

to come bad. I will come, but not yet. I can't leave father."

"Good-bye, then, Susie."

"Good-bye; an', Dan, don't think too much of it. If I hev spoke a bit hasty—I—I only meant—"

Now that he was really going she thought she must give him a chance to make up this quarrel, which had risen so strangely between them.

"I'm not feeling so bad as you think," replied Dan, with some spirit, and the next moment he was gone.

And now came the hardest part of her sacrifice. During the long, sad weeks that followed she longed so to go to her aunt's, if only for a time, for perhaps when she was there things between her and Dan might resume their old footing. But more than ever she was wanted at home, and her old friends seemed to have forgotten her. The hardest part of it all was that her great sacrifice seemed to have done so little good. Her father did not seem to recover his strength, the business was failing, Kitty seemed daily to become more thoughtless and unmanageable, Aunt Bab was angry with her, and all for no good. After a while she began to understand that we may not always *know* the good we do when following the path of duty; and she grew more content, and determined, with all the strength of a strong nature, aided by heavenly help, that she would crush down these useless repinings after her old happy life. She had learnt her lesson and conquered self; her reward was to come after a long lifetime, perhaps, she thought.

One cold, cheerless day, as she sat sewing by the tiny fire, and thinking it all over, the door opened, and with her face rosy with the cold, and glowing with affection, there stood Aunt Bab. With one bound she was in her arms, her tired head resting upon the kind motherly bosom; the overburdened heart relieving itself, by tears and sobs, of the pent-up trouble of the long weary weeks and days.

"Come, come," said her aunt at last, wiping her own eyes, "you'll be a fine sight for Dan to see."

"Dan!" gasped Susie, in astonishment. But here he was to speak for himself.

"I thought you were angry, aunt," said Susie, when mutual explanations had ended satisfactorily.

"So I was, Susie; but you conquered; you taught me my duty, child, an' what I hev to say is this, I shall hev to give you up pretty soon, I'm thinkin', to go and take care of that fine new cottage Dan's been tellin' you about. I can't get on without more help, so I want your father to come into partnership with me; there be room enough, an' work enough for Kitty an' Jack, as well."

We need hardly say that everyone concerned was delighted with this arrangement; and the following year, when Susie was married to Dan, who had been made head keeper, Aunt Bab declared that it had turned out even better than she had expected. Her brother and nephew were strong and well able to do all the work which an increased business entailed; and Kitty, under Aunt Bab's kind but firm rule, bade fair to grow into as good a girl as Susie had been.

RUTH MITCHELL.



## THE OBSERVER.

THESE notes are intended specially for the use of girls living in the country, in the hope of inducing those who have young brothers and sisters to teach them to observe the strange things going on around them. The subjects will not be worked out, but are simply intended as hints to be studied by the elders on behalf of the little ones. But it is not only in the open country and large gardens that nature may be observed. Picciola learnt more from the flower in his prison-cell than from all the trees and plants when he was free; and even those who live in the sootiest parts of our dirty towns can find something in nature to admire. A man who for three months had never left his bed in a small garret, and whose only view of the outside world was a few feet of sky and the top of a tree, once said to me: "I never knew how beautiful the clouds were till I had nothing else to look at, and the stars are like old friends coming in to look at me." For those who have microscopes, a door is opened into another world, one of beauty and wonder; but those who do not possess this magician's rod will be able to see a great deal, and do some useful work with a common pocket magnifying glass—indeed, however good the microscope at home may be, the magnifying glass should always be carried out and used to see what is worth bringing home for further observation.

To begin, then, with the sky, which is open to town dwellers as well as those in the country. Teach the children clearly first which side of your house is north, which south, and so on. Next, on a fine evening, let them stand with their faces to the north and look high up in the heavens, and they will see a bright star of a bluish colour, called the Pole star.

If you cannot find it easily, look down nearer the horizon, still in the north, and you will see the constellation called the Plough, or Charles's Wain. Four bright stars make the body of the Plough, and three others in a curved line represent the handle. The two front stars of the Plough, those farthest from the handle, are called the Pointers, because they point directly to the Pole Star; so that if you draw an imaginary line from them, carrying it a good distance higher up the sky, you cannot fail to find the Pole Star. It is important that the children should get to know it, as it is round this point that all the other stars move. When this is fixed in their minds, teach them the four constellations, which are always visible in England. First the Plough, mentioned above; which at this time of year is exactly under the Pole Star, nearer the horizon. Then the next constellation, Cassiopeia, which children would best remember as being just like the letter W. On an autumn evening you will find it high over your head. Look up in a straight line from the Plough to the Pole Star, and then about the same distance up again, and you will see the five bright stars which make W. The other two constellations, Lyra and Auriga, must be learnt later; but parts of them are not difficult to find. Still facing the Plough in the north, find the Pole Star again; then look to the west, about as far to the left of the Pole Star as the Plough is to the north, and you will see two very bright stars near together; the brightest of these two is called Capella. Once more, still looking north, point out on the east of the Pole Star, that is on the side opposite to Capella, and about the same distance off, one remarkably bright star, called Vega. These four constellations move round the Pole, but keep the same positions with regard to one another, so that they are always easy to find, and are useful guides by which to find others. This will be as much astronomy as the children will re-

member for one month; and probably they will forget the names; but it will be enough for the present if they can remember where to look for these stars.

In addition to the above groups of stars, fresh constellations are constantly coming into view, while others disappear from sight for a time. We will suppose that you look at the sky always at eight o'clock in the evening, facing towards the north. You will now see Pleiades rising above the north-eastern horizon. This is a beautiful group of stars, in a close cluster; six are usually visible, though observers gifted with sharpness of vision can see seven; but there are many more in the group. Now that the evenings are dark you may chance to see in the north, near the horizon, a brilliant glow of white or rosy light. This Aurora Borealis generally appears shortly after sunset. It is sometimes called the Northern Light, because from England we only see it in the northern sky. In November look out for shooting stars, which generally make their appearance in great numbers during this month.

November is the month of fogs; and, unpleasant as they are—especially mixed with the smoke of towns—they are not without interest to an intelligent observer. If you have the opportunity, go up a high hill, or on to the roof of a very tall building, and you will see for yourself that the fog is a heavy cloud which floats close to the earth; you will look down upon it lying below you, while you yourself are in clear sunshine. The reading-room at the British Museum is lighted by windows in a lofty dome, and frequently when the streets are quite dark with the dense fog outside, the reading-room is quite bright and light, because the dome is so high that it reaches into the sunshine above the fog. Notice, too, how much water some trees condense during fogs. Sometimes it drips from them like a shower of rain. This is the case chiefly when the leaves are still on, but you may see the water running down the leafless branches and dripping on the ground, though all around is comparatively dry. You will see that some kinds of trees do this much more than others, but all condense more water than the surrounding stone walls and iron railings. Observe, also, how strangely fog alters sights and sounds. Voices seem much farther off, and objects are distorted. If you happen to lose your way, or have to cross a wide road or a field in a thick fog, you will see an illustration of the strange tendency all human beings have to walk in a circle, always bearing towards the right, instead of straight on. Many savage tribes could not possibly build a wall or dig a ditch *straight* without having it carefully marked out for them, though they could dig or build an almost perfect circle without any guide; and we have so much of the savage nature left in us that if you try to walk straight across a field in a thick fog, or on a very dark night, you will almost certainly go too much to the right, and find the place you were aiming at somewhere to the left of you.

Now that the weather is getting cold, birds become bolder, and will come close to the house for crumbs. If you throw them out at regular hours the birds will soon get to know the time, and will collect on the neighbouring trees at the usual hour. Always blow a whistle when you are going to feed them, and by degrees they will get to know the sound, and will come when they hear it; but be careful that cats do not come too. Put out a shallow vessel of water on the lawn for the birds to bathe in. Strangely, the birds bathe oftenest in heavy, continuous rain. The boldest and most frequent visitors are generally blackbirds, thrushes, sparrows, robins, wrens, and wagtails, though many others come occasionally. This bath will give you ample opportunity of noticing

the different habits of the birds, and their peculiarities of walking and flying. A starling, for instance, *walks*, putting one foot before the other as we do; while blackbirds, though so much like starlings, hop, with both feet together.

This reminds me of how few people can explain the distinction between walking and running. Set your little brothers and sisters to try it, and you will see that in their quickest walk they always have one foot on the ground, whereas in running, however slowly, they leap right off the ground, from one foot to the other.

The approaching cold weather drives common house flies to seek shelter and warmth, and you will find numbers of dead ones still adhering to the shutters, ceiling, or walls. They retain so exactly the position of living ones, that it is difficult without touching them to believe they are not really alive. If you look closely you will see that many of these dead flies are surrounded by a kind of whitish dust, which consists of the spores or seeds of a kind of fungus or mould, which has not only killed the fly, but has consumed the whole contents of its body, leaving only an empty shell behind. You can see that this is the case with the aid of a magnifying-glass. The fly's foot is wonderfully formed, and worthy of a most careful study in the microscope. At the end of the foot are two claws, with which it clings to any little unevenness on the apparently smooth ceiling and walls. These claws are furnished with little pads, which act like a boy's leathern sucker, which when made wet and pressed down squeezes all the air from underneath, and the weight of air above it keeps it down. The pad on the fly's foot acts in the same way, and it can let the air in and release its foot at will; but it is supposed that when dying it has no longer the strength to do this, and so remains a fixture. In addition to this, the surface of the foot is covered with minute hairs, each of which exudes a tiny drop of sticky fluid, which when they are dying they are not able to escape from themselves. These are only visible in the microscope with a high power.

DORA HOPE.

## ANSWERS TO CORRESPONDENTS.

### EDUCATIONAL.

**MANUSCRIPTS.**—We advise you to write to Miss Webb, secretary of the Society for Promoting Female Education in the East, 267, Vauxhall-bridge-road, London, S.W., and she will give you all information respecting the training for Zenana work, and for school-teaching abroad. Otherwise, write to the Hon. Secretary (Mrs. Allan Gilmore) of the Indian Female Normal School and Instruction Society, 2, Adelphi-terrace, Strand, W.C. Mrs. A. Gilmore's address is Heron-court, Richmond, S.W.

**LILY OF VALLEY.**—Write for all information, and printed circulars, to the secretary of the Civil Service Commissioners, Cannon-row, Westminster.

**SIS.**—You must apply to the Civil Service Commissioners, at their office in Cannon-row, Westminster, and obtain their printed papers and forms, to be filled up.

**KATHLEEN HOPE.**—You should advertise for the kind of situation you require, and read those that may appear in such papers as the *Guardian*, or the *Englishwoman's Review*. Having seen what might be likely to suit you, write to the English chaplain, if there be one, at the same time as you write to the principal of the school, to obtain any further information as to the respectability of the establishment, from a reliable and independent source.

