LANDSCAPE GARDENERS AND NURSERYMEN

GREENWICH, CONN.

A

ARC

DIA



'Tis not in mortals to
COMMAND success, but
 we'll do more, **Sempro-**
nius, we'll DESERVE
 IT.—*Addison: Cato.*

The most desirable institutions for scientific work would probably be comparatively small laboratories conducted by the scientific men who work in them. . . . It would be well if such institutions were endowed by the rich; still better if they were supported by a state or a community.—*Editorial in "The Popular Science Monthly."*

The Louis Agassiz Method.

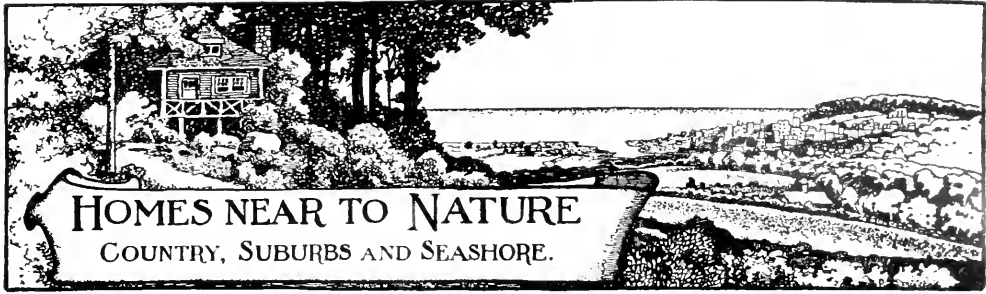
Passing from bench to bench, from table to table, with a suggestion here, a kindly but scrutinizing glance there, he made his sympathetic presence felt by the whole establishment. No man ever exercised a more genial personal influence over his students and assistants. His initiatory steps in teaching special students of natural history were not a little discouraging. Observation and comparison being in his opinion the intellectual tools most indispensable to the naturalist, his first lesson was one in *looking*. He gave no assistance; he simply left his student with the specimen, telling him to use his eyes diligently, and report upon what he saw. He returned from time to time to inquire after the beginner's progress, but he never asked him a leading question, never pointed out a single feature

of the structure, never prompted an inference or a conclusion. This process lasted sometimes for days, the professor requiring the pupil not only to distinguish the various parts of the animal, but to detect also the relation of these details to more general typical features. His students still retain amusing reminiscences of their despair when thus confronted with their single specimen; no aid to be had from outside until they had wrung from it the secret of its structure. But all of them have recognized the fact that this one lesson in looking, which forced them to such careful scrutiny of the object before them, influenced all their subsequent habits of observation, whatever field they might choose for their special subject of study.—*Elizabeth Cary Agassiz in Louis Agassiz: His Life and Correspondence.*



THE HOME NEAR TO NATURE. OF MR. ARTHUR W. FRANCIS AT BROOK HOLLOW FARM.
STAMFORD, CONNECTICUT.

The homestead in its primitive beauty glistens across the vista of stone walls . . . snug, cozy, secure, secure, just right?



Volume V

APRIL, 1913

Number 12

The Successful Improvement of an Old-time Farm.

BY EDWARD F. BIGELOW, Arcadia: Sound Beach, Conn.



THE essential point is in that word, improvement. Improvement may be transformation, but transformation is not always improvement. To take an old, run-down, well-grubbed farm and make it picturesque and a thing of beauty, without destroying its identity as a farm, is to create a masterpiece of art. Give a farm a good location, and the owner plenty of money, and the simplest thing in this world is to transform that farm and others adjoining, bought by some one who seems intent on syndicating all the farms in the vicinity into one extensive estate. But that is not improving the farm. It is transforming the farm, and that may be entirely different. One of the principal charms of a farm is that it is a farm, and not a collection of gorgeous

acres. To improve anything is not so simple matter as it may seem. There is always the danger of transforming it. Skill is needed to develop the de-



THE APPROACH TO THE ORIGINAL OLD FARM

sirable qualities, without annihilating the good qualities and the charm of the original.



TAKEN FROM THE MEMORY BOOK—AS IT WAS IN PRIMITIVE DAYS.

Copyright 1913 by The Agassiz Association, ARCADIA: Sound Beach, Conn.



TWO MORE POINTS OF VIEW OF THE ORIGINAL.

And while such changes and improvements may be necessary or advisable, there is a pathos, there is a feeling of sadness involved in one's appreciation of the new beauties erected on the old foundations, yet perhaps no more than is present in any other change in this world of rapid changes. To me, there is no more poetic nor pathetic mental picture possible, than the mental vision of an elderly woman walking northward from Stamford in the winding, picturesque roads, with their stone walls, or their "worm

fences," those old-fashioned, extravagant, beautiful, graceful lines and bars and crossed stakes of crookedness, irregular, wandering, charming the eye and the mind, wasteful of land and of wood, harboring all kinds of alluring things in their angles and their corners, vines and briars and "weeds," squirrels and field mice. She wandered here when she was what we call young. That was long ago. The old homestead yonder is still to her the old homestead. Magical touches have made improvements, but hardly



MR. AND MRS. FRANCIS AND DAUGHTER ON THE RUSTIC BRIDGE.



THE ARCADIAN TERRITORY.

a radical feature has been obliterated yet the outbuildings transformed. Does the paths have been improved, and she see primarily all these improvements? I fancy that she closes her the garden has been beautified and



THE PATH FROM THE BRIDGE

eyes and sees again in memory the vision of her girlhood, when she played at keeping house, with callers to stay to tea and make merry under the apple tree by the wall. To her it is again the old farm, the old mother, and the cows with bells on their neck clanging homeward from the pasture in the cool of the early evening.

Some of us who see these things, see them best with closed eyes, and we hear the heavenly old sounds as they come faintly from across the valley, sounds and songs half a century old. Hear them? We could hear them if we were deaf as the Biblical adder. But

by artistic feeling and dainty appreciation of nature. Mr. Arthur W. Francis and his wife possess these necessary requisites because their interest in the old farm has not been due to a spirit of commercialism. Mr. Francis has touched where touching was needed and left untouched where nature could be left and trusted. The result is that art and nature have gone hand in hand close and sympathetic comradeship.

Could anything be more delightful to the eye than the rustic bridge erected with an air of security, not with a conspicuous display of hewn stone and cement, but with boulders and "cob-



"WHICHEVER WAY ONE MAY POINT, 'TIS BEAUTY, BEAUTY, EVERYWHERE."

it needs not the memory of personal experiences as one approaches Brook Hollow Farm, sheltered so snugly and cozily in a sunny valley that might be a valley of enchantment. Here mingle together the poetry of the past and the improvements of the present. For this reason we bring to the reader's attention this month one of the most skillfully and successfully improved old farms that we have ever seen. The hand of improvement has been guided

bles" thrown together in delightful abandon, in delicious profusion of recklessly beautiful lack of order? This is skill, and all the greater skill because it is skill concealed, with no visible effort to attain concealment. It is the wild, rustic, ever flowing brook with a convenient bridge above it and in harmony and sympathy with it. The homestead in its primitive beauty glistens across the vista of stone walls, as I look at it from the road, snug,



AMONG LEDGES AND TANGLED THICKETS

cozy, secure, just right. The improvements have not improved away a particle of this charm, yet we see the skillfully modernized home rising on the hillside, with picturesque ledges and natural shrubbery and trees. The residence is as picturesque as the farmhouse, which is delightfully hidden by the edge of the forest, and approached by a winding, charming footpath. The

house is not obtrusive. It seems shy, modest, retiring, as if waiting to be wooed by him who would come near to the heart of nature and expect to find it in that retreat. It is the same old garden and yet it is not. There is the charm of the old-time flowers that adorn it, yet the garden has an air of enterprise, and shows the touches of the skilled gardener, who has asso-



THE FARMHOUSE DELIGHTFULLY HIDDEN AT THE EDGE OF THE FOREST



"THE AUTOMOBILE HAS MADE THIS DEVELOPMENT POSSIBLE."

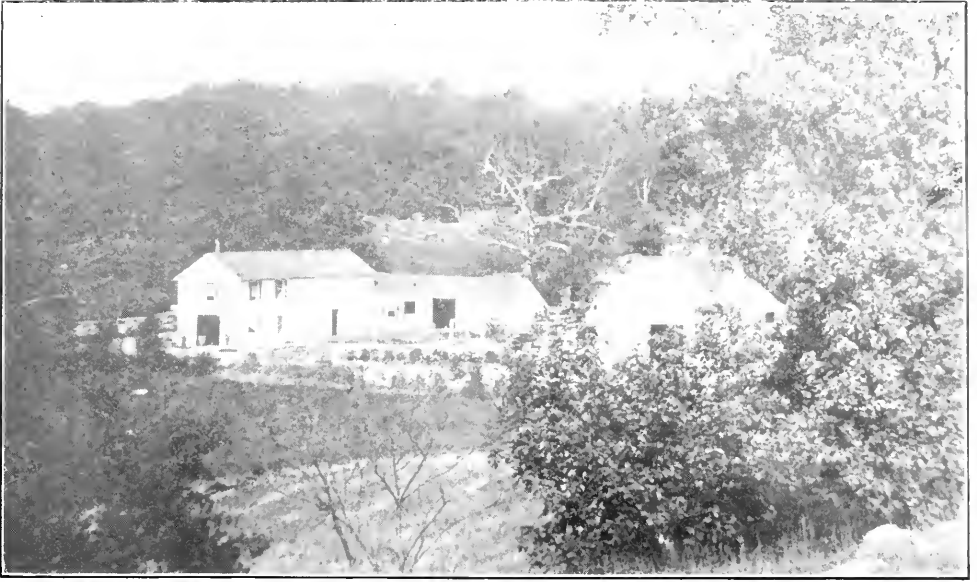
ciated trees with the songs of birds. The transformations have been so well made that that modern innovation, the utilitarian garage, is not obtrusive, but in harmony with the surroundings. Asters and nasturtiums still decorate the wall and the roadside as they did in the days gone by.

With this as with hundreds of others,

the automobile has made this development possible. Mr. Francis is a busy business man of New York City and comes here, I suppose, not only for rest and refreshment, but for the real satisfaction of applying his art, though perhaps he may not realize that fact. He likes to do things and he knows how to appreciate the charm



THE FLOWER-BORDERED WALLS.