**F. FLETCHER and MIGNONETTE.**—For information respecting correspondence classes, write to Miss Roberts, Florence Villas, Tarquay.

### COOKERY.

**JENNIE L.**—To make baking powder, take an equal quantity (in bulk) of tartaric acid, carbonate of soda, and ground rice (or cornflour). Mix all thoroughly, and rub them through a wire sieve. One teaspoonful of this mixture will be sufficient for each pound of dry ingredients used. The pastry, or cake, which

the baking powder is designed to lighten should be baked as quickly as possible after it has been moistened. The cabbage-water, which has always an offensive odour, should be poured out on the earth outside the house—never down the sink.

**M. A. J. B.**—What you seem to have commenced to make is "orange brandy," not "preserved oranges." The latter should be made thus:—Score the oranges or lemons all over, simmer them gently in water until nearly done through, and place in cold water to soak for twenty-four hours, changing the water every three hours. Drain on a sieve for several hours, and place in an earthen pan with sufficient syrup (of twenty-eight degrees strength) poured over them, during three days. The syrup should be boiled and skimmed, and when nearly cold poured back on the oranges, which should then be put into jars and well corked.

### WORK.

**SEDGWICK.**—1. See "Knitted Designs," page 596, vol. iii. Double Berlin wool might answer your purpose for a white *bercaunette* blanket. 2. In reference to the proportion of starch and water for the stiffening of collars and cuffs, consult our article on "How to Starch," page 383, vol. ii.

**CARINA.**—You are right in saying that the description of the "*chevron* stripe" is incorrect, at page 598, vol. iii. Eight rows have been omitted. You will find the full description in "Answers to Correspondents" in the same vol., page 719.

**FLORIAN.**—1. The "Dictionary of Needlework," Upcott Gill, 179, Strand, W.C., will supply you with all the information and the designs you require respecting Macramé, and every other kind of lace or work. It is on the reference list of the British Museum, or you could procure the book at the address indicated. 2. Gently sponge the gold frames with ammonia.

### MISCELLANEOUS.

**JEAN H.**—We are only told that love is wrong when we make idols of those we love and allow them to stand in God's place. Take a concordance, and look out all the texts in the New Testament on love. Alas! dear little Jean, we fear you will come to the conclusion that we all of us love too little—not too much!

**EGLANTINE.**—Emma, daughter of Duke Richard of Normandy, married Ethelred II., called the Unlucky, a union which afforded the first pretext for the claims of William the Conqueror. The words placed in italics in the Bible are those which are introduced to make the sense of it in English clear.

**AN ANXIOUS MOTHER.**—We should advise you to leave the subject of your anxiety alone; nothing can be done. The writing you send promises well.

**QUEEN MAE.**—Consult a surgeon, and inquire of a good shoemaker.

**CARNATION.**—You should go to a dentist without delay.

**A BIRDIE.**—There is no bank, so far as we know, that employs ladies as clerks, except the Post Office Savings Bank. You would say, "Mrs. So-and-So presents her compliments."

**A THORN IN THE FLESH.**—Your letter shows a sad and unhealthy state of mind and body. Take more exercise—sea bathing, if possible—and get the doctor to give you a tonic. Begin to think of other people, and how you can minister to their comfort. Read your Bible, and learn each day some verses of good poetry by heart, so that you may strengthen your mind. Pray earnestly for help to resist wandering and unhappy thoughts.

**MADGE.**—You would require a master, in any case, to teach you to pronounce properly. It could not be learnt from books.

**ROBINA.**—July 30th, 1867, was a Tuesday.

**VIOLET.**—Torquay, in Devonshire, and Ventnor, in the Isle of Wight, are both recommended for consumption. The British Catalogue of Stars contains seventeen of the first magnitude, seventy-nine of the second, and 223 of the third.

**PEARL TREMAINE.**—Tell the child's mother, and say you could not think of keeping the whole of the money, and offer to give him the half.

**DAISY.**—You are rather young to go away from home, but otherwise we suppose the change would be an improvement in your salary.

**ECONOMY FROM WALES.**—We agree with your parents, as we think the reformation has come from an earthly cause, when it should have come from love of God and goodness. We should advise your waiting a couple of years; if your lover be worth anything, he will emerge from the test triumphant. "Be ye not *unequally* yoked together," and no marriage made without the sanction of your parents would have God's blessing.

**M. A. W.**—The new volume begins in October. We do not know any cure save less hard work.

**BOY.**—We think it a matter for the individual conscience to decide for itself. If you follow its dictates honestly you will choose no path in life likely to separate you from God and His service.

**HOWARDINA.**—1. We do not give prices, as we always tell our correspondents. The copying of manuscripts is paid at so much a folio, and is generally a matter of agreement between the employer and the writer.

Write by daylight, but with your face turned sideways to the light; not by any means by gaslight. Short sight is usually stronger than long sight. 2. Perhaps you bite or wet your lips; avoid this, and use lip salve at night. Your writing is very good.

**BESSIE.**—We cannot be "wise above what is written," and we are told that "He was in all points tempted as we are," although He never succumbed to these temptations nor fell into sin as we do. The mystery of the union of the Godhead with the human soul in His natural body as a man, we cannot comprehend nor explain. Yet we find that Satan tempted Him to accept a temporal empire, and give up His life of privation, trial, and ignominious death, on the stipulation that He would renounce His divine sovereignty and "fall down and worship him." He had human feelings and susceptibilities, and we know that He shrank, as a man, from drinking the cup of misery, which, as the Divine Redeemer and Creator of all, He had voluntarily come down to accept for us. We cannot give addresses.

**MADCAP VIOLET.**—We can only suggest your keeping the mountain ash berries in a pickle of salt and water. You curl your letters about in too fanciful a way. Form them simply, and with regularity.

**MISSING LINK.**—It is now the fashion to raise the hair higher on the head, which is in some respects a change for the better, as wearing it low on the neck soiled frills and collars so much. Make your back hair into a couple of twists, and roll them into a snail-shell form, if old enough to turn it up. You write a pretty hand.

**A WOULD-BE DISCIPLE.**—Your very anxiety to become a holy and devoted follower of the Master, as shown in your humble and interesting letter, proves that you are in a fair way to become one. We are all responsible creatures, although, as you say, none can become Christians but by God's saving grace. These facts are clearly shown to us in the teachings of the Bible, a book which we all must systematically, thoughtfully, and prayerfully read if we wish to know enough of heaven and how to enter it. Dr. Angus, in his "Bible Handbook," says that "the Scriptures teach, on a comparison of passages, that repentance, faith, and obedience, are the gifts of God: Do we there ore gather that men are guiltless if they do not repent, and believe, and obey the gospel? or do we deem it needless to exhort men to repentance, obedience, and faith? If so, our views are unsound, for the guilt of impenitence is charged entirely upon man. His unbelief is declared to be his great sin and the ground of his condemnation; and not to obey God is everywhere condemned. Men are exhorted, too, to repent, and believe, and obey. So Samuel taught the Israelites, and so Peter exhorted Simon Magus and the murderers of our Lord." Let us and all the readers of this magazine begin this new "Girl's Own" year with more careful and regular reading of the Scriptures, so that by "patience and comfort of God's holy word we may embrace and ever hold fast the blessed hope of everlasting life" given us through Jesus Christ.

**LIZZIE HASLAM.**—Your little nephew and niece—who are dependent on your support, as well as motherly care (being orphans), and who at so tender an age refuse to obey you or to call you "auntie," as in their mother's lifetime—should be punished until you can again bring them under control. Try mild measures, such as standing them in a corner, or take away their toys for a time; this failing, give a good slap or two with your own hand on theirs, and if the rebellion be too determined for this to put it down, nothing remains then to be done but to give the untidy little people a good sound whipping. Instant obedience must be obtained, or later on your authority will be irrevocably gone, and they will grow up without due moral training.

**M. E. L.**—We do not know if vaseline would assist you; it can be procured of any chemist.

## RULES FOR CORRESPONDENTS.

- I. No charge is made for answering questions.
- II. All correspondents to give initials or pseudonym.
- III. The Editor reserves the right of declining to reply to any of the questions.
- IV. No direct answers can be sent by the Editor through the post.
- V. No more than two questions may be asked in one letter, which must be addressed to the Editor of THE GIRL'S OWN PAPER, 56, Paternoster-row, London, E.C.
- VI. No addresses of firms, tradesmen, or any other matter of the nature of an advertisement will be inserted.

The Editor begs to inform his readers that the Extra Christmas Part of THE GIRL'S OWN PAPER will be published November 26, with the December magazines, under the title of

### WINTER LEAVES.

In order to secure copies, our girls are requested to order them immediately, as only a limited number will be published, and cannot be reprinted.

he was silent, for he feared to hear the answer Maggie gave him.

"We have lost him; he died nearly eighteen months ago."

"And you did not write to me, Maggie," he said, reproachfully, with the old look of love in his eyes.

Why was he so cruel, so unmanly, now he knew all? thought Maggie, and rising with something of *hautueur* in her manner, she said, "Come, Isa, we will go home. Good-morning, Mr. Carrington," and she ascended rapidly to the top of the cliff.

But Reginald was evidently determined not to leave her without again speaking; he was quickly by her side, when—

"Why, Reginald, what on earth brought you here?" said a manly voice, and before them stood Mr. Gilbert Carrington and a young lady.

"I came down about a telegram just arrived from Ceylon; I knew you could not telegraph back full instructions," but seeing his uncle looking at his companions rather inquiringly, "Let me introduce you," added Reginald. Maggie had been just moving away, but self-respect obliged her to go through this introduction.

"You remember hearing me speak of friends at Farncombe Vicarage," said Reginald; "Miss Brown and her sister."

"Lady—?" said Mr. Carrington, forgetting the name, but not the title.

Reginald hurriedly explained the mistake.

In the meantime, Maggie, who felt the embarrassment of this meeting becoming almost unbearable, was leaving them with a bow, when the lady who accompanied Mr. Carrington, playfully tapping Reginald with her parasol, said, "You forget to introduce me," for she divined there was some little romance going on, and was not willing to be ignored.

"*Ma tante!* ten thousand pardons!" replied Reginald, who, however perplexed, seemed not altogether displeased. "Miss Brown—Mrs. Gilbert Carrington."

Maggie flushed. Another mistake?

"Why, Reginald, we thought you had married Miss Forester," cried Isa.

"No, no!" laughingly exclaimed the real bridegroom, looking proudly down at the young wife. "I see I have made one awful mistake, but I made no mistake two days ago. And now, Miss Brown," he continued, offering his hand, "I can hardly hope you can forgive me directly, but pray take my advice and change that mischief-making name of yours as quickly as possible."

And he parted from them with a kindly smile, for the last few months had wrought a marvellous change in Mr. Gilbert Carrington, making him wondrously sympathetic with lovers in general.