THE TASTEFUL ARRANGEMENT OF THE GARAGE AND OTHER OUTBUILDINGS.

and simplicity of nature, and he has wonderfully succeeded in developing this valley farm, which lies as in the hollow of a cup, rising on almost every side to tree crowned hills, and offering across the valley in either direction a lovely view of ancient trees and rugged hillsides. What is more peaceful and more pleasingly suggestive of the fostering care of man than a little clearing at the edge of the woods, where the landscape still remains un-

changed, and as untamed as when nature first planted the germs and directed the graceful growths as she would? I recently met an aged resident of the farm who rejoiced in his opportunity to tell a stranger how his grandfather and his men and a yoke of oxen went out before sunrise and worked until after dark to make the stone walls that border these fields. A certain period of our American history might well be called the stone wall era, and my aged



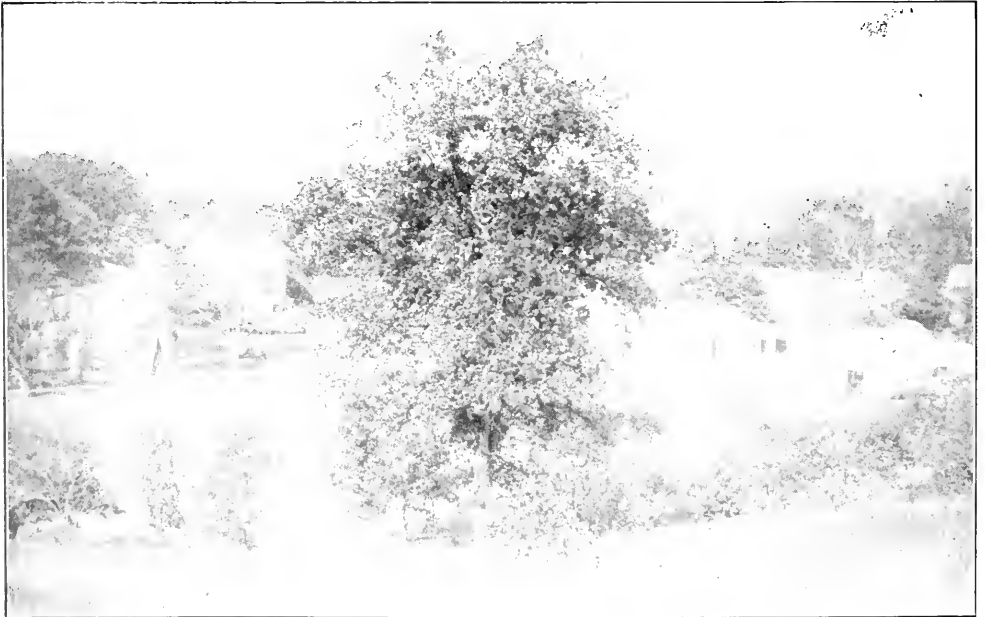
AN ATTRACTIVE APPROACH TO THE GARAGE.



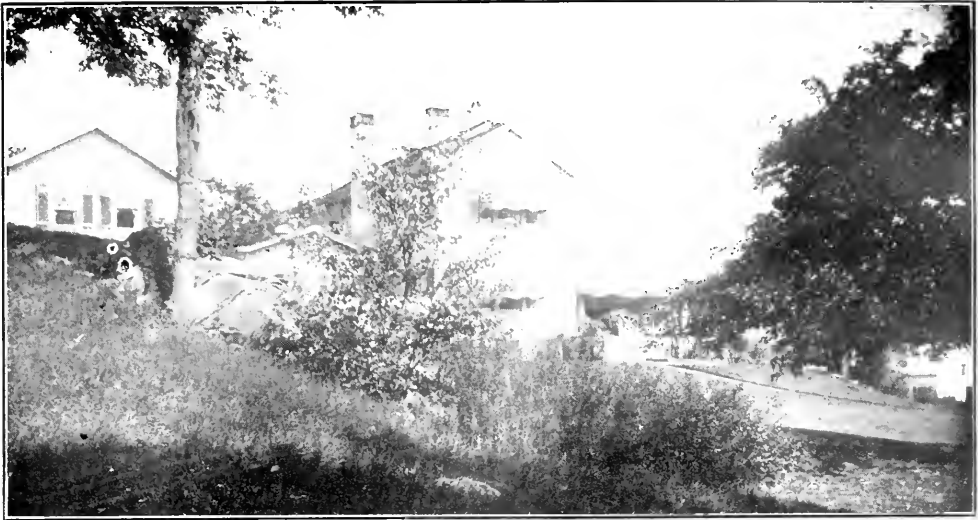
"WHAT IS MORE PEACEFUL AND MORE PLEASINGLY SUGGESTIVE OF THE FOSTERING CARE OF MAN THAN A LITTLE CLEARING AT THE EDGE OF THE WOODS?"

interlocutor was right when he said, "They don't build such stone walls now as they used to when my father was a boy."

Mr. Francis's farm lies in the valley of sunshine, bordered by exultant trees that gaze benignantly on the improvements of the last few years, and



"IN THE VALLEY OF SUNSHINE."



"FROM A HILLSIDE NOOK."

seem to be pleased by the change. Just at the back of the house, the brook laughs and plays and gurgles in wide shallows above the cobbles. It flows serenely in its later progress through the pool where the reflection mirrors

the sky in a concave miles deep. A shaded pool open to the sky is a magic mirror, in which is visible, not the past only, but the future, a mirror in which old Mother Nature will teach you in her quiet way little secrets, silent, precious, beautiful.



"A SHADED POOL OPEN TO THE SKY IS A MAGIC MIRROR."



THE HEAVENS IN MAY

The Heavens in May.

BY PROF. ERIC DOOLITTLE OF THE UNIVERSITY OF PENNSYLVANIA.

For the first time this year there is not a single bright planet to be seen among the evening stars. The almost simultaneous withdrawal of both Saturn and Venus has left us none of our

shone out in the west during the early weeks of April and how rapidly this world appeared to draw toward the sun, it is now moving outward from the sun in the early morning sky and not until the last month of the year 1914 will it again become conspicuous in the western heavens. The much more



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

interesting near-by worlds to study, and none will be seen in our evening heavens until toward the close of June, when the bright and beautiful Jupiter will make its appearance low in the southeast.

Every observer must have noticed how the wonderfully brilliant Venus

slowly moving Saturn, which is now seen so near the sun, and which passes into the morning sky on the 29th of the present month, will re-enter our evening heavens next October. Upon the return of this beautiful planet we will see that in the course of its 29-year journey around the sky it has

moved far to the east of the Hyades, almost to the border of the great constellation of the Bull.

THE MAY STARS.

In the west we now see the very brilliant groups of Orion and Taurus and the far fainter Perseus with its remarkable Demon Star, Algol, all just sinking below the ground. The bright Dog Star has wholly disappeared, while the lesser Dog Star, the bright twins and the brilliant golden sun, Capella, are very near the borders of our evening sky. The great Leo and the Bear are still high in the heavens, but these too are beginning their declension toward the west, while due south the Water Snake stretches its great length almost across the entire heavens.

Meanwhile, in the east, we see many beautiful summer groups steadily mounting upward to take the place of those that are leaving us. The very large Bootes with its brilliant, golden-yellow Arcturus, the delicate Northern Crown, the interesting Heracles with its wonderful cluster of suns, have all mounted high up from the ground, while below these we see that the Northern Cross and the great summer groups of the Serpent and the Serpent-Holder are now beginning to enter the evening sky.

In the southeast, will be found the Scorpion, the most striking of all the summer groups, although as yet only the claws and front part of this creature have emerged from below the ground. Soon its fiery-red star, Antares, will appear, and when the whole becomes visible we will see that the string lies almost on the center of the wonderful summer branch of the Milky Way, and when, as now, the winter branch is sinking below the western horizon, the summer branch begins to rise above the ground in the east.

To the right of Scorpio are the two stars of the Balances, and westward from these there stretches the great Harvest constellation of the Virgin, whose bluish-white star, Spica, celebrated from the earliest times as the Solitary or Defenceless One, is the brightest object in this part of the heavens. This distant sun belongs to a remarkable class of stars, each member of which, though it appears as a single star even in the largest telescopes, is

known to be in revolution about a darker, invisible companion. The revelation of these invisible stars about which many of the bright suns are revolving is one of the most surprising of very modern discoveries of astronomy.

HOW INVISIBLE STARS ARE FOUND.

It is well known to everyone that when a beam of white sunlight shines through a triangular prism it emerges as a beautiful band of light whose colors blend from violet at one end to red at the other. This is because the apparently simple beam of white light

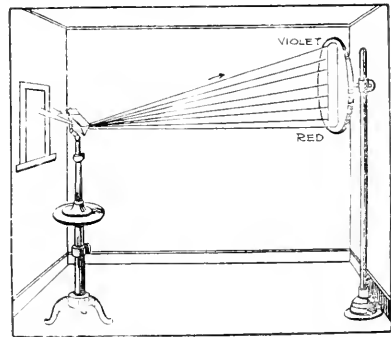


Figure 2. The formations of the spectrum of sunlight.

is actually made up of almost an infinity of light beams of different wave lengths, the waves known to us as violet light being the shortest while those which produce upon our eyes the impression of a red color are the longest. The shorter the light waves in the ether are the more they will be bent out of their course by their passage through the prism. As the wave lengths of violet light are less than those of red light the colors will thus be separated from one another as illustrated in Figure 2.

If a narrow slit be placed before the prism so that only a very thin beam of sunlight can shine through it, the color strip will at once become crossed by a multitude of fine, black lines whose position with reference to the direction of the narrow beam can be measured with great accuracy. From many of the stars, of which Capella is an example, the color strip, or Spectrum, is exactly like that made by the light of our own sun; from others we obtain a spectrum crossed by bright lines instead of dark ones. But in either case the position of the lines depends upon

the lengths of the corresponding light waves in the ether; that is, upon the number of light waves which pass through the narrow slit in a given time.

It is therefore evident that if we are approaching the source of light more waves will fall upon the prism in a given time than otherwise and that the wave lengths will thus become displaced toward the violet end, which is the region of shorter wave lengths. And if the distance between us and the source of light is increasing, the lines will be displaced toward the red. By measuring the account of this displacement we can even determine how many miles a second the star is approaching or drawing away from us.

esting example, for this has two dark companions, the revolution about the nearer one being completed in about four days, while that about the more distant requires several years for its completion.

THE PLANETS IN MAY.

Though none of the bright planets are now in the evening sky, the observer may study three of them to excellent advantage if he will go out for this purpose in the early morning; Mercury and Saturn alone will remain so near the sun throughout the month that they cannot be satisfactorily observed at any hour of the night.

Just before sunrise the bright Jupiter may be seen shining out low in the

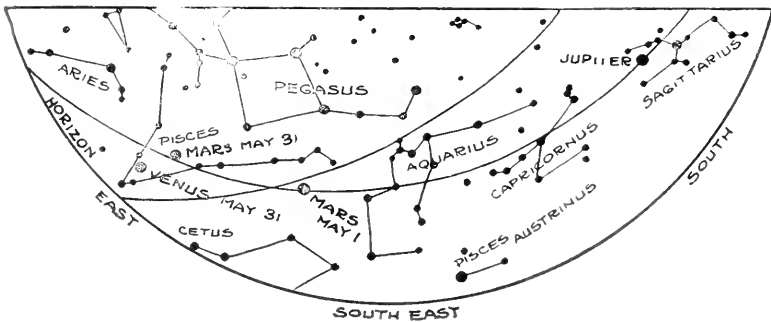


Figure 3. The southeastern Heavens at 5 A. M., May 1 and at 3 A. M., May 31, showing the positions of Venus, Mars and Jupiter.

The spectrum of Spica is crossed by bright lines whose position shows us that hydrogen and helium are especially prominent in this star. At certain times these are displaced towards the violet so far as to show that Spica is then approaching us with a speed of 57 miles a second, two days later they are so displaced towards the red that we know that the star is then receding from us with the same velocity. After four days from the first date we find the star approaching us again and this alternate approach and recession continues with perfect regularity indefinitely. It thus becomes evident that this bright star is revolving about the common center of gravity of itself and a dark companion with a speed of at least 57 miles a second, the circuit of its orbit being accomplished in four days.

Our North Star is a still more inter-

south, near the eastern border of the constellation Sagittarius. This planet rises about midnight on May 1 and at about 10 P. M. on May 31, so that throughout the morning hours it is an excellent position for observation.

The fainter, though still conspicuous, Mars will also attract attention in the southeast. During the month it will move so rapidly across the constellation Pisces that although it rises at 3 A. M. on May 1 this time will be diminished by only half an hour by May 31. At the latter date Mars will be but a little way below and to the right of the planet Venus, the two objects will then form an interesting figure in the morning sky.

Throughout the month the planet Venus will be seen running rapidly eastward from the sun, becoming almost as conspicuous in the morning sky as it has been for so many weeks

in the evening. It will attain its greatest brilliancy on May 30. The observer who during April watched its change of phase as it diminished to a narrow, silvery crescent has now an opportunity to observe its equally interesting and rapid increase, the horns of the crescent now being turned in an opposite direction from that seen when Venus was an evening star.

Children's Interest in Nature Material.

Dr. Elliot R. Downing, of The School of Education, the University of Chicago, Chicago, Illinois, has made a careful analysis of the letters and information per-

and the data are herewith presented. The same question was answered in the department only three times. There were 732 children who asked questions or made observations, of whom 301 were boys and 441 girls; 116 of the boys was 11.90 years, of the girls 12.08 years.

"Observations are given in 295 cases; 447 questions are asked, making a total of 742. Of this total 20.6 per cent. concerns plant material, 61 per cent. animal material, 11.6 per cent. physical material and 1.8 per cent. miscellany that can be classed under neither of these heads, largely observations on the enjoyment of the beauty and companionship of nature. The graphic representation of these percentages makes it very clear that a child's interest in animals is the major interest."

An article in "The Nature-Study Review" for December, 1912, gives further statistics, percentages, etc., in an effort to ascertain what in nature most interests children. The accompanying diagram shows how far ahead animals surpass in attractiveness all the other departments of what we call Natural Science.

The First Robin.

BY EDMUND J. SAWYER, ADAMS, NEW YORK

The churchyard trees by wail and moan,
And naked boughs that hoarsely creak and
swing,
And frosted trunks that coldly groan,
Proclaim stern Winter yet is reigning king.
But hark!—a sweeter sound is heard,
The anthem of the first returning thrush;
And see!—the figure of a bird
Is drawn above the pale, cold, sunset flush.
He sings of joys he knows not of,
Of warmer suns, but knows not what nor
why;
Yet sure his sun of joy and love;
Though he were silent, sure his summer sky.
And dare I trust that where enow,
Over the graves of hopes which sadly rest,
I hear but moan of naked bough,
My cup of faith itself a snow-filled nest.
There yet shall be a summer day,
Knowledge were even faith was dead of late,
If I will sing as best I may,
Or cling but to the leafless boughs—and wait?

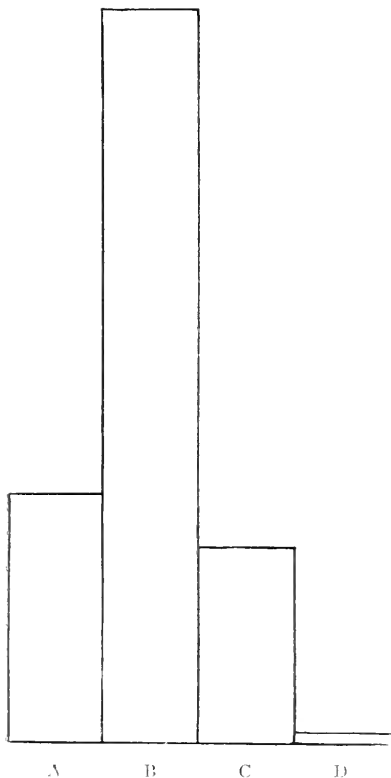
Puzzled on the Origin of Life.

Ernest Thompson-Seton said, "I asked a little boy in one of my camps to tell me something wonderful about birds.

" 'Why,' said the little boy, 'how they come out of the eggs, that's wonderful.'"

" 'Now,' I went on, 'tell me something about them more wonderful still.'"

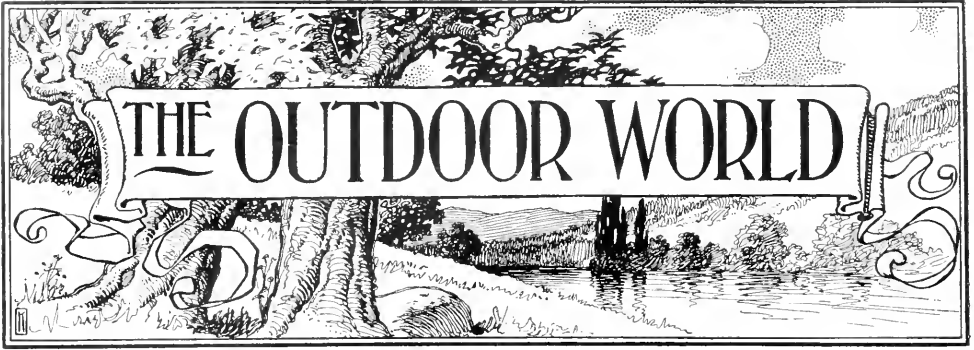
" 'Why,' he answered, 'it's more wonderful how they ever got inside the eggs.' "—*Cincinnati Enquirer*.



GRAPH OF CHILDREN'S INTERESTS.—A, Plant Material; B, Animal; C, Physical; D, Miscellany. One-sixteenth inch equals one per cent.

taining thereto that have appeared in the "Nature and Science" Department of "St. Nicholas," for more than a decade. He says as follows:

"It is quite apparent that the letters that are printed are more or less typical



Some Characteristic South African Plants.

BY CHARLES J. CHAMBERLAIN, CHICAGO, ILLINOIS.

In January, 1912, I arrived in South Africa for a field study of the African cycads, a family in which I had been interested for many years. Besides the



FIG. 1. *ALOE FEROX*, NEAR QUEENSTOWN, SOUTH AFRICA.

cycads, there are other South African plants which are equally characteristic, and to the public, more interesting.

Although some familiarity with the Mexican tropics had taken away the novelty of seeing greenhouse species and carefully cultivated out-of-door exotics growing luxuriantly by the roadside, the South African forms are so beautiful and so different that the novelty was renewed.

Gladiolus is common and various Liliaceae and allied families are conspicuous on the velt, and in the rough and rocky places many species of Pelargonium (Geranium), so popular in cultivation, are abundant. On the velt and on the mountains, Ericaceae

(Heaths) add much to the beauty of the scenery. Our own members of this family, like blueberries and huckleberries, have beautiful flowers, but the South African species flower even more profusely and the plants are so abundant that large patches on the mountain side will be blue, or purple, or pink, or bright scarlet. Doubtless, South Africa has many more flowers to contribute to our gardens and conservatories.

One of the most striking and characteristic plants of the region between Zululand and Cape Town is the Aloe. There are various species. One of them, *Aloe Bainesii*, has become quite popular in cultivation in South African gardens and on private lawns. Its popularity may be due to the fact that it is not only a graceful tree, with very symmetrical branching, but it grows rapidly from seed. A plant at Grahamstown twenty-five years old, is twenty-five feet high and has a trunk four feet in diameter. The most striking species of the genus is *Aloe ferox*, which is at its best on dry mountain sides, but is abundant in arid places everywhere (Fig. 1.) It looks like a medium sided Mexican agave, except that it has a trunk that may reach a height of ten feet. It is well named, for the rigid leaves, with a stout spine at the end and saw-like margins, give it a fierce aspect. Even a soldier's khaki suit must be protected from contact with these forbidding leaves. Many small herbaceous plants are spiny, and many shrubs and trees are thorny. I wondered how the Zulus and Hottentots, who carried my luggage, could go through such places bare-foot, but they never seemed inconvenienced. I was told that when

skeletons are dug up, the soles of the feet are as well preserved as the bones.

The most conspicuous of peculiar South African plants is the *Euphorbia* (Fig. 2.) Many species are small prostrate annuals, like our *Euphorbia maculata* (spotted spurge,) but those shown here are trees about sixty feet in height. The large tree in the foreground is quite characteristic. The smaller branches break off, so that the larger branches are long and bare, except for a tuft of small branches at the end. Finally, some strong wind sways the tufted branch until it also breaks off. Consequently, the full sized tree has a long trunk with branches only at the top. Scars, left by the torn-off branches, may be seen on the large tree in the foreground.