A few months later a small wedding party left the old parish church at Hampstead. The young artist, who had already begun to be called a "rising one," had made a home in one of the old-fashioned houses by the Heath, and Maggie had been persuaded, not altogether against her will, to follow the advice she received on the Folkestone Cliff that August morning. Dr. Horton and his wife acted father and mother on the occasion, the latter not omitting the orthodox maternal tears; but, as she explained, she only cried for joy, for she was not losing a child, but rather gaining one, for henceforth it was an understood thing that Isa was to have two homes.

[THE END.]

## THE OBSERVER.

OUR English winters are so uncertain that we can never know what kind of weather to expect. As a general rule, we look for a little ice, a little snow, and a good deal of hoar frost. Any of these present objects of great interest to anyone with observant eyes, particularly if aided by a magnifying glass.

If you go out on a calm, quiet day, as soon as possible after a fall of snow, and with the temperature at some degrees below freezing, you will probably see that the surface of the snow is covered with glistening specks. Lift some of the snow on a sheet of paper, or a leaf (not in your hot hand), and look at it through your magnifying-glass, being careful not to breathe on it. You will see that the bright specks with which the snow is spangled are tiny crystals, of perfect form, and many of them of most elaborate and beautiful shape. At first, when the temperature is not much below freezing, they may be only like slender needles of ice; at other times, with a rather lower temperature, they will be found in one of their two primary forms—either a star of six arms (fig. 1), or a thin six-sided flake (fig. 2).

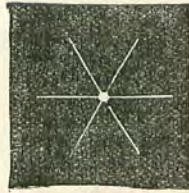


FIG. 1.



FIG. 2.

Sometimes two or more of these simple ones have fallen one upon another, and most elaborate combinations are formed. Drawings have been made of two or three hundred different ones, but they are all varieties and elaborations of the two primary forms. If the complex ones are breathed upon, you will see the beautiful incrustations gradually melt away till only one of the two original shapes is left, and that, too, disappears.

Hoar frost, which we have many more opportunities of observing, presents forms in the main the same as snow crystals, the same individual spikes of ice which go to make up the crystals of snow are here too; but whereas snow congeals in the upper air and falls already crystallised, the hoar frost falls in the form of dew, and the uneven surface of the material upon which it falls affects the arrangement and grouping of the needles of ice, which are really the component parts of the star-like crystals.

It is interesting in the same way to watch the gradual freezing of a shallow pond, where the even surface of the water is broken by grass or rushes. The principle is the same as with snow and hoar frost. The water first freezes into slender spikes of ice; frequently six of these will unite, and produce one of the primary forms, as in snow crystals; or the grass or pieces of wood will interfere and cause them to group themselves into fantastic forms, interspersed with the thin six-sided scales of ice, which is the other primary form of snow crystallisation, till they all unite, and the whole pond is covered with a thin sheet of ice.

Snow and ice are both of considerably less density than water. That is to say, they occupy more space. You can prove this by collecting a basinful of snow, melt it, and the water will only occupy about a tenth or a twelfth part of the basin which the snow quite filled. Take this same water and freeze it, and it will again take up more space than the water, though not so much as the snow. You can prove that water expands when it freezes still more conclusively by a simple experiment. Fill a bottle up to the very top with water,

cork it, and tie the cork down securely. Fill another similar bottle also quite full to the brim, but do not cork it. Put out both bottles when it is freezing hard at night. In the morning the corked bottle will be found broken by the force of the water, which had no room to expand while freezing; the other bottle will not have broken, because the frozen water has been able to run over the top of the bottle.

This property of expansion of water when frozen is of great value to the ground. The moisture in the soil freezes, expands, and in so doing breaks up the clods of earth, making cracks and holes to receive the seeds blown along by the wind.

Children who are fond of birds may entice even the most shy ones near to the house during frosty weather when food is scarce, by getting a small piece of raw meat (a piece of skinny fat is best), and tying it up to a branch, or the edge of a balcony, or any place that can be seen from the window. The tom-tits will come and hold on by their claws, and hang wrong side up while they peck at it.

As the winter draws on, some of the beautiful constellations become visible early in the evening. Of the three spoken of in the Book of Job as especially calling for admiration (Job xxxviii. 31), Pleiades has already been mentioned, as well as "Arcturus and his Sons," which we know as Ursa Major, or the Great Bear. The remaining one, Orion, or the Archer, one of the most splendid constellations, is visible now also, in the south-eastern sky. Draw a line from the Pole star to Capella, and then straight on about as far again, and it will bring you to Orion. Three bright stars form his belt, with three smaller ones hanging from it representing his sword. Higher up are two bright stars for his shoulders, with a cluster of three small ones between them for his head, and two more bright ones for his feet. The expression in Job, the "bands of Orion," allude to the old idea that Orion was a giant chained up in the sky.

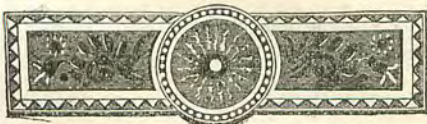
The most beautiful fixed star in the heavens (Sirius, commonly called the Dog Star) is visible now, also. The children will easily remember both its name and position from being just at the heel of the Archer, or Huntsman, Orion; and it so far exceeds the surrounding stars in brilliance, that it is almost impossible to mistake it. This star is by many supposed to be the one alluded to by Job as Mazzawt.

The planet Jupiter, the most brilliant of any except Venus, is to be seen early in the evenings during December. The stars all appear to rise in the east and follow the course of the sun, setting in the west; but the planets are like wandering spirits moving about amongst the fixed stars. Jupiter rises on the 6th of December, at half-past seven o'clock in the evening, getting gradually earlier, till at the end of the month it rises at a quarter to six.

DORA HOPE.

## GIRL'S OWN HOME.

A Friend, 10s.; Miss Helen Summerfield, 10s.; Collected by Miss Anne Beale, £1; Collected by Miss Barbara A. Legg, 5s.; Collected by Miss Bertha Bradshaw (Bardoes), £16 10s.; Collected by Miss Barclay, 5s. 1d.; Collected by Miss Beatrice Stanford, £1 1s.; Collected by Miss Eleanor Myatt, 10s. 7d.; Collected by Miss Gertrude Cooke, 8s.; Collected by Miss C. J. Turner, £1 1s. 3d.; Collected by Miss J. Penrose, £1 12s.; Seventeen Years Old, 7d.; A Brother, 5s.; Miss Margaret A. Manley, 1s.; A. B. D., 5s.; Two Sisters, 2s.; A Reader of the G. O. P., 1s. 6d.; Worthing, 2s. 3d.; Miss A. J. W. Strathaven, 5s.; Whitley, £1; C. and A. H., 3s.; Miss



here yesterday? I was not sure of it last night."

Carita felt her cheeks burn. Her companion would be commented on next, no doubt.

"You need not blush so; there was nothing to be ashamed of in the appearance of your friend. I thought him a most distinguished-looking man for a stockman, which I supposed him to be from his dress."

Oh, the dreadful woman, if she would only stop before Mrs. Warner came in! Carita rushed to the stove, where she could only make a pretence of pulling out a damper and closing an oven door.

After breakfast Eleanor and her friend sat down before the fire in the living room to have a gossip, Carita remaining in the kitchen to wash up and put away the breakfast things. There was only a slight partition between the two rooms. Whilst Carita was busy she did not distinguish anything of the conversation between the two ladies, but when standing to rest for a few moments, feeling tired and heated, the sound of her own name caught her ear. Mrs. Bombasin was speaking.

You must not judge my poor heroine too severely when I tell you that she could not resist remaining quiet for a few minutes. After all, as she said to herself, Mrs. Warner knew she was there, and might have remembered how easy voices could be heard in the cabin.

"Carita, you called that girl; what an odd name for a help!"

"She is not, properly speaking, a 'help'; Stephen adopted her when she was a child. That is to say, he bought her first, and adopted her as a daughter afterwards."

"Then that accounts for her dark skin. It is not the negro type, though."

"Oh, no; she is a pure Mexican. Steeve had to give fifty dollars for her, to an old woman in whose hut she was born. She was ill-treating the child, and Stephen took pity on it."

"He had better have left her where she was; I don't think she is very good-tempered. She flushed up when I spoke to her this morning about a man I saw her talking to yesterday, on my way here. Quite a presentable-looking man, too, he was."

"I don't know who it could be, then, for there is no one in the neighbourhood more distinguished-looking than Mr. Heath, the father of an English family near this, and he is at least fifty."

"I can assure you, then, that Carita's friend is both young and distinguished-looking, and from the look of his horse and saddle bags, I fancy he had come some distance. If I were you I should watch the girl more closely; slyness runs in the Spanish and Mexican blood, you know."

Carita heard no more. She would not have heard as much as this had she not been, as it were, petrified by the idea that she had been bought and paid for—like any slave in the market! Mrs. Wilson was a Southerner, and she had often heard her talk of the prices paid by her father for this woman or that child. Presently she heard the horse

mentioned, and that she must be watched, for "slyness ran in the blood." The strange pain came just under her breast, but she managed to get to the door; then she fainted, and there she was found a few minutes later, conscious again, sitting on the ground, a white, wan look on her face.

Tom it was who came running up from the corral, to ask her to come and help him saddle a fresh young filly which he was bent on training.

"What's up, Carita? How sick you look!"

She could not speak at first. "Where is mother?" he said. "I will bring her to give you something."

"No, no! I want nothing," she gasped. "I shall be all right in a minute."

Soon she got up, but she looked dazed and troubled.

"I was coming to ask you to help me saddle the filly, Carrie. Ben Heath is going down to Lazy Man's Cañon, to meet Mr. Emerson; he's coming up from San Juan to-night, and I know mother will let me go too. I wanted to try Joe with my new saddle a bit first."

Ah! he was coming to-night. The thought did not make her heart glad any longer. He would feel differently towards her when he knew she had been bought, as cattle are bought. Was it false, then, what the father had told her about her own father having been an officer? And he had said, too, that her mother was a lady. Mexicans were better than negroes, certainly; still, she had been paid for, like any negro!

If she had listened a little longer she would have heard Eleanor tell her cousin how it had all happened, and what the old woman confessed as to her parentage. Also, that Stephen loved her, and made as much of her as though she had been his own child. And this might have comforted her. As it was, the iron had entered her soul, and she believed she would never be happy again.

All day she went about her work in a weary, listless fashion. "A sullen, sulky nature," said Mrs. Bombasin to Eleanor; "I wonder how you can put up with her at all!"

The next morning Joyce came to the Lodge. Carita was out by the corral, feeding the young "bosses." After shaking hands the two friends looked at each other for a moment, without speaking. Both were pale and sad-looking. Carita expected this of Joyce, but Joyce could not understand the expression of utter dejection and weariness that was in her friend's face, and she forgot her own pain, and forced herself to speak gaily.

"I thought I should find you looking like a rose with the dew on it, Carrie. I thought you would—"

"Don't, Joy, dear; I am not well to-day. I had such pain, nearly all night, and it always makes me tired and sick-looking."