This is called the milk tree, and a blow with the ax does bring out a sticky white fluid, which looks like milk, but which does not taste like it. I was told that all the *Euphorbias* shown in the picture belong to the same species, *Euphorbia tetragona*. If this is true, the species certainly shows a great variation in the general appearance of the branching.

Much smaller, but scarcely less in-

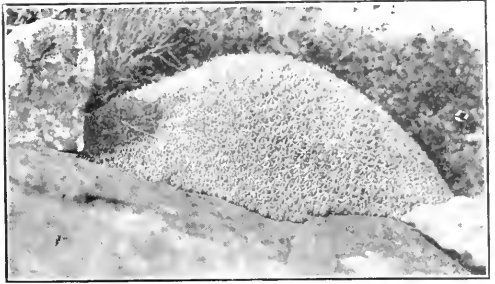


FIG. 3. *EUPHORBIA PULVINATA*, ON THE WIND-VOGELBERG AT CATHCARA, SOUTH AFRICA.

teresting, is another species of the same genus, *Euphorbia pulvinata* (Fig. 3.) The plant shown in the figure is a fair specimen and is less than two feet high. It looks like some of the Mexican cacti. If one should tear the plant to pieces, he would find that it is a profusely branched little tree, the terminal branches of which are so tightly crowded together as to conceal entirely the fact that it has a stem and branches.

South Africa is a splendid place for field studies of characteristic plants, and the unbounded hospitality and active co-operation of the directors of botanical gardens make it easy to reach the best places for any particular investigation.

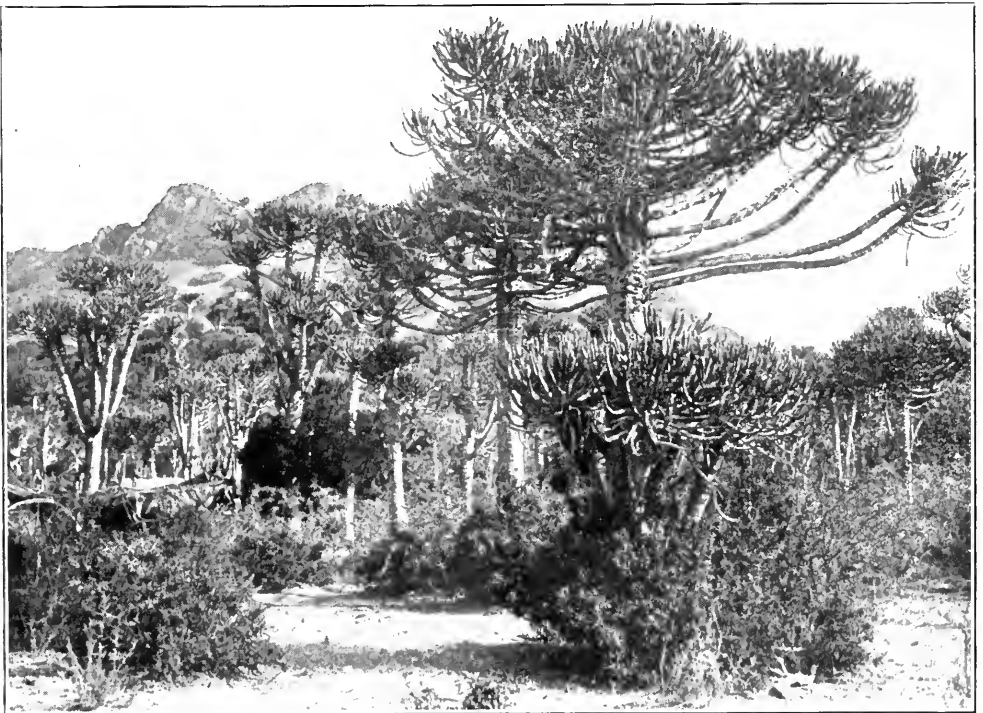
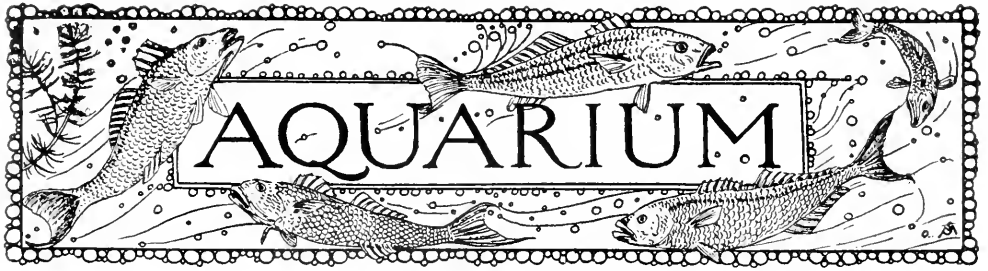


FIG. 2. *EUPHORBIA TETRAGONA*, ALONG THE KEI RIVER, ABOUT ONE HUNDRED MILES NORTHWEST FROM EAST LONDON, SOUTH AFRICA.



Feeding Goldfish.

BY WM. T. INNES, JR., PHILADELPHIA.

A great number of good and kind people are very much worried as to *what* they should feed goldfish. This really is a subject of some importance, but not as important as many imagine it to be. Considerations of *how much* to feed, and the conditions surrounding the goldfish—plants, light, temperature, air surface of water, etc.—are tremendously more important to the health of the inhabitants of the aquarium.

Having a rather large aqua-terrarium at my place of business I naturally get on the aquarium subject with persons of all degrees of ignorance on fish-keeping lore. Scarcely a day passes that someone does not ask, "What shall I feed my goldfish?" My stock answer is "Anything they will eat." Of course, this answer requires an explanation, but in itself is intended to convey two facts; that the range of acceptable food for goldfish is very large; that the subject is not of as much importance as supposed.

A gentleman who has been a practical aquarist and a leading authority for a quarter of a century told me that he feeds his fish almost anything from the kitchen or table which is not too greasy, including cake! His fish are in large, shallow indoor tanks in which there is a profusion of healthy plant life, and an abundance of water. In a household aquarium of the ordinary type this haphazard method would not do, but nevertheless it is still true that if an aquarium is right, the fish may be fed on anyone or all of a score of foods, *particularly if they are not given too much.*

Nobody would think of feeding goldfish on pears. In the summer, I place my goldfish in an outdoor concrete pool which is partially shaded

by a pear tree. Some of the pears drop in, and when they soften sufficiently, the fish nibble at them until they entirely disappear. The pears and the insects which fall into the water are the only foods they get during the summer. When they are taken in in October they are in perfect health.

Oatmeal, Cream of Wheat, vermicelli, soft parts of boiled fish, or any other cereal composed of small grains are good foods exactly as taken from the table. They may also be used uncooked, taking care not to feed heavily. Some of these cereals swell to eight times their dry bulk. We would not want the fish to meet the fate of the boy who ate dried apples and then drank water. Scraped beef (once a week), bread thoroughly dried and crushed, earth-worms, meal worms finely chopped, crushed dog biscuit and water crackers are a few of the easily obtained items which would be acceptable on a goldfish bill-of-fare. The white wafer food usually sold in pet and drug stores is only a fair value. Most pet stores sell a granular food composed of a number of ingredients which is better.

The subject of fish food has been gone into very carefully by a number of our semi-amateurs. Several of them now market prepared foods composed largely of the dried form of the insects which as living food is generally recognized as the very best of all foods. Dried fish roe, shredded codfish, pulverized ant eggs, dog biscuit, chopped liver, rice flour, bran meal, and a small quantity of pulverized cuttle-bone are some of the ingredients mixed with the dried insects and entomostraca. The mixture has a certain amount of salt added, and in some cases Epsom salts. The whole is then cooked, dried and granulated into different sizes.

unless one intends using a large quantity, it pays much better to purchase this kind of food than to make it, and if the aquarium keeper wishes to adopt one kind of food, this is perhaps the best as it contains all the necessary elements.

The one best food for practically all aquarium fishes is the living *Daphnia*, a crustacean about the size of a flea, which is found the world over, principally in still ditches. Another inhabitant of still water is the mosquito "wiggler." This is a wonderfully fine goldfish food. After they are large enough to swallow them, the young goldfish grow more rapidly than on anything else. An occasional meal is greatly appreciated by the large fish, and to see them so rapidly eaten partially compensates for the bites one usually gets while collecting them.

Among living foods should be mentioned the freshwater shrimp. These occur in many brooks and springs. I have never seen them in large quantities, but they are desirable and should be taken whenever opportunity offers. The Germans dry sea-shrimp and use it as the principal part of their foods for all fish. They export large quantities of it to America and other countries where it is reduced to smaller sizes and used largely as goldfish food. It is to be highly recommended for this purpose, and very likely, in a few years, it will be universally used as a part of American composite foods.

In winter it is difficult to get suitable forms of living organic food. For several years I have satisfactorily met this difficulty by feeding chopped oysters, using the soft parts only. After chopping it is well to wash the particles slightly to prevent making the water milky. A slight milkiness is not objectionable. It soon disappears. Oysters may be fed about once a week, that is often enough.

The principal point about feeding is not to feed too much. No more food should be given than will be consumed in a few minutes. In my own aquarium the last particle of a feeding has disappeared within a minute. I will not attempt to give any rules on the frequency of feeding, but it will gauge by aquarium temperature, which is a more accurate method. When the

temperature is between 40 and 50 degrees Fahrenheit, once a week; from 50 to 60, twice weekly; from 60 to 65, ever other day; from 65 up, every day. In warm weather I feed a very small quantity twice daily, but I hesitate to mention it for fear some kind-hearted sinner will overdo the matter.

Successful aquarium management consists in reproducing as nearly as possible, natural conditions. Goldfish in nature eat a variety of food. Remember, this is still true in the aquarium.—*The Aquarium.*

When the Green Gits Back in the Trees.

In the spring when the green gits back in the trees,

And the sun comes out and stays,
And your boots pull on with a good tight squeeze,

And you think of your barefoot days;
When you ort to work and you want to not,
And you and yer wife agree
It's time to spade up the garden lot—

When the green gits back in the trees—

Well, work is the least of my ideas

When the green, you know, gits back in the trees.

When the green gits back in the trees, and bees

Is a-buzzin' aroun' again,
In that kind of a lazy "go-as-you-please"
Old gait they hum roun' in;

When the ground's all bald where the hay-rick stood,

And the crick's riz, and the breeze
Coaxes the bloom in the old dogwood,

And the green gits back in the trees—

I like, as I say, in sich scenes as these,

The time when the green gits back in the trees.