"I have a little note for you, Carrie, from him. We had a long talk this morning, and he told me all about it. I mean to be his friend as well as yours, dear!"

How bravely she looked and spoke, good Joyce! No one could have guessed that she had spent half an hour on the ground under the dwarf oaks, on the way up, battling with this, her first great sorrow.

Carita looked wistfully at her, then she flung her arms round her true friend, and they both cried.

"I was so very happy, Joy, at first; now, everything is changed. I cannot tell you about it now, but I will try to come to you to-morrow, some time."

"I must run home again, Carrie; read your note and tell me what to say to him."

Her first letter from Phil. The first, and perhaps the last, she thought, sadly, for she must tell him to-day.

"Well, Carrie, I know what he asks; he told me. Shall I say you will be there?"

"Yes, dear, I will be there. Good-bye."

Joyce hurried down the wood again. Mrs. Warner had fortunately been in front of the house, and had neither seen her come or go.

(To be continued.)

## THE OBSERVER.

By DORA HOPE.

IN cold or wet weather, when the children are obliged to be kept in the house a good deal, there are still many things all around them to be noticed and thought over. For instance, let them begin close at home. Make them open their hands out, with the fingers straightened side by side; then notice that each finger is of a different length, and the tips are none of them at the same level. Now fold the hand, and the finger-tips will be found to touch the palm of the hand at almost an exact level. Let them take hold of a stick or ruler, and they will see how much firmer a grip they get by this levelling of the fingers than they would have if they were as unequal when folded as when open.

The tips of the fingers are exceedingly sensitive. Even when roughened and hardened with work they still feel the slightest touch, and the delicate nerves in them still act and carry messages up to headquarters in the brain.

But here is a curious thing. The tip of the tongue is in many ways still more sensitive than the finger-tips; any roughness or difference in the mouth or teeth, the busy tongue will find out long before the finger point could feel anything new. This tip, or rather the nerves in it, can do what the fingers cannot—it can taste what it touches; but for all that, it cannot feel the throbbing of a pulse, which the fingers can. Try it; find the pulse just inside the thumb side of the wrist, place your finger on it, and you will feel its regular beating; but put the tip of your tongue on the same spot and you will not be able to feel it at all.

This is the time for those who have microscopes to use them. Begin to interest the children with very simple objects and low powers; accustom them to judge of the magnifying power by such well-known objects as the eye of a needle, the head of a pin, or a thread of fine cotton. Let them see each thing, both in and out of the microscope, so as to convince them that it is really the same article. Next show them a human hair (there are always a number volunteered from the

needs of the young people interested), and compare it with that of a cat or dog, or both. But, after all, there is nothing so delightful as to see something alive and moving under the microscope; and you can manage this, even if the ponds and streams are frozen. Get a few pieces of hay and put them into a small jar with rain-water (which must not be filtered) just enough to cover the hay. Leave this in a warm place for a day or two, and then try one drop under the microscope. If it has stood long enough, you will think, like the philosopher in Hans Andersen's tale of "A Drop of Water," that you are looking into another world, and a very lively world too. You can make this infusion with different kinds of leaves, and find different and most wonderful creatures in each.

Any readers who have not the good fortune to possess a microscope, nor even a magnifying glass, can make a useful magnifier from an ordinary pill-box and a drop of Canada balsam. Make a hole in the bottom of the box, the size of a large pin's head, and drop the balsam so as to fill the hole and form a lens. A clear bead of glass answers the purpose even better.

It is often useful to be able to distinguish trees, when leafless; and now is the time to study their peculiarities. They differ so much according to different conditions of soil, climate, and position, that it is difficult to give any exact rules: nothing but practice will enable one to distinguish them with certainty. To begin with the best known, point out the peculiarities of an oak tree. These differ very much according to the soil; if the root has to push and twist about among rocks and unsuitable soil, the trunk will correspond; but if the root can grow straight down, the trunk also will be straight and even. Oaks are very seldom blown to one side by the wind, as is, so frequently the case with other trees. The branches seem to divide the trunk instead of sprouting from it, and in general they take a horizontal direction, and are much twisted and gnarled. The small twigs of various trees should be gathered and studied: they are like the branches in miniature. To bear the great weight of horizontal branches, the trunk of an oak tree is wider, both at the top and bottom, than in the middle. The shape of the old Eddystone Lighthouse was copied from this peculiarity.

Looking upwards from the shoulder of Orion towards the Pleiades, two bright stars are visible, which with several much smaller ones form a triangle. This triangle makes the head of the constellation Taurus, or the Bull. The brightest of the two, Aldebaran, is supposed to mark the bull's eye. Above the two bright stars are two other rather less bright ones, which represent the horns, while the Pleiades mark its back, and the rest of the animal must be filled in by the imagination.

If you imagine the bull to be bending down its head, as though charging at an enemy, which from the position of its horns does not require a very great stretch of fancy, the direct objects of its attack appear to be two very bright stars side by side, named respectively Castor and Pollux, which form the heads of "Gemini," or "The Heavenly Twins." There are several other smaller stars, which a very vivid imagination must suppose to supply the bodies of the twins.



## ANSWERS TO CORRESPONDENTS.

## EDUCATIONAL.

STELLA II.—We do not wonder that you wrote again, and we are obliged to you for your kind letter and for drawing our attention to a printer's transposition. The original sentences, as written, were "The nearest of all the fixed stars to us, Centauri, is calculated to be some 200,000 times further off from us than the sun, which is at a distance of about 93 millions of miles." One sentence was simply printed before the other. If the distance of the sun be, as usually stated, 92,350,000 miles from the earth, then Centauri must be at about 18,470,000,000,000 distance from us.

EADSVTH.—We can give you three addresses, and advise you to write to all for their several prospects. The College of Preceptors, which grants diplomas of three grades, and gives lectures on the theory of teaching (incorporated by Royal Charter), secretary, C. R. Hodgson, Esq., 42, Queen-square, Bloomsbury, W.C. Secondly, the Home and Colonial School Society (Non-Government Department) offers instruction in the art of teaching. Apply to the principal. Thirdly, the Teachers' Training and Registration Society (incorporated under Companies' Act, 1867); secretary, Miss Louisa Brough, 1, Queen-street, Brompton, S.W., supplies training for teachers. You write a very good hand.

E. B.—Read "How to Improve One's Education," in vol. ii. The second part, at page 794, will direct you.

M. WILLIS.—We do not appeal to our correspondents for answers to the queries sent us; we give them ourselves. There is a musical society for the encouragement of instrumental practice, and a reading society for that of instructive reading, under the management of Miss McLandsborough, Lindum-terrace, Manningham, Bradford, Yorkshire. In reference to needlework, you should set apart an hour on certain days in the week, if not daily, for mending and making for yourself or others. Does your mother require none done for her? Or your sisters, engaged in other studies, or the men and boys of your family? Otherwise, the poor always want something; if not new, at least mended so as to be of some use.

SELENITE.—It is true that only one side of the moon has ever been turned towards the earth. Of the other hemisphere we can have no certain knowledge. But while we could not give our authority for the correctness of certain curious statements made some little time ago, we may name them for as much as they may be worth. It was asserted that the moon's centre of figure, and that of her gravity, did not correspond, and that the latter was "eight geographical miles nearer to the unseen side." If so, would be natural to infer that all the atmosphere and water must be attracted that way, and that there might be both vegetation and life of all kinds abounding there. Thus the "man in the moon" may be no myth, after all!

B. A. S.—Pupils are trained for one year as Nightingale Probationers at St. Thomas's Hospital, Albert Embankment, S.E., receiving board and lodging, with £10 and uniform. During three years after completion of their training they are required to take situations as hospital nurses, the salary commencing at £20. Ladies wishing to qualify for superior appointments may be trained on payment by them of either £30 or £52. These are also expected to take situations during three years or one year respectively after the completion of their training. Their salaries are from £35 to £60, rising to £100. You write well; your handwriting is just the right size, is very legible, and has no vulgar flourishes. A little freer handling of your pen will be attained by practice. Apply personally between 10 and 12 on Tuesday or Friday, to the matron, Mrs. Wardroper, or else by letter to the secretary of the Nightingale Fund, Henry Bonham Carter, Esq., 91, Gloucester-terrace, Hyde Park, W.

PINK-EYED DAISY.—Your charming letter was very encouraging to us, more especially in reference to the spiritual teaching and assistance given in this paper. For the syllabus of the Cambridge Higher (local) Examinations, held in June, for girls over eighteen years, write to the Rev. G. F. Browne, St. Catherine's College. The fee is £2.

## ART.

NANCY LEE.—The sketches of heads give promise of better success should you take lessons, which it would be worth your while to do. You should learn to draw an ear. Pencil drawing can be set with milk and water, simply by dipping in it, without wetting the back of the paper.

S. D. HENDERSON.—All directions requisite for crystalium painting will be found in the article so named in *Silver Sails* (holiday number of the "G. O. P."). There are no rules that we are able to give you in reference to "silhouettes." An artist taking a likeness in this style, makes certain measurements, but in cutting-out fancy groups and landscapes he must depend on his own idealism and cleverness.

A RED ROSE.—See "Painting in Oil Colours," pages 491 and 445, vol. iv.

NELLIE.—You will find an excellent article on paint-

ing photographs at page 183, vol. iii.; also at page 716, vol. ii.

UNE PETITE FLEUR.—We think your self-taught efforts do you much credit, but we scarcely think you could sell them, as they lack artistic grace and all the qualities of light, air, and good manual work. You should try to take lessons. We could not undertake to return anything.

ESTHER H. H.—We think your drawings show decided artistic promise, and we should advise you to go to some school of art near you for instruction.

MARIE CURTIS. An article on the art of painting on satin was given in vol. iv., page 66. You are required to be well grounded in Scripture, and in the catechism, articles, and doctrines of the Church of England.

SNOWDROP.—The cheapest and softest wood for fretwork carving is sycamore. As it very quickly becomes soiled, it should either be dyed with walnut dye, to be procured at any Swiss wood-work shop, or else varnished with a white transparent varnish to keep it clean.

SALOME.—"Painting on glass," "painting on magic-lantern slides," and "painting photographs," were all mentioned in the articles entitled "Occupations for Invalids," in the second volume. Full directions for each department of the art were therein given, so we need not repeat them.

LEARNER.—The West London School of Art, at 155, Great Titchfield-street, W., would be conveniently near you. The acting secretary is Thomas F. Curtis, Esq. There are evening as well as morning classes; the entrance fee to the evening ones is two shillings. The school year commences in October. Mr. Curtis would supply you with prospectuses and all necessary information.

LONG D.—A "pantagraph" was the first instrument invented for copying, enlarging, and reducing plans, etc., produced by Christopher Scheiner about the year 1603. Professor Wallace improved upon it in 1821, and called his appliance an "eidograph." Small and simple instruments may now be had at very trifling cost, which answer the purpose of the artist sufficiently well.

PILING.—Consult an artist's colourman on the subject of painting on leather. The articles should be made up before painted, and will probably be offered at his shop for sale, ready for decoration. You can procure all necessary accessories for the work there.

S. H. L.—There are different recipes for bronzing, but it would probably be useless to give one which required the use of a crucible. You might buy some "mosaic gold" in powder, and rub it on with the finger, or you might also procure "Dutch gold," in little books, and at a cheap price. It would be necessary to cover such inferior bronzing with a coat of clear varnish, or the metallic appearance would soon be lost. A third method suitable for plaster is to cover the figure or bracket with isinglass size until no spot on the surface becomes dry. Then with a sash-tool (a brush) sweep over the whole to remove, while yet soft, any superfluous size that may be lodged on delicate parts of the figure or design. When dry, take a little very thin oil "gold size," just damp the brush with it, and paint over the figure with it, just leaving sufficient only to make it shine. Then set it in a dry place free from smoke, and in about forty-eight hours it will be prepared to receive the bronze. Touch over the whole with the latter, and let it stand for a day, then remove all the loose powder with a soft dry brush, and especially from all the prominent parts of the figure or other article. Your well-formed hand is spoiled by flourishes.

## MISCELLANEOUS.

EMILE.—We do not think the coffee will do you harm, provided you do not drink it too strong, and have plenty of good milk. Many thanks for the recipe.

VIOLA.—We think that many girls are wearing ordinary tight-fitting jackets, or else small cloth mantles. Consult the pictures in the dress article.

ILE.—We think that if you are in the habit of drinking beer you had better leave it off and take a bath every morning, using a good flesh-brush at night. Be careful also in diet, eat light and nourishing food only, but not too much meat.

A TROUBLED ONE.—Your digestion is at fault, we should think, and you should avoid heating foods, such as pork, goose, or strong soups; pickles and nuts or walnuts also; and if you take beer leave it off. Use a mild soap and the tepid bath; eat meat once a day, eggs, milk puddings, ripe cooked fruit, etc. Take moderate exercise, but do not overtire yourself.

LOVER OF CHILDREN.—Write to Mr. Tarn, 56, Paternoster-row, E.C., for the proper covers of the "G. O. P." and you will get any binder to put them on at a shilling or eighteenpence each. You might buy a whole volume ready bound in cloth, with the proper covers, for six shillings. The covers are two shillings each. If taking in the numbers singly as they come out, the set of extra pictures, title-page and indexes, for vols. ii., iii., and iv. are one shilling each vol., and ninepence for the first volume. We must request all desiring information on this subject to take note of this answer.

HOPEFUL.—We regret that you should have waited for an answer so long as you say, but we have no recollection of having received any letter or verses from you. We are glad that you find our paper so useful to you. You write and express yourself very well. What you could do in verse we are unable to say,

us, when He sets us in homes in which we are able to make so much joy or sorrow in other lives—lives, be it remembered, which are lived in the Great Home, and in which His interest as the God and Father of all is supreme. . . . But here as elsewhere men will have the crown without the cross, and end by missing it. It is the deep secret of misery in homes; men and women will clasp at the fruit without the culture, the strength without the patience, the joy without the benison, the crown without the cross, of love. They reckon that they have the right to so much service, love, and tenderness from those who love them, instead of asking how much service, love, and tenderness they can bestow." "And if you search at the root of that development of which a Christian home is the fruit, you will find that it is self-control, self-denial, self-sacrifice. That home is the brightest in which love reigns most perfectly, and the love which blesses homes is the love that seeketh not her own, but is ever on the watch, at the cost of self, to minister to the husband's, the wife's, the brother's, the sister's, the children's good. Remember, you girls and mothers, the brightness of the home is your charge . . . remember, that while the men are responsible for winning the bread, you are responsible for the beauty and brightness of the home. Cultivate your faculties sedulously, and perfect your accomplishments. There are few sadder things in our times than the dulness and wretchedness of the homes of our poor. . . . And there is a moral dulness and squalor quite as ghastly to be seen constantly in rich and cultivated homes. It drives the men out for a little society and cheerfulness, and lays the foundations of habits which end in many a terrible wreck. There is that which, for want of a more definite name, I have called 'stupidity,' which is weighing like a nightmare on our lives. I know the utter, dreary aimlessness of much of our social intercourse, our amusements, our work, and our play. We need to have society lifted up bodily to a higher level of interest, in things worthy of interest." And music is in its very nature a power which lifts into a higher atmosphere the souls possessed by its influence. Two and three hundred years ago it was so used in all England, as may be seen in the records of the sixteenth and seventeenth centuries, when, as may be read in Thomas Moyley's "Plain and Easy Introduction to Practical Music" (A.D. 1597), he says—

"Supper being ended, and musick bookes (according to custom) being brought to the table, the mistress of the house presented me with a part, earnestly requesting me to sing; but when after many excuses I pretended unfaithfully that I could not, everyone began to wonder. Yea, some whispered to others demanding how I was brought up, so that upon showing mine ignorance, I go now to seek mine old friend, Master Gervinus, to make myself his scholar."

How many people meeting by chance in the present time, sitting round a supper table, would be expected to sing at first sight such music as the madrigals of that day—Wilbye, Gibbons, Dowland, Byrd?

Pepys tells us in his diary that when a new housemaid was to be engaged for their household, part of her examination as to her fitness for the post lay in trying her powers of reading music at sight, and a very pretty and clever girl was rejected solely because she could not take part in the evening family music. Nay, in the beautiful gardens of that day, guests were expected to bring their own instruments, the light small musical instruments in use anyone can see now in groups at the South Kensington Museum, so that—like the pages in *As You Like It*—they could make an impromptu concert, sitting in the shade and singing or playing together, making the time very

musical. Think of the pictures of those old times one may see now in any gallery, the bowery gardens with their sunlight on the grass and flowers, and in the green shade, sitting on the grass, groups of happy singers and players, making the hours fly with music on their wings. Imagine the relief from the strain of overwork and the pressure of anxieties, from the tedium of *ennui* or the aching of loneliness. In such gatherings think of the difficulty which exists everywhere, and at all times, of uniting pleasantly and gaily, various people of differing pursuits, different positions and characters, interests and passions, in an excitement which should refresh and stimulate, while it sheds a mantle of kindly sympathy, like that fervent charity which covers a multitude of sins; on differences and jarring interests which throb into heartache, wearily sometimes, when the love and grace of art is not invoked to neutralise the work-a-day ills that flesh is heir to. Amidst the noise and hurry and struggle of daily life, is it not perfectly true to say, that in poor homes (and there are many such in handsome and comfortable-looking houses) many who feel the stings of real poverty, and strain by hard self-denial to keep up appearances, need most bitterly sometimes the warm glowing atmosphere of heavenly music to "smoothe the raven down of darkness till it smiles." It was a mere ordinary everyday occurrence which was told me by a loving mother, of the power which her little child had used, when one day the father came home worn and jaded with fatigue, and harassed with such misery as even merchant princes know at times, when business anxieties gather into storms ahead—storms in which the best loved homes may go down into ruin, through no fault of their own. The child watched the pale, worn face of the father she loved so well, and gliding to the piano, there softly rose on the ear a lovely old chant, so consoling in its heavenly beauty, so strengthening and inspiring in its divine fervour, that the worn nerves relaxed, the soothed and softened spirit melted into tears; the small musician had done her work, and her father's hand rested in love and blessing on the soft curls of the little head which had thought and loved so well. No first-class certificate of Oxford or Cambridge could have carried the message of a noble art and a nobler consolation as those golden notes did.

I reserve until a future occasion some consideration of the practical difficulties attending a sufficient study of the best sort of music in the present day, in answer to the question with which I started, "Whether music is now an integral part and parcel of the education of the young, as it ought to be? and if not, why not?"

## THE GIRL'S OWN HOME.

### SUBSCRIPTION LIST.

Charlotte, 2s. 6d.; A. G. B., 1s.; Miss Dorcas Upfold, 1s.; A Young Girl, 1s.; Collected by Miss A. Brooks, 13s.; Collected by Miss Mary G. Crone, 7s.; Ada L., 2s.; Two Friends, 2s.; Julia, 1s.; Annie, 1s.; Two Sisters, 5s.; Collected by Miss L. Ethel Webber, 8s.; Collected by Miss H. M. Burnside, 2s. 6d.; Collected by Miss M. C. Elvin, 11s.; The Misses Smith, £1 2s.; Collected by Miss E. M. Goodhev, £1 2s. 6d.; Collected by Miss Lucy Maplesden, 11s. 4d.; Collected by Miss Eva F. Burrows, 5s.; One Who Wishes it were More, 2s. 6d.; Collected by Miss Florence Jeans, 6s.; Collected by Miss E. Gamble, 11s.; Collected by Miss Jennie Edden, 4s.; Collected by Miss E. Curteis, 6d.; Sophia, 3s.; Collected by Miss

E. A. Stanley, 6s.; M. S. R. B., 2s. 6d.; Mrs. Tryon, 1s.; Miss Grace Lloyd, 2s. 6d.; Romola, 1s.; Miss M. A. Skinner, 4s.; Collected by Miss S. Wellby, £2; Nelly, 1s.; Collected by Miss M. F. Greening, 7s. 6d.; M. and E. C., 2s.; Collected by Miss MaHome, 3s. 2d.; Katharine, 10s.; Mrs. Knight, 5s.; Canary Profit, 10s.; Maiden, 8d.; A Housemaid, 1s. 6d.; E. W. L., 2s. 6d.; Two Who Shift for Ourselves, 5s.; Mistletoe, 1s.; E. D. S. 1s.; Peggy and Polly, 2s.; Collingrove, 2s. 6d.; A Theorist, 2s. 6d.; Lancelot Rover, 2s. 6d.; Rather an old Girl, 6d.; A Mite for the Girl's Own Home, 2s.; Two Sisters, 2s.; P. T., 1s.; A Yorkshire Lassie, 2s.; Collected by Miss Ball, £1 1s.; A. M., 2s. 6d.; A Welsh Girl, 2s. 6d.; Mrs. Charles, 5s.; Kathleen, 5s.; L. T., 1s. 6d.; Kate G., 1s.; Sarah, 10s.; The Firs, 2s.; Gratitude, 1s.; Collected by M. C. E. Kathmines, 8s.; Collected by Miss Gertrude Langton, £1 5s.; Carlotta, 2s. 6d.; Anna, 1s.; Collected by Miss Carrie Kent, £1; H. A. T., 1s.; C. and D., 2s.; Collected as Musical Fines, 3s.; Margery Daw, £1; Stella, 1s.; C. and L. M., 4s. Total amount received to November 30, 1883, £652 16s. 8d.