When the whole tail-feathers o' winter time
Is all pulled out and gone,

And the sap it thaws and begins to climb,

And the sweat it starts out on

A feller's forrerd, a-gittin' down

At the old spring on his knees—

I kind o' like jes' a-loaferin' roun'

When the green gits back in the trees—

Jes' a-potterin' roun' as I—do—please—

When the green, you know, gits back in the trees. —James Whitcomb Riley.

Come on and tramp awhile and see

What nature offers you and me,

We'll roam the meadows, climb the hills;

We'll search the source of the rippling rills;

We'll sound the depth of nature's heart

And gather joy from every part.

We are part of Nature—in fact, we are Nature. Nature is our Mother; and the more we love Nature, the more we understand Nature, the more we move with Nature, the happier and better we are.—Elbert Hubbard.



Little Strangers on the Bark.

BY S. F. AARON, SECANE, DEL. CO., PA.

The big things in nature instantly attract our attention; we are apt to overlook the many minute though often very beautiful forms of life that are to

to overcome in the struggle for existence. In the insect world there are hosts of tiny beasties well worth spying out for the interest they will inspire in their perfect and well ordered existences.

On the bark of trees, particularly on the dead limbs of oaks, beeches, orange and cherry trees and often among the withering needles of pines and spruces are to be found by a little close observation a group of the most delightfully droll little winged and wingless creatures. They remind one of a herd of microscopic and cleanly swine, round-bodied and sleek and often very pig-headed mentally. These are the bark flies, known to naturalists as the Psociidae (do not sound the P.), but the books have little to say about them for the reason that the writers know very little concerning their habits and the varied forms. In one group, to which the very minute book lice belong, the individuals of all ages are without wings. The bark flies proper constitute another group that possesses wings when adult; the immature stages are wingless but exactly resemble their parents in appearance otherwise. The book louse, sometimes very foolishly called "death watch" because of a ticking sound it is supposed to make at night in beds or bedrooms and that may have been heard when persons were very ill or dying, is well known and often observed in attics, cellars, musty book shelves or collections of natural history specimens.

The out of doors species, the winged forms, we are most apt to regard with interest. The trolley rider through tree shaded town and city streets will see upon the white page of book or paper a very small, compact-bodied fly with folded iridescent wings, seeming undetermined regarding the nature of



BLACK AND WHITE CREEPER DISCOVERING A COLONY OF BLACK FLIES.

be met with everywhere. Of plants and animals it is an interesting thought that the habits, the life histories of the tiny denizens of field and forest are as complete, as complex and perfect as those of the larger and commonly observed creatures that we know so well. Between the hummingbird and the eagle there is little to choose in actual interest, the smaller bird has greater problems to face and more difficulties

its new landing place, or intent upon crawling across and beneath it. The bark of the maples and cottonwoods harbor millions of these flies. The immature forms are dark green instead of black and they live in small colonies within crevices and chinks, protected by a delicate silken web that is stretched from side to side of protuberances above them.

On many tree limbs and old board fences are larger forms, some at least a quarter of an inch in length with large transparent, spotted or clouded wings that always show in the sunlight the brightest rainbow colors. They run swiftly but seldom take to wing when pursued. As they feed on bark mold and lichens they are by no means bothered with the light cost of living and they become dormant in the winter time.

Bark flies always live in colonies, one or more families together, a sort of tenement arrangement in which all agree most harmoniously. Unlike most insects and not unlike human families, the immature forms are of all sizes and stages of development. They are all web spinners, the winged parents by no means working alone at this. Generally the web is fragile, delicate and not seemingly protective, yet it must serve such a purpose however poorly.

Observations of the habits of bark flies are best made with a low power reading glass that takes in a considerable field. The insects may be approached closely without disturbing them if they are not breathed upon. If with a grass stem one is gently touched it will charge headlong into the midst of its huddled family or companions, pushing them to right and left very unceremoniously. Some seem to share the alarm, others brace themselves against the shock with the four front legs and the longer hind ones raised to push back the intruder, whether friend or foe. When the alarm is general they first attempt to huddle closely, all striving to reach the center of the bunch, then in panic they scatter widely and rapidly, the younger ones running into and over each other in the first getaway.

The little drab colored butterflies called *Neonympha* have commonly received the name of wood brownies; one

might call these solemn-looking, dwarfish and shadow-loving creatures the gnomes of the six-legged world. The comical turn of their large round heads when they are spinning their webs or feeding and the manner in which they



A SMALL FAMILY OF INSECT GNOMES—A BARK FLY SPECIES.

seem to confer together when the colony is at rest gives them an elfin character, in no manner related to those winged creatures that love fields and flowers and sunlighted patches of green. Yet they are real enough and more than a hundred species have been described, with hundreds of others yet to discover. Moreover, those expert entomologists, the birds, know them really and truly; the little creepers, nuthatches and kinglets, the wrens and the wood warblers find them a very considerable addition to their long and varied bills of fare.

I consider *THE GUIDE TO NATURE* the best magazine that I take and I have over twenty different publications each month, and I as a commercial photographer consider the nature studies and outdoor life stories are just simply great, and in my opinion I do not see how any person that is a bit interested in photography can afford to be without your publication, as it certainly has more interesting photographs in one single issue than all the other photographic magazines put together have in a year. I will certainly gladly contribute photographs and articles from time to time to help the editor along and make the publication better every issue, as it certainly depends on the readers of a publication whether it succeeds or not.—Harry F. Blanchard, South Glens Falls, New York.

"The Insects' Homer."

THE INSPIRATION OF THE EXAMPLE OF
HENRI FABRE.

It seems incredible that the greatest entomologist in the world should reach the age of ninety and yet be appreciated only by a handful of kindred

most celebrated of these is Maurice Maeterlinck, who was inspired by his talks with Fabre to write his masterpiece, "The Life of the Bee." Darwin was a great admirer of the gentle Provençal, and called him the "incomparable observer," while Rostand has said



HENRI FABRE.

Illustration by courtesy of "The American Magazine," New York City.

spirits; and yet this has been the case of Henri Fabre, the French naturalist who suddenly became the talk of the world, when the English and American newspapers blazed forth the news, a few months ago, that he was nigh to starvation in his little cottage in Provence.

Then we learned that there was such a man, and the French government bestirred itself and settled a pension on the modest old naturalist.

This shy, delightful old philosopher has never thought of courting fame, but he has so inspired others that they have won eternal renown. Perhaps the

of him that he is "a savant who thinks like a philosopher and writes like a poet."

His magically written "Entomological Memoirs" are now being published in English, and their charm will soon be recognized by readers in two continents. Mr. Frank Harris, the English critic, has said in a review of these books that Fabre is "the wisest man, and certainly the best read in the books of nature, of whom the centuries have left us any record."

This old philosopher is a rare personage in many ways. He has lived a life of endless adversity and at times of

sheer want and poverty, but through it all he has retained an almost unnatural divine patience, and an optimism that could not well be matched.

He lives in a little six-room cottage that he built with his own hands years ago on the outskirts of the little village of Serignan. It is nearly hidden from sight by cypress and lilac trees, and near it is a pond with rushes and reeds that attract the water-insects. All about the little house and garden are great sunbaked, wind-swept wastes, *harmas*, as the Provencal French call such land, which means worthless, for nothing grows there but weeds; but to Fabre it is a paradise, for insects of all sorts swarm and thrive there, and it is for them that he lives.

Maeterlinck has called him the "Insects' Homer, for he has written about the little winged creatures as no one else ever wrote, and with a fine poetic sense that is enchanting.

At the age of seven he attended the village school, and later, as a reward for singing in the choir of the village church, he was given free instruction at the college at Rodez. Here he learned Latin and read Vergil with delight, because of his accounts of bees and turtle-doves.

At the age of fifteen his parents died, and he was forced to earn his own living and cut short his academic studies. Then began his struggles.

He decided to become a teacher of mathematics, and to that end trained himself without an instructor, so that he passed his examinations and was appointed a teacher of physics at the College of Ajaccio in Corsica at a tiny salary. He was an excellent teacher and greatly beloved by his pupils and associates.

While in Corsica he was encouraged to go on with his nature studies by Professor Moquintandon, the great botanist, who at once recognized the genius of Fabre, and every spare moment was spent in the woods and fields studying the habits of insects.

When he was about twenty years of age he married. He had a considerable family, which made it imperative for him to work harder than ever at teaching, and set farther away his dream of one day becoming a naturalist with nothing to do but to study the insects.

After a time he was appointed professor of mathematics at the Lycée at Avignon, and in that town he lived for many years. It was while there that he conceived a plan for bettering himself financially, that he might fulfil his dream. To do this he turned to chemical research, experimenting in the laboratory to perfect the process of making a rich dye from madder-root, which grew quite abundantly about Avignon. A factory was in the process of building when all his hopes were shattered by discovery of aniline dyes, which could be made from minerals so cheaply that no vegetable dye could compete with them commercially.

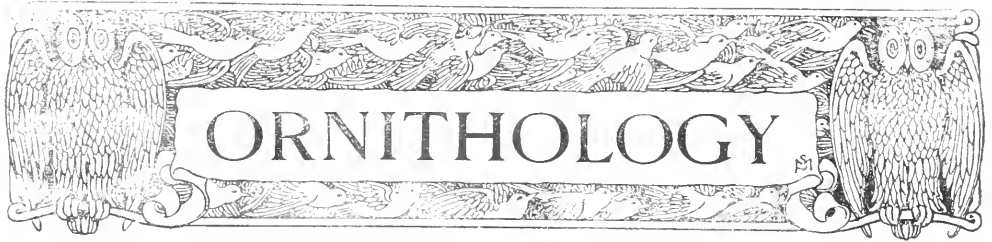
But even this great disappointment did not ruffle the sweetness of the man's nature, and he struggled on as bravely and cheerfully as ever, studying the insects and writing of them during the intervals of his duties at the Lycée.

And then gradually, after years had passed and he was an old man, his writings brought him in a sufficient income so that it was possible for him to give up teaching and devote his whole time to his nature studies. It was then, after struggling for fifty years for this end, that he built the little cottage at Serignan and settled down at the age of seventy to carry out the dream of his life. It was then that he wrote the pathetic appreciation of his achievement:

"The wish is realized. It is a little late, O my pretty insects! I greatly fear that the peach is offered me only when I have no teeth wherewith to eat it. Is the time remaining enough, O my busy Hymenoptera, to enable me to add yet a few seemly pages to your history? or will my failing strength cheat my good intentions?"

That was twenty years ago, and the lovable old philosopher is still studying, still writing of his pretty insects, and it is to be hoped that he will round out a century.

His devoted daughter lives with him, and he has the friendship of some great men; but he has been puzzled by the sudden interest in him, and cannot understand why all sorts of people should now want to see him and read his books.—*Elcanor Van Horn* in "The American Magazine."



The Bird Lover's Story

FOR SEVENTEEN YEARS JOSEPH H. DODSON, OF CHICAGO AND EVANSTON, ILL., HAS BEEN BUILDING HOUSES FOR BIRDS. HE BUILDS AN ENGLISH SPARROW TRAP.



Seventeen years ago Joseph H. Dodson, a business man of Chicago, impelled by his love of our native birds, began to build houses for them on his grounds. He had made a study of birds as a boy. He felt that the little fellows should be encouraged to come back to us; that we should do something for them to atone for our mistake in allowing the sparrow to monopolize our gardens and our generous scraps of food.

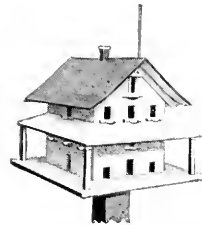
"My first bird house," said Mr. Dodson, when asked to give an account of his experience, "was built to attract the purple martins. This was erected at my place on Kenmore avenue, Chicago, which is in the heart of a district called 'Flatville.' I had never seen martins in Chicago, but as a boy I had won them to a little house I built in the country.

"Two days after the new house went up in Flatville two martins came around and investigated it. Very eagerly I watched them. They flew about the house all day, but evidently I had not met their requirements, for they left and never returned. Something about the house made them timid. Several days later three more martins came, circled about and finally went into the house. They also betrayed evidence of fear, and they flew away. I climbed up to the house and tried to guess what it was that excited the birds' distrust, but I could not. Next day two more martins came and perched on the roof. English sparrows drove them away; the sparrows found

the house attractive and occupied it. No more martins that year.

WINNING THE PURPLE MARTIN.

"During the next winter I designed a house which the birds could enter on either side and go straight through. When the first martins came I saw that



PURPLE MARTIN HOUSE.

I had hit upon the right plan. They took up a lease. When sparrows pursued them they dove into the house and immediately came out on the other side. The sparrow waited at the front door with the patience of

stupidity. It was amusing to watch the little pirate's face.

"I won the martins by this house. One thing confirmed my belief in the fact that it was the only kind of a house they would accept—in every case the birds settled first in the attic, and gradually gathering confidence, took possession of the lower floors. That year I built several houses for friends and every one was successful.

"The martins, you know, like to live together, as many as thirty, or even forty, occupying one house. When I sold my place on Kenmore avenue I left a colony of 77 purple martins, and in my opinion they added to the value of the property.

"Since then my martin houses have been erected in many sections—in New York, San Francisco, Chicago, Marquette, Miami, Isle of Pines, Daytona, Winnipeg, etc.—and I have yet to hear of a house that failed to win martins as regular tenants.

"I know of people who have put up martin houses which cost as much as \$100 and then had to discard them for one of my martin houses in order to secure a colony of birds.

"There are two very important advantages in attracting this sociable bird. One is the fact that martins once won are always your friends. They return faithfully every year. I band my birds. I know that they go far South every fall—martins spend the winter in the Bermudas or in South America—and yet the same birds come to me every spring and this in spite of the fact that there are six houses just like mine and each with its colony of birds—within a



THE WREN OR BLUE-BIRD HOUSE.

block of my place in Evanston, Ill. Faithfulness like that greatly increases the pleasure we find in having our birds about us.

HOW BIRDS SAVE FRUIT.

"The second virtue is a more practical one. On my farm in Michigan, where I have only six martins, I find it necessary to spray my fruit trees five times a year to fight the insects. At my Evanston home, where I have many fruit trees and beautiful shrubs, I do not spray at all; yet my fruit is perfect. At Evanston I have 200 martins; they take care of the insects.

"One day I found a female martin which had been shot by a boy. I had the stomach of this bird carefully examined. It contained more than 2,000 mosquitoes, a large number of house flies, May-rose and striped cucumber beetles and several other kinds of insects. My own experiences and those of my friends who have won bird colonies by my houses convinces that the value of our native birds to fruit growers is far greater than most horticulturists appreciate.



HOUSE FOR GREAT CRESTED FLY-CATCHER.

"When I moved to Evanston there was not a martin house in the town. Now there are fifty, and hundreds more on the Chicago North shore.

"My success with the martins led me to design homes for other American birds. I have succeeded in winning the bluebirds, wrens, the white bellied swallow and the great crested fly catcher.



HOUSE FOR TREE OR WHITE BEL-LIED SWALLOW.

"My houses for birds are all well ventilated—an important point which has been neglected by other builders. Our native birds will not and can not live in hot and stuffy places. They demand plenty of fresh air. My houses are also easily cleaned. The floors of every one—excepting the martin house—are removable. This is another important feature. But so far as I know the houses I build are the only ones well ventilated and fitted with detachable bottoms so that they can be cleansed instantly.

"Every bird has its own requirements in the design, size and arrangement of its house. These requirements I have studied and answered by my seventeen years of working experience. No work I have done has given me so great a return in real happiness.

"My latest house is not exactly a house—it is an English Sparrow Trap. This is rapidly proving itself a great factor in calling back our native birds by removing their greatest enemies. One purchaser wrote me that this trap caught between 75 and 100 sparrows the first day he set it out. It works all the time and can be emptied once a day."

Report on the Bewick's Wren and the Chipping Sparrow.

BY KATIE M. ROADS, (MEMBER OF THE A.A.), HILLSBORO, OHIO.

In this section of the country, inseparably associated with every suburban and every rural home, are the Bewick's wren and the chipping sparrow. All are familiar with the striking characteristics of the wren, its sweet, clear, bold, loud song, its quick, active movement and its manner of perching, with its long tail upward and sometimes bent slightly forward. Its nest is generally placed in a crevice or cranny of the outbuildings. One might conclude from its place of nesting that it would be friendly, but not so, even the hunger of the young does not dispel fear. One morning a mother bird came into our presence with her mouth filled with fat green worms, but sat perched on a limb until we retired to a distance.

when she flew swiftly to her noisy brood.

The sociable little chipping sparrow with its modest brown coat needs no introduction to bird lovers. Its nest is placed in a shrub or tree, and from one to twenty feet above the ground. Though sociable, they object to being molested when nesting. I frequently visited a nest in a bush one and one-half feet from the ground. When approached the female flew off and feigned that she was wounded, and after a week of teasing, she deserted her home and built a new one in a pine tree near by. She so cunningly concealed this by placing it on the brown branches that it required patient search to find it. One hot afternoon while engaged in scientific investigations in a shady nook, I heard an incessant chippy, chippy and stopped to investigate. The mother bird soon revealed the secret of her anxiety by circling around a small bush, for here was her home with its three almost featherless birdlings. She willingly let me watch her while she supplied their needs, flying immediately to the nest and depositing the food in the open mouths.

The wrens are rather shy and are nearly always perched upon some limb where they can observe your movements, while the chippy shows its trustfulness by picking up the crumbs at your very feet.

A Report of Bird Study by a Port Chester (New York) Member.

Port Chester, New York.

To the AA:

During the past year I have taken every opportunity to study birds. Especially during the spring and fall migrations, I got out before school and went bird hunting early in the morning. I have also tried to study the birds on the nest, the shape of nest, number of eggs laid, length of incubation, etc. My list of birds for the year 1912 had a total of one hundred and twenty-seven.

I first made the acquaintance of the horned lark on February 1st, 1912, and I again saw it on the same date of this year. As the bird is rare in this locality I watched a flock with much interest. I was walking along

the top of a high ridge, a strong wind was blowing, and the day was cold, when I first sighted a flock running over a plowed field in search of food. They were larger than the snow bunting or vesper sparrow and could be identified by the black patch on the breast, and the yellow and black markings on the side of the head. As I approached they took wing with a shrill whistle, and flew around in two circles before alighting near the place that they had left. Every time I came near them, they repeated this performance, uttering at the same time their whistle while on the wing.

Yours truly,

James C. Maples.

This report is accompanied by an extremely interesting list of the hundred and twenty-seven varieties of birds that were studied by Mr. Maples. He also attaches a list of ninety species of flowers that he studied last summer for the first time. That is a good report. It is something definite; it really means, "Study nature, not books." We heartily commend to our readers such definite and detailed work. This is the spirit in which Agassiz labored. When the surroundings are so full of thousands of things that we do not know, I wonder why it is that so many members and other students of nature do such indefinite studying of nature. Please do not send apologies, please do not send indefinite reports. We are not as greatly interested in knowing that at the meeting of the Chapter there was a grand social time, though it is well to mention that, as we are in knowing that something definite was accomplished in the study of nature. Never lose sight of the idea that this Association is established to study nature, not to talk about it, nor to sing songs about it.

Mr. Maples has set the standard of an ideal that we hope other members will realize. We do not think it necessary to publish the extended list that was sent with this report, because the main point is that such a list was made, and that the birds and the flowers were definitely and carefully studied.—Ed.



Established 1875

Incorporated, Massachusetts, 1892

Incorporated, Connecticut, 1910

Read Nature, Not Books.

The "Scientific American" in the issue of March 22, has an editorial regarding some suggestions as to what the rich man might do for the scholar, and says that the mere building of libraries and the equipping of them has been a favorite pursuit of philanthropists. "Scientific American" makes the suggestion that the rich man might vary the program of library building and add to it a bibliographic institution for the purpose of making all libraries available to all mankind.

I want to add a suggestion to that suggestion in the spirit of Henry David Thoreau's statement that nature is of more importance than newspapers when he said "Read not 'The Times,' but read the eternities." Louis Agassiz went a little farther when he said "Study nature, not books." After all what fleeting, evanescent things are newspapers, books or even catalogues that make available all books as suggested in the bibliographic institution. Why has not some rich man given of his means to open to all people what is far greater than all human books—the book of the Infinite, the world of nature? It is true that some rich men have given many millions to it and also some little bibliographic details of this great book for the select few, but why not open it wide for the easy and delightful reading of the many? Suppose a resident of Mars should come to this earth, wouldn't he think it astonishing that this great book of nature has not been open to the public as it should be, whereas the thousands of details of men-made thoughts have long ago been open? Read the great book of Nature as well as books. We believe that there is a value and a joy in reading books, even those which

do not pertain to the realities as the innumerable books of fiction, but what thinking man or woman does not see that for real things the great book of Nature must be first and supreme?