## THE OBSERVER.



HERE are many signs of coming weather which even the little ones may notice. The sunrise is late, and the sunset early, enough now for most of them to look at, and judge for themselves of the truth of such old rhymes as—

"Red at night is the shepherd's delight;  
Red in the morning is the shepherd's warning."

There are many other rhymes and proverbial sayings about the weather, most of which have some measure of truth in them, though they are not all to be depended upon. The best way is to watch the signs of the weather, and make rules for one's self, as the signs of change vary in different localities, owing to differences in the nature of the country, whether there is much water, or smoke of towns, or whether it is hilly or well wooded. Even in watching for yourself, there is always a little danger of being misled by coincidences which have no foundation in fact. For instance, an old dame who had excellent opportunities for watching the weather, once said to me, "I've often noticed, miss, that the weather always changes on a Friday. Whatever it has been through the week, it is sure to be different then." My own observations, however, had not led to that conclusion.

There are numbers of weather sayings about the moon, many of them, unfortunately, quite contradictory. One of them is that if the new moon lies on her back—that is to say, with the points of the crescent upwards, like a boat, or, as the weather prophets describe it, "so that it will hold water"—it is sure to be a stormy month. In other parts of the country this is supposed to foretell fine weather, and it is when the crescent moon is upright, so as to spill the water out, that bad weather will follow. Another sure sign of a wet month, with some people, is to see "the old moon in

the young moon's arms," that is to say, a faint shadow of the whole moon beyond the bright crescent; the dimmer part of the moon's face being really, in this case, illuminated by earth-shine, while only the bright crescent catches the stronger sunshine.

The weather is popularly supposed to change when the moon quarters, but it does not always keep to the rules laid down for it. The turn of the tide, also, is thought by people living on the coast to be a critical time, and they consider that bad weather invariably follows the appearance of a halo round the moon (commonly so called), but the prophets usually mean a lunar corona.

Another often-quoted axiom is that—

"If the oak is out before the ash,  
The earth will only get a splash;  
If the ash is out before the oak,  
Then the earth will get a soak."

Unfortunately for the truth of this sign, the situation of particular trees affect them so much that while an ash tree may be out first in one district an oak may have a long start of them in another.

But although these popular sayings are not all trustworthy, it is a very good thing to notice them, and to get into a habit of comparing the signs with the changes in the weather.

For practical use, however, except for very experienced weather prophets, a safer guide is to be had in a home-made barometer, a very simple contrivance which any child can make and understand, and which foretells changes as rapidly and accurately as the most expensive barometer. Get a wide-mouthed pickle bottle, and fill it rather more than three parts full of water. Then take a Florence oil flask, such as the common salad oil is generally sold in, covered with wicker work. Take off the wicker, and wash the bottle clean, and invert it in the pickle bottle, so that the neck of the oil flask goes some distance into the water, the bulb of the flask resting on the neck of the bottle. This is all that is necessary; but it is easier to observe the changes, if a few drops of Judson's dye are put into the water, so as to colour it, and, if inches and half inches are marked on the neck of the oil flask by small lines of oil paint. Before bright, fine weather, the water rises slowly up the neck of the flask; a very rapid rise generally indicates unsettled weather. Before sudden storms it falls rapidly, till it is below the level of the water in the bottle; for settled rain and damp weather it falls slowly. Occasionally a little fresh water must be added, to make up for evaporation; and as the sides of the oil flasks are very uneven, it is generally necessary to fix little pieces of cork or wood to the sides of the bottle to keep it upright. The correctness of a weather-glass of this kind can be ascertained by comparing its movement with the weather reports in the daily papers.

Before the leaves come out on the trees, all children should have shown to them the many interesting points in a horse chestnut tree. In the autumn, as each leaf fell, it left on the shoot a sort of scar. On each of these scars can be seen seven black dots, like the nails in a horse's shoe, from which it is supposed the name horse chestnut is derived. The leaf of the tree is composed of seven small leaflets, the midribs of which are bound up together in the stalk, and the seven dots left when the leaf falls are really the ends of the midribs broken off when the leaf died. If you look at the ends of the shoots of a horse chestnut tree, you will see on each a bud, covered with brown gummy scales. Most children know Grimm's fairy tale of the prince who drew twenty ells of cloth out of a millet seed; but the contents of one of the sticky horse chestnut buds is almost as wonderful. One of these, not larger than a pea, was carefully

examined by a celebrated German naturalist with a powerful microscope. He found first seventeen outer scales overlapping, and, as it were, gummed together to protect the tender bud from the frost. Underneath were four perfect leaves, round a flower-spike, which was so perfectly formed that he was able to count sixty-eight flowers, each complete, with even the pollen on their stamens clearly distinguishable.

In the spring the brown scales fall off, leaving a ring-like mark on the shoot, and the length of time the shoots have taken to grow can be easily reckoned by counting the spaces between these rings left by the winter scales, each of which represents one year's growth. These rings are much more distinct on some trees than others.

DORA HOPE.

## ANSWERS TO CORRESPONDENTS.

### MUSIC.

**JOSEPHINE.**—1. In accordance with the Copyright Act, no copyright song may be sung, nor any instrumental piece performed, in public without the permission of the owner of the said copyright, whether the right be vested in the composer or the publisher. Almost all modern music, however, bears this permission printed upon its title-page. 2. A "monochord" is an instrument having one string, employed in elucidating the doctrine of intervals in music.

**JUBAL.**—The phrase you quote, "the music of the spheres," was that of Pythagoras, a philosopher of Samos, the son of a sculptor named Mnesarchus. He was the founder of the Italic sect of philosophy, as Thales of Miletus, was of the Ionic. He maintained that "the motions of the twelve spheres must produce delightful sounds, inaudible to mortal ears," and these he called "the music of the spheres." He flourished about 555 years before Christ.

**L'AINÉE.**—1. The abbreviation "op." stands for "opus." 2. See our article "How to Improve the Education," page 704, vol. ii. Messrs. Novello or any other music publisher would supply you with a first instruction book for the children; and Mrs. Frederick Inman's "Plan for Teaching Music to a Child" (published by Simpkin and Marshall, price 1s. 6d.) will give you good suggestions and advice in the art of teaching.

**YNNAEJ and MINNE-HA-HA.**—We could not form any idea of what you might make by copying music. Were you able to transpose it to suit special voices, you might make something. But then you should advertise your so doing, and get permission at some of the musicsellers to hang up, or leave in their windows, a notice of your taking in music for that purpose. If a good pianist or singer, you might put up a notice that you would attend at private parties to assist in conducting the music at so much a night. 2. The address of the Society for the Employment of Women is 22, Berners-street, Oxford-street; secretaries, the Misses King and Lewin; office hours, from 11 to 5. You might write on your card that you are a teacher of music, and also attend evening parties as a pianist, or to play accompaniments for singing; and enclose them in envelopes to send round to any houses where the proprietors are known to entertain or have young children.

### MISCELLANEOUS.

**ONE IN TROUBLE.**—Be careful in your diet; avoid raw fruit and vegetables, drink abstemiously, beware of tight-lacing, and take a little ginger (as a dose) in a wineglass of very hot water, adding a little bicarbonate of potash when in pain. A little ground ginger in your tea might be of use; but your digestive organs are out of order, and advice from a doctor is desirable.

**MORSEY.**—The address of the United Bible Reading Society is the Rev. E. Boys, Beverley, Sideup, Kent.

**AN ANXIOUS INQUIRER.**—If your parents wish you to remain at home, of course you must do so.

**PEACHY BLOSSOM and META ALLEN.**—Absurd as it is, there is a sort of fashion connected with the colour of the hair and complexion, and if there be anyone so unkind—not to say rude and coarse—as to make comments on the natural colour of either which God gave you, at least we can inform them that at the present time fair hair and complexion are quite "out of fashion," having given place to the dark. If you hold yourself well, walk well, and are courteous in manner, studying to look pleasant, instead of shy or morose, you may defy all ill-natured comments. Use glycerine and water to your hands, and wear chamois-leather gloves at night; take special care of your nails, and wear gloves during the day when you can. We sympathise

with you. Do not resent hard words, but meet them with gentleness and good temper.

**A YOUNG AND INEXPERIENCED GERMAN.**—Your letter in English does you the greatest credit, more especially as the composition of one who is self-taught. Only in one sentence is there a transposition of words which is un-English, and only one wrong word ("apologise" for apology). We are unable to recommend anything of the kind you require; there are plenty of small shilling, or even penny, Reciters out of which you could procure something amusing, and you could easily devise the accessories for yourself.

**TOM MOLLOY, DICK, and FISH.**—Never do anything in an underhand and sly way. Tell your mother that you and your friend wish to "keep company," and be guided by her wishes and better judgment. The second specimen of writing is better than the first.

**HOPFUL.**—The sizes of books are described in the way you name, and the terms employed are abbreviations of Latin words. In a *folio* there are two leaves, making four pages. 4to means *quarto*, or four leaves, making eight pages. 8vo means *octavo*, or eight leaves, making sixteen pages. 12mo means *duodecimo*, or twelve leaves, making twenty-four pages; and 18mo means *octadecimo*, or eighteen leaves, making thirty-six pages. The several sizes of the type employed in printing are likewise distinguished by various terms. 2. You should read our article on "Punctuation." "!" is a note of admiration, indicating surprise; and "?" is a note of interrogation, or a query.

**CURIOSUS NELL.**—The Vinegar Bible was a certain edition published at Oxford A.D. 1717, in which a misprint occurred in the headline over St. Luke xxii., "vinegar" being substituted for "vineyard."

**M. A. P.**—The 22nd of December, 1851, was a Monday. We sympathise with you in your now helpless condition from over-taxing your mental and physical powers; and we are glad to receive your testimony to the value to be attached to a periodical of sound religious principles that supplies moral stories, regarded by you in the light of "a tonic to a brain over-burdened with business." In reference to your recipe for "softening water for making tea," we are glad to give it to our readers. "Put a lump of sugar in with the tea," hard water will then be corrected, and suitable for the purpose. May you be supported under your trials.

**SCOTCH THISTLE.**—We are shocked to hear that you "never wash your face with soap!" The sooner you begin to do so, the better. Use soft water, or put some bran in it. Employ a mild, unscented soap at night, and then apply a little glycerine and water before drying it, or else, after drying, a little vaseline. In the morning you need only bathe your face with cold water, as it will then be clean. It is the nature of some skins to shine. Wear a veil.

**ELINORAC and IDA.**—1. You might wear one of the new full fichus of cream-coloured lace frilling; would be very suitable to wear over your *broché* bodice. 2. Send to Mr. Tarn for the covers, indexes, and set of coloured pictures, price 2s., and any bookbinder will bind them at 2s. a volume or less.

**C. A. T.**—You had better read the series of articles called "The Fairy of the Family," which gives all necessary directions on the cleansing of materials of every kind, and removal of spots and stains. Possibly you might clean the soiled part of the white satin by rubbing it gently with some clean flour.