Fallen by The Wayside.

In exploring nature's realms and in guiding others in her enchanting paths, it is sad to note that here and there some one has fallen by the wayside and left the others to go on alone. I have often wondered why this is. A few years ago a man who has had extensive experience in interesting people, especially the young, in nature study, told me that he had to secure once in four years, like the colleges, almost an entirely new clientele while very many would drop out after the first, second or third year. Can anything be more lamentable? Just as one is getting well into the interests of nature, really learning how to study nature, to drop out and become a "has been?"

But on the other hand what inspiring, enthusiastic examples one sometimes finds—dear old, and yet young, Henri Fabre for instance, whose story is told in this number. At seventy there came to him increased facilities for the study of nature, and he hailed them with joy yet with a pathetic regret that most of his life had been spent before these facilities became available. Yet he went to work, and the astonishing, the inspiring fact is that since he was seventy he has been working for more than a score of years, and now at the zenith of his fame and enthusiasm, is still working. Bless the man, and the woman too, whether the study is insects or stars or microscopic forms, who never sits down by the wayside, but continues to push onward as briskly as is consistent with good observation and the proper enjoyment of the enchanting realms in which he is moving, laboring and living.

Good Work in Progress by Our Country Life Chapter.

Middletown, Connecticut.

To the AA:

I wish to tell you something about the work of the Country Life Chapter of the Agassiz Association. Having been guided somewhat by the plan of the Meriden Chapter, we inserted in our By-Laws this clause: "Each member must agree to devote some time during the year to the special problem designated by the Assignment Committee and report results at one of the meetings of the Chapter." As yet our results relative to the special reports of members on assignments have been rather indifferent. The tendency seems to be to regard these assignments as burdensome rather than recreative and this attitude we wish especially to avoid. As I gather from our history the original purpose of the Agassiz Association was to create a love for nature study by observation incidental to healthful recreation. From a short experience I feel that our most successful work has been in our field trips. On one occasion about twenty members spent a day at Mt. Higby near Meriden. We walked the entire distance, about fourteen miles in all. To some of us, girls especially, such a long tramp was a new experience that opened up great possibilities for enjoyment. Besides I am sure that in climbing over the trap rocks we gained more vivid ideas of their structure than we could possibly have had from any single report.

I do not mean to imply that individual activity is on the decline. At a recent meeting one of our members, a freshman, gave a most fascinating account of his work collecting moths and butterflies and illustrated his talk with choice specimens from his collection. Others are keenly interested in birds, in ferns, and in flowers. I am confident that when we can get out into the woods and fields again we shall have even better times than we did last fall.

At our meetings this winter papers have been read by different members and some very entertaining readings have been given from such authors as Dallas Lore Sharpe and Ernest Thompson Seton. "Turtle Eggs for Agassiz," written by the former author, nearly broke up one of our meetings. Mr. John H. Sage of Portland has promised to speak to us

soon on his work with birds. Before spring opens we are planning to visit the Pierson greenhouses in Cromwell, the model dairy at the State Hospital farms and the Portland sandstone quarries.

A large addition to the high school is being built and next year we are to have a better equipped biological laboratory. This room will be open to us for meetings and we hope to start a museum then.

At times we are a little discouraged because of small attendance at meetings but as there are so many high school activities here, such a condition is not surprising. When the warm spring days come The Agassiz Association interest will greatly increase.

Very sincerely yours,

G. L. LAWTON, PRES.

Saving the Vines.

Farmington, Connecticut.

To the Editor:—

I am venturing to make a suggestion to our readers. It may or may not appeal to your fancy, but you are the judge. It is this—that all lovers of the country woodside help to train the vines along the fences, instead of passing them by. My father, whose very soul is in tune with nature, although he (like myself) knows not the science of it, spent much of our time last summer in helping the little tendrils of the wild clematis, the wild honeysuckle and ivy. As summer progressed, these vines showed such gratitude, and as we passed them they seemed to wish to show it. So often these vines struggle along the ground and so the passer-by does not see their beauty.

Another suggestion. This same good father, together with my mother, the latter possessing the affection for plants as for her children, and who tucks the seeds into the ground just as gently as she used to cover her little ones at night, these good people carried matches and paper and destroyed the horrible caterpillar nests in the wayside bushes. It took time and trouble, but the results were good, and then there was something so exhilarating in the doing for the free woodside.

With best wishes for your good "nature" work,

Yours truly,

(Mrs. Edward D.) E. F. JENNER.

The Sidewalk Was Covered With Snails.

Sidney, Ohio.

To the Editor:—

I am sending to you under separate cover a vial filled with what appear to be small snails. One of our city teachers, Miss Daisy Lehman, handed it to me with the following explanation.

neighbors also observed the same phenomenon, one declaring it was salvia seed, while others thought it had rained snails. Miss Lehman thought that the substance might be snail shells but she had never seen any so small, nor could she understand how they came to be upon the cement steps that were four inches above the walk. I am sending



A MAGNIFIED VIEW OF THE TINY SNAILS.

She and her mother on returning home after several days' absence, just after a heavy rain, found that the cement sidewalk in front of the house was literally covered with a gritty substance which gave forth a peculiar crunching sound when trod on. Some of the

specimens to you for identification.

Very truly yours,

LEE A. DOLLINGER.

Mr. Walter F. Webb, Rochester, New York, says:

"The little snails of which you send me samples are the full-grown *Vallonia*

fulchella, Mull. The members of the genus are all about this size, and are found in every part of the world. There is a little difference in the species. This form, *fulchella*, has been found in nearly all the continents. In the Rockies is a variety called *costata*, which is beautifully ribbed, and there are two or three other forms in the mountains of the southwestern part of the United States.

"The habit of this chap is to live in the grass. Doubtless there was some local condition which set them to crawling about, and they swarmed over the sidewalks. The same condition has often happened. Sometimes on a board that has lain in the back yard near the grass, you will find them in abundance. One collector wrote to me a while ago that under one board he found nearly two thousand specimens when the conditions were favorable. At other times you will not find any in the same locality. The supposition is that they lay a large number of eggs and develop into full grown individuals in a comparatively few weeks."

Studies of the "Oyster-Shell" Scale.

Cambridge, Massachusetts.

To the AA:

At Winchester, Massachusetts, we were on the edge of the Middlesex

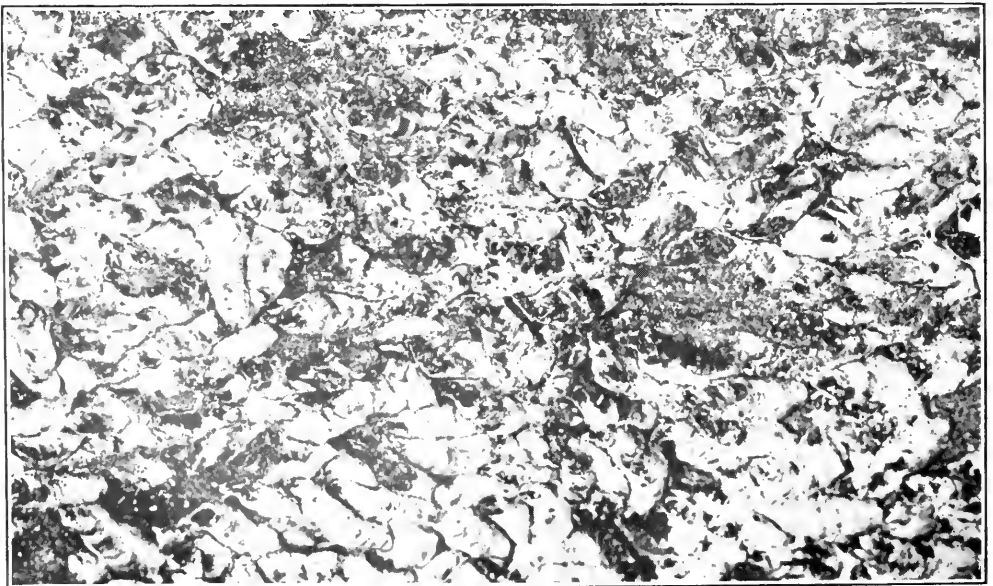
Fells, a part of the state of Massachusetts Parks Reservation. We were unable to enjoy ourselves in the woods as we had anticipated because the foliage was heavily sprayed with poison to destroy the brown tail and gypsy moths. We, however, found many butterflies and moths. We sketched from nature and studied the elements of chemistry and otherwise improved the time.

I send you by mail in separate enclosure a piece of wood which I cut from a tree which is infested with a scale. Kindly give me the name of this scale and refer to some publication from which we can learn its life history.

JAMES EDWIN MELLEEN,

Corresponding Secretary Mellen Chapter.

The specimens of bark which you sent with your letter were infested with the oyster-shell scale (*Mytilaspis pomorum*). The oyster-shell scale is one of the most widespread orchard pests in America, and attacks also a great variety of ornamental plants and shrubs. An application of the lime-sulphur wash just before the buds swell is very effective against this insect. It does not destroy the eggs beneath the old scales, but seems to be very effective in killing the young when they emerge in spring or early summer.—



THE "OYSTER-SHELL" SCALE INSECT.

L. O. Howard, Ph. D., Bureau of Entomology, Washington, D. C.

The common name is from a fancied resemblance of the insect coverings to oyster shells. Publications giving treatment of these and other insect pests may be obtained free by addressing the Bureau of Entomology at Washington.

Annual Report of a Meriden, Conn. Chapter.

The following is the annual report of Chapter 1045 of the Agassiz Association.

During the past year we have held meetings once every two weeks. Our meeting night was Tuesday eve.

At each meeting we had arranged a program which was given after our business was transacted.

This programme consisted of readings from *THE GUIDE TO NATURE*, and other natural history magazines. We also had several short talks on birds. We had an illustrated talk on Glaciers at one of our recent meetings. We have given successful socials also.

On January 11, 1913, the society took a trip to the Peabody Museum of Yale University. We all admired the several and rare varieties of specimens owned by the institution. We enjoyed the trip very much. At our next meeting each member made an oral report on the object which most interested him.

On January 14, 1913, the society bought a cabinet and some specimens which cost twenty-five dollars. Our society is thriving and we have had a very successful year. Meriden is to have a new High School which is now in the course of erection. We have applied to our Superintendent of Schools, Dr. David Gibbs, to have one of the rooms named, "The Agassiz Association Room." We hope he will grant our request.

Hoping this report will be received favorably, I am,

Respectfully yours,

JAMES CONKLIN,

PRESIDENT, CHAPTER 1045

H. JOHNSON,

CORRESPONDING SECRETARY.

The Attractions of Sound Beach.

A circular, issued by the Sound Beach Summer Homes Corporation, describes their Shorelands, and refers to some of the advantages of Sound Beach as follows:

"Sound Beach has long been favorably known as an especially cool and healthy near-by summer resort, free from malaria and mosquitoes. It is essentially a sand bar jutting out into the Long Island Sound, with water practically on three sides, intercepting the prevailing southwest winds in the summer. Greenwich Cove, upon which Shorelands is situated, is an exceptionally safe anchorage for boats."

The circular gives extended reference to the history of Sound Beach and eulogizes the local Institutions, including ARCADIA, regarding which it states:

"ARCADIA, the home of The Agassiz Association, with its interesting museum, instructive laboratory and successful experimental plant, free to the public, is located at Sound Beach. From here is sent all over the world *THE GUIDE TO NATURE*, published monthly by the Association."

We are glad to notice that this real estate corporation appreciates nature and eulogizes the wonderful "Cove Sunsets" over Bachelier's woods. These magnificent displays have inspired artists and writers the world over, and many of these accomplished persons are our neighbors. Nature writers and lovers abound here.

We are surrounded by so many of the delights of nature that I think we often fail to recognize them in their fullness from the scientific point of view. This is undoubtedly the best location in all the world for ARCADIA. It is on one of the best railroads; it is on a beautiful sound, it is within easy access of New York, and within easy access too of all methods of transportation not even excepting steamboats, as it is distant only a few minutes' ride from the docks in Stamford. Biologically Sound Beach is the best. Many of the workers at Cold Spring Harbor on Long Island frequently come across the Sound to this shore, to collect floral and faunal objects.

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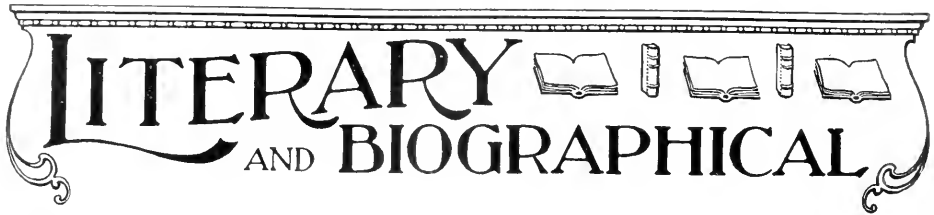
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ENTOMOLOGICAL NEWS, The Academy of Natural Sciences, 1900 Race St., Philadelphia, Pa.

LITERARY AND BIOGRAPHICAL



The Making of a Country Estate. By Henry Wild, 413 Madison Avenue, New York City

This is, indeed, a beautiful book and will be hailed with joy by the man who has dreamed of rescuing the old homestead and developing it into modern beauty and interest. The author is quite right in stating, "The man of affairs, who, as a boy, once wandered at will in the country, still dreams, amidst the attractions and distractions of city life, of the open fields, of the gardens and orchards which once smiled their welcome, and plans to own some day a country home or estate as the crowning of a busy and successful career."

Mr. Wild is well-known in this vicinity as the supervising landscape architect of the famous Conyers Manor, owned by E. C. Converse. He formerly developed two very fine estates in Brookline, Massachusetts, and has not only had long experience but has an innate good common sense and love of nature that have made him successful.

The Humble-Bee. By F. W. L. Sladen. Illustrated with photographs and drawings by the author and five colored plates photographed direct from nature. New York: Macmillan and Company.

This is an enlargement of a little treatise printed on a stencil copying apparatus in August, 1892. That was a boyish effort though genuine so far as it went, but here is a real book on a subject that has had comparatively few investigators. The author has studied bumblebees or humble-bees, as they are called in England, and he knows them at first hand. He has devised many interesting forms or artificial nests and also a bumblebee house. He says that any one may attract these insects and study them at leisure, and in comfort learn the details of their entertaining and intelligent ways.

The book is intensely interesting and is a good example of original observation.

The Life of the Spider. By J. H. Fabre, author of "Insect Life," etc. With an appreciation of Fabre by Maurice Maeterlinck. New York: Dodd, Mead & Company.

Maeterlinck calls Fabre,—“one of the glories of the civilized world.....one of the most profound admirations of my life.” Rostand talks of him as the “savant who thinks like a philosopher and writes like a poet.” Frenchmen of all schools are agreed that Fabre is one of the great naturalists of the world. And not the least of his greatness is the extraordinary interest he contrives to give to his scientific writings. You

may know nothing about spiders for example, and may think you care nothing about them,—but Fabre writes a story of the spider that is as thrilling, as dramatic, as intensely interesting as a most exciting novel. And moreover, it is all true, which fact gives the last touch to making the reading of a book by Fabre an unalloyed delight.

Agronomy. By Willard N. Clute. Boston: Ginn and Company. Price: \$1.00.

This book, designed especially for high school students in cities and towns, gives a thorough grounding in the agricultural principles underlying the propagation, cultivation, and improvement of plants and the fundamentals of decorative planting.

It begins with chapters on chemistry, the origin and composition of soils, manures, and the effects of heat, light, and moisture on the plant. These are followed by a comprehensive discussion of planting, cultivating, pruning, propagating, lawn making, plant breeding, evolution, and the origin of domestic races of plants. Insect pests and plant diseases are fully discussed and all known methods of control given. The book is unique in devoting much space to the improvement of the home grounds, both as regards the growing of better vegetables and the production of finer flowers and more tasteful lawns and borders.

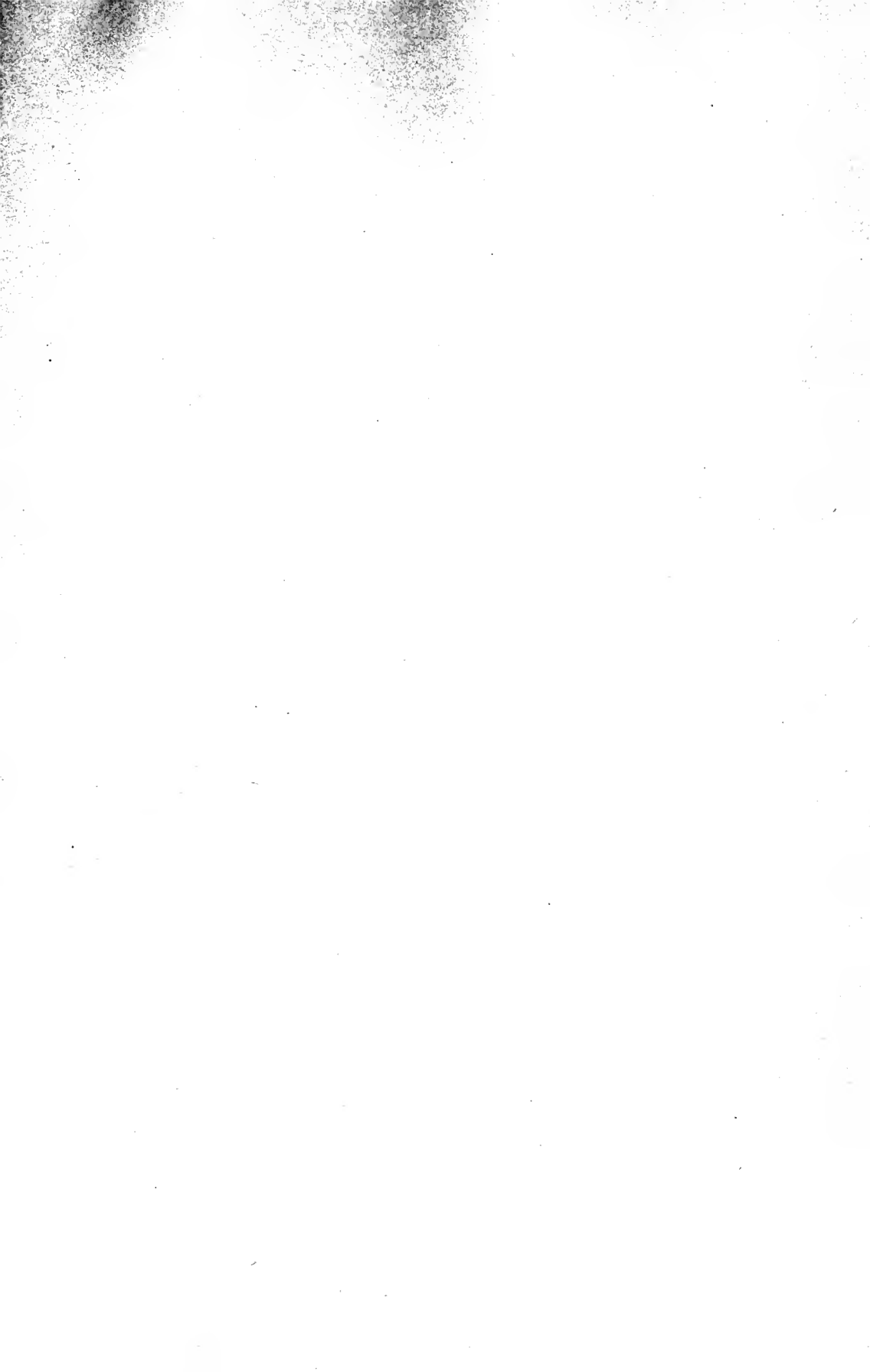
The Hope of the World.

Back in Creation's twilight,
When the cavemen fought for life;
When naked might made wrong and right
And all the world was strife,
Some dreamer awed the watchers
Where ancient fires flared red
With words that groped for the things
they hoped
And the wonder—just ahead.

When Priam ruled the Trojans,
When Noah's dove took wing,
When Buddha taught, when Cyrus fought,
When Rameses was king,
Through all the ceaseless struggle
A longing people read
On some clear page, in every age,
The glory—just ahead.

And till the story's finished,
Till earth's last day is done,
Beyond the slope a deathless hope
Must rise with every sun.
Tomorrows must be brighter,
Or all the world were dead;
Man scales the heights because he sights
The glory—just ahead.

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