**TRIM.**—Real nervousness arises from a certain delicacy of constitution. Go to bed early, take daily outdoor exercise, without fatigue, and take light, nourishing food. Think much about those around you, and try to forget yourself.

**CRIB** inquires "which is the best way of entering a room," but she has not named any of the ways to which she refers and from which we are to choose. There are, however, only two, generally speaking, by the door or the window, unless there be a trap-door in the ceiling, or she include a descent down the chimney. We should recommend her to make an entrance by the door as by far the most suitable, excepting only in case of fire, when a window might prove a valuable substitute.

**NANCY R., Bp. A.**—You should first ascertain, without doubt, that your attacks are really indicative of a tendency to epilepsy. If so, a light diet of a non-stimulating kind is desirable. Some say abstinence from meat, such as beef, mutton, veal, and pork. Regular and gentle exercise should be taken, and suitable medicine prescribed by a doctor; into any further particulars of the possible cause and remedies to be adopted we cannot enter in a magazine like this. 2. There is true poetic feeling in your verses, but you must count the number of feet in each line of the first verse of a poem, and when you have also decided on the syllable on which the beat or emphasis should fall, you must make every other verse to correspond with it exactly.

**G. H.**—We thank you for your nice letter, and for the information that "if sweet oil be mixed with the mustard, mustard plasters become perfectly painless." December 30, 1853, was a Wednesday.

**AN OLD-FASHIONED GIRL.**—We have seen spinning-wheels for sale at secondhand furniture shops, and also at high art fancy needlework shops.

**WINNFRED.**—We think tea and coffee are very good substitutes for stimulants. Cold tea is a *good drink*, also lemonade and ginger beer. If you drink water, it should be boiled and then filtered.

Miss Hanks, 13s. 6d.; collected by Miss Hilda Turner, 2s.; collected by Miss Agnes Davy, £1 1s.; collected by Miss Aldred, 14s.; collected by the Misses Shaw, 10s.; collected by Miss Gertrude Cooke, 5s. 6d.; collected by Miss Florrie Cropper, 7s. 6d.; collected by Miss Barrat, 7s. 6d.; collected by Miss A. Foster, £1 10s. 6d.; collected by Miss Harbinson, £3; collected by Miss Kate Buck and Miss Blanche Barton, £1 2s. 10s.; collected by Mrs. Hemsley, £1 14s. 6d.; collected by Miss Archer, 10s.; collected by Miss Maggie Pixley, 10s.; collected by Miss K. Gurr, 15s.; collected by Miss Anna Dell, 16s. 6d.; collected by Miss Hill, £1 3s. 6d.; collected by Miss Clara Leslie, £3 6s. 8d.; collected by Miss Williams, £2; collected by Miss Maber, £1; collected by Miss Hutchinson, 10s.; collected by Miss C. S. Cunningham, 11s. 6d.; collected by Miss E. White, £1 1s.; collected by the Residents of Alexandra House, £1 3s.; collected by Miss M. Geflowski, 6s.; collected by Miss E. M. Craik, 9s. 6d.; collected by Miss Adine F. Wright, £1 6s. 4d.; collected by Miss Elenor Morrell, 10s.; collected by Miss Laura Halliday, 5s.; collected by Miss Bertram, £1; collected by Miss Bessie Taylor, £1; collected by Miss C. Donogh, 12s. 9d.; collected by Miss M. Jones, 18s. 6d.; collected by Mrs. J. W. Bentley, £1 14s. 6d.; collected by Miss Henderson, £1 1s. 3d.; collected by Miss Dowling, 5s.; collected by Miss Farley, 15s.; collected by Miss Shepherd, 7s.; collected by Miss Piper, 4s. 6d.; collected by Miss P. Wormald, 7s.; collected by Miss Ferryman, 6s. 2d.; collected by Miss Estella Cropper, 9s. 2d.; Miss Ida Smith, 5s.; collected by Miss Kate Buck, 1s.; collected by Miss Emma Forrester, £1; collected by Miss Jessie Till, £2 13s.; collected by Miss A. E. Smith, 17s. 6d.; collected by Miss Mary Bugden, 2s. 4d.; An Irish Girl, £1; Mother's Own Girl, 2s. 6d.; Nan, 2s. 6d.; collected by Miss E. Potts, 7s. 6d.; collected by Miss M. Holdstock, 10s.; Janet, 2s. 6d.; collected by Miss J. E. Almond, 10s.; A Tiny Christmas Box, 2s. 6d.; Kattie, 1s. 6d.; L. E. F. and J. F., 2s.; Miss Cundy, 10s.; collected by Miss P. Hodgson, 12s.; collected by Miss Rose Twyman, 4s. 3d.; collected by Miss Emma J. Wood, 3s. 9d.; Miss J. Duncombe, 1s.; M. B. W., 10s.; collected by Miss Edith Bassett, £1 1s. 3d.; E. A. B., 2s. 6d. Total amount received to December 31st, 1883, £715 6s. 3d. For collecting cards please apply to John Shrimpton, Esq., Hon. Secretary Girl's Own Home, 38, Lincoln's-inn-fields, London, W.C.

## THE OBSERVER.



**D**URING March many wild flowers are found springing up in warm and sheltered spots. After such a mild winter as this has been, many are found even earlier, though they are too often punished for their boldness by late

frosts and nipping winds. It will be noticed that a large proportion of these early spring flowers are yellow. Amongst those most easily found now are the common coltsfoot, with a flower something like a dandelion, and horse-shoe shaped leaves, cottony underneath, and with an upper surface which looks as if a white cobweb had been laid over it. A preparation of the leaves has long been considered a remedy for coughs. The lesser celandine may also be found in warm places; its leaves are often curiously spotted. This also in olden times was considered a valuable medicinal plant, and Culpepper assures us that merely to carry a root of it about one's clothes was a certain cure for king's evil. The dandelion, which is too well known to need description, may also be found here and there in March. The old herbalists, who were also astrologers, wax quite eloquent over the virtues of this plant. It was under the dominion of the planet Jupiter, and was supposed to be a remedy for consumption, sleeplessness, and all kinds of fevers, jaundice, and other diseases quite too numerous to mention. All these plants have yellow flowers.

Turning to trees, the wych, or Scotch elm, comes into flower about this time; the flowers are found in little bunches on the bare boughs, the leaves not being yet out. The tree is like the common elm, but the trunk is shorter, and often covered with knots and excrescences, and the branches, into which the trunk divides at no great height from the ground, are longer and more drooping than those of the elm.

Many other trees will soon be in flower, amongst them the ash and elm, which flower before the leaves appear, and beech, oak, and sycamore, which flower when the young foliage is just sprouting.

The birds begin to make themselves heard now. Blackbirds begin to whistle in February, and rooks show that the time has come for re-occupying their nests by their cawing, which often sounds very much like quarreling. Indeed, they go farther than angry sounds in their disputes over favourite branches, and have even been seen to tear one another's half-made nests to pieces during the owner's absence, and use the materials for their own nests. Larks are sometimes heard, too, even before March, but the dates differ a good deal according to season and locality.

One of the principal constellations visible at eight o'clock during this month, besides some of those already mentioned, is Leo, the Lion. It will be seen that the Great Bear has changed its position, and is now much further to the east. In order to find Leo, draw a straight line from the Pole Star, through the front paws, or "pointers," of the Bear, continue it straight on a short distance, and it will bring you to six bright stars, forming a shape like a reaping-hook—four stars for the curved blade, and two for the handle. The curve must be taken to represent the head, and the handle the forelegs of the lion. Behind this are two other bright stars, almost in a line with the handle, but a little higher up; these represent the hind quarters, and one other bright one takes the place of the tail. The hind legs of the Bear point towards the hind-quarters of Leo.

On the two first and four last days of March there will probably be very high tides.

An unfailing source of enjoyment during the stormy weather we usually have at this time of the year is to watch the clouds piling themselves into huge fantastic masses, or torn to fragments, and driven scudding across the sky before a gale. Watching them for a time, one can quite understand how our forefathers should believe that they were ridden by the spirits of the storm, engaged in fierce warfare, or rushing in headlong chase after a flying foe. Nor is it less delightful on a quiet day to

watch the sunset clouds with their glorious colours taking all manner of quaint forms; the western sky so often tinged with a lovely greenish hue at this time of year, forming a peaceful background. Coleridge evidently appreciated this enjoyment, and has described it charmingly in his "Cloudland," beginning:—

"Oh, it is pleasant with a heart at ease,  
Just after sunset, or by moonlight skies,  
To make the shining clouds be what you please,  
Or let the easily-persuaded eyes  
Own each quaint likeness, issuing from the mould  
Of a friend's fancy; or, with head bent low  
And cheek aslant, see rivers flow of gold  
'T'wixt crimson banks, and then, a traveller, go  
From mount to mount through Cloudland."

It seems at first as though any attempt to classify the clouds scientifically would spoil the charm of their wild grandeur; but this is not really the case, for a slight knowledge of their different forms has only the effect of enabling one to notice more carefully the ways in which they change from one form to another and their connection with the weather.

Most clouds are within a mile of the earth's surface; all are within five or six miles of it. Their three principal forms are the cumulus, cirrus, and stratus.

Cumulus, or, as they are commonly called, "wool-packs," are large masses piled up in rounded form.

Cirrus, or "mare's-tail," is the name given to thin light streaks of silvery cloud spread out over the sky.

The straight layers of cloud, frequently formed along the horizon after sunset, are called stratus. The peculiarity of this cloud is that, beginning as a low bank on the horizon, it extends gradually higher and higher into the sky, and sometimes, as night draws on, breaks up into cumulus masses.

These primary forms combine, and make secondary classes; as, for instance, the cirro-stratus, or "mackerel" sky; the cumulo-stratus, or "anvil" shaped cloud, with a flat layer of cloud for a base, and a cumulus mass piled on it, resembling in shape an anvil.

There are many other combinations, but with these as a foundation, anyone who cares to watch the clouds will see other classifications for herself. There are a few general rules for observing clouds with regard to the weather, but they must be postponed till next month.

DORA HOPE.

## ANSWERS TO CORRESPONDENTS.

### MUSIC.

VIXEN.—Your own voice and style are the best recommendation to the public. Read *Madame Antoinette* Sterling's article on "How to Sing in Public."

MUSIC.—Perhaps you have begun to use your fingers late—you do not name your age—or possibly you may be employed in rough work, and could not expect to have a free, delicate touch.

LITTLE ONE.—1. Sometimes constitutional delicacy makes the voice weak, but sometimes the organ is a poor one, and not constructed to give out a fine full tone. No amount of pains expended on either tuning or practising upon a flute could make it give the tones of a trombone or ophicleide. 2. Your sister's digestion is greatly out of order, and she needs a course of strict medical treatment.

### WORK.

GOODY TWO-SHOES, BROWN-EYED BESS, FRANCES, F. M. W., SNOWFLAKE, and J. H. C.—Such long recipes for work are out of place in these columns, where space is so valuable, particularly as work



## THE OBSERVER.

THE old rhyme about the cuckoo tells us that :

"In April, come he will,  
In May, he sings all day,  
In June, he changes his tune,  
In July, away he'll fly,  
In August, go he must."

The same rhyme is sometimes quoted of the nightingale, but it is especially true of the cuckoo, which generally begins its song about the middle of April. It has a particularly thin and delicate skin and seems less able to endure cold than other birds, and the first sign of waning summer drives it back to the warmer shores of Northern Africa. Its note is one of the most easily imitated by voice or instrument. Mitford says that it first begins with an interval of a minor 3rd in its song, and goes on "changing his tune," through a major 3rd, 4th, and 5th, but that its voice breaks before it can reach a minor 6th. Its usual note is a minor 3rd, sung downwards, though sometimes late in the season it seems to be reversed, and is a 3rd, or greater interval, sung upwards. Its voice is hoarse in drought, but becomes mellow again after summer showers. Its voice gradually dies away in the autumn, and its note becomes irregular, as another old rhyme says :

"At first koo—koo, sing still can she do;  
At last kooke—kooke—kooke, six kooke  
to one koo."

The cuckoo feeds upon insects, and its eggs are always laid in the nest of some insectivorous bird, in order that the young ones when hatched may be provided with the kind of food they require. The nest chosen is generally that of a small bird, such as the hedge-sparrow, or wagtail. The young bird's ungrateful habit of turning out its little foster-brothers is too well known to need describing, but it is a curious fact, which should be pointed out to young observers, that although the full-grown cuckoo is a large bird, its eggs are quite small, very little larger than those of the bird in whose nest they are laid, and are marked very like those of the hedge-sparrow, so that they are at first not easily distinguishable from those of their foster-parents.

Nearly all the birds are singing by this time, larks, thrushes, blackbirds, and the other members of the "feathered quire," are all in full song. Almost without exception, our song birds are all small; none of our large birds sing, though many of them, such as the cock, crow, and magpie, as well as the sea-gull and other sea-birds, make various noises.

April is a good month for the study of sky and cloud effects; and one may become to a certain extent weather-wise by careful observation of their changes. Small cumulus clouds floating about the sky towards evening predict calm, fine weather; but if they increase much in size and number about sunset, it is generally considered a sign of rain. If they are dark and shaggy, and rolling over each other, cold and stormy weather will probably follow. They frequently appear silvery white before thunder. The approach of a thunder-storm is also often heralded by masses of clouds coming up against the wind, or at all events against the wind blowing on the surface of the earth. Other signs of rain are the sun going down into a bank of cloud; or dark clouds about the sky with white flecks passing across them, or light clouds with dark flecks. Strong winds speedily follow the appearance of anvil-shaped clouds, that is, clouds with a kind of thick stem and an overhanging, anvil-shaped top; they are frequently followed by a gale of wind, but not, as a rule, by rain. "Mare's-tail" clouds, with long thin tails, and varying a good deal in shape, betoken windy, unsettled weather; though when they

are seen during light winds, after stormy weather, they may be taken as a sign of a quiet, fine day. If currents of clouds are seen going in two opposite directions, rain will surely follow, probably accompanied, in the summer, by thunder.

These rules will serve as a basis from which girls can make their own observations, and rules are no use without observation and experience, which will be greatly aided by the practice of making notes of what one sees.

Many trees are coming into flower or leaf now. The ash, oak, and elm flower, in an ordinary season, towards the beginning of April, but the leaves do not open till the close of this, or beginning of next month; though all these rules are subject to exceptions, as trees are so much influenced by their situation.

This month is a favourable time for seeing the planet Mercury, which will be found in the north-western sky immediately after sunset. Saturn and Venus can be easily found, too, as they are both in the constellation Taurus, directions for finding which were given in January; but it must be remembered that though the position of these constellations with regard to one another is always the same, they are all moving gradually towards the west, so that they are in a slightly different position each month. DORA HOPE.

## HOW I FORMED A SMALL LIBRARY.

ONE of our readers (FELICIA CLINTON) has sent us the following for publication:—

IT will be a year this August since I first read in THE GIRL'S OWN PAPER an article on "How to Form a Small Library," and I thought I should like to try and form one of my own. I immediately went round to all the shops to try to get a bookcase, for that was the first thing spoken of as being most necessary, as it would be no use getting books to let them lie about to get dirty. I was not able to purchase one small enough for my purpose at any shop, so I ordered one with three shelves, and folding doors; I had it made of deal wood, and then stained to imitate mahogany. This only cost me eighteen shillings, which I thought cheap, for it really is a very nice-looking piece of furniture. I then began to collect books, buying one now and then when I could afford it, with the article in THE GIRL'S OWN PAPER for a guide as to what sort of books to get.

I have now collected about forty volumes, which I am still increasing when able. Amongst them I have books of poetry, standard novels, and a sprinkling of history and literature. One side of my bookcase I devote to THE GIRL'S OWN PAPER, which I read continually, and have from the very beginning, and which now forms three nice volumes; in a little over two months I shall be able to add the fourth. My bookcase stands in my bedroom, and forms a very pleasant spectacle, for which I have to thank THE GIRL'S OWN PAPER.

I would advise any girl who may be anxious to form a small library for herself to read the piece I refer to, which was published in vol. ii., page 7, and to take that as her guide, and I am sure that in time she too will have to thank THE GIRL'S OWN PAPER for giving her the incentive to something so useful, interesting, and instructive, not only to herself, but to her home circle and friends. I would also advise her to get none but good and instructive books of all kinds, and, above all, not to get them with paper covers, for after a little wear they burst out, and look very untidy, being anything but an ornament for a bookcase; whereas if nice cloth covers are procured, they will last almost a lifetime if carefully used, and will always look neat, even though they may be well worn. I wish that all girls that possibly can would begin to form libraries; they have no idea how interesting and fascinating it becomes.

With every new book added, there is something to show how the life of the owner has been spent, and what sort of recreation she has preferred—in fact, a girl's character may be known by her occupations. Any girl will find that by thus doing she gains respect for herself in other people's eyes, for anybody is always glad to find a girl who prefers spending her money on something so useful, instead of frittering it away without anything to show for it. I have found, too, that many a kind friend will now and then add a volume to your library, and thus help you to increase your stock, which will both at the present time, and in the future, prove so interesting, and always be a source of useful information, both to yourself and others.

## NEW MUSIC.

J. B. CRAMER AND CO.

*Milkmaid's Song.* From Tennyson's "Queen Mary." Music by W. H. Jude.—A lively, tuneful, and musician-like composition, set to the Laureate's well-known verses. We recommend it to those of our young friends who have a fairly good and flexible soprano voice.

*Only in Play.* Words by Lewis Macdonald. Music by Frank L. Moir.—An interesting song, set to a sympathetic melody.

*The Reign of the Roses.* Words by H. L. D'Arcy Jaxone. Music by Caroline Lowthian.

*My Own Familiar Friend.* Words by the same author. Music by J. Stuart Crook.

*Through all the Years.* Words by Harold Wynn. Music by Godfrey Marks.—Three very pretty songs, with a *tempo di valse* refrain.

*The Golden Path.* Song, with harmonium accompaniment (*ad lib.*). Words by Nella, music by Henry Parker.—A simple and pathetic story, set to a sympathetic and well-written melody; the effect is greatly enhanced by the addition of the harmonium.

*Now and for Ever.* Words and music by the same author and composer.—Simple and poetic verses, combined with expressive and pleasing melody.

J. AND W. CHESTER AND W. J. WILLCOCKS AND CO.

*Parting.* Words (translated from the German of Heine) by J. Snodgrass. Music by Frank J. Sawyer, Mus. Doc., Oxon.—A refined, graceful, and sympathetic song; words and music in good taste.

ROBERT COCKS AND CO.

*Heyday.* Words by Mary L. Campbell. Music by Edwin St. Lemare.—A charmingly conceived and well-written song. We recommend it to our young friends, and think it will become popular in the drawing-room.

*Answered.* Words by Helen M. Burnside. Music by Walter A. Slaughter.—A simple, but most interesting little song, presenting no difficulties.

*Class Copies of Vocal Duets for Ladies' Voices.*—No. 12 contains three well-known favourites easily arranged: "Fading Away," "Twilight Dreams," and "Beautiful Dove." The type is good, and they are especially adapted for the young. The price, one shilling each book, will attract purchasers.

J. CURWEN AND SONS.

*A Christmas Party.* A tableau with music, suited for school and home gatherings. Music composed and adapted by Josiah Booth.

*The Glad New Year.* By the same composer.

We are very pleased to recommend these compositions to our young friends, as being well worthy their attention at all festive seasons.

J. AND W. CHESTER.

*Album Leaves.* Three short pieces for the pianoforte. By John Gledhill. No. 1, "In the Forest." No. 2, "Nocturne." No. 3, "Romance."—We can with every confidence recommend "Album Leaves" to our young friends; the pieces are short, and are sure to become popular in the drawing-room.

BOOSEY AND CO.

*The Promise of Love* (a Seville love song). Words by Hamilton Aidé. Music by William Fullerton.—A composition of very distinct merit, written in the composer's happiest manner; it is full of feeling, and the accompaniment is bright and characteristic. It will, we think, be received as a graceful addition to the *répertoire* of the salon.

too common anywhere; but, believe me, they exist quite as much among those who are absolutely unable to express them, as among those who have been trained in all the best social litanies. That is why May Castle herself has such a charm for me. She invariably strikes the right key, but she does it in so original a style that you know it is nature with her, and not art. But now we must go downstairs, for our party is beginning to break up, and I don't like anybody to go away without a friendly good-bye. I'm afraid I'm old-fashioned, for nowadays it seems the style to drop you anyhow, as it were, instead of laying you down respectfully. It is all in keeping with an age which is inclined to exchange its Bible and its Shakespeare in their decent leather bindings for yellow-backed novels and illustrated newspapers."

"We are quite behind the age in Shetland," laughed Margaret.

Balaculva and his daughter were among the first of the guests to depart. And as they drove down the pleasant country roads, Margaret told her father the story of May Castle, and of the invitation she had given her. She told it with the proud delight of one who has won a prize or found a treasure. It is the best part of power of any kind that it can claim a share in that which it can serve. Margaret was quite sure of her father's sympathy. It was only to elicit its warmest expression that she put the question—

"I was quite right, wasn't I, papa?"

"Right? of course you were, Peggy." (That was his pet name for her; no one else used it. He had playfully teased her with it in her childhood, and now she would not, for worlds, have heard him call her anything else). "If there was not a room and a welcome in Balaculva for anyone you have a mind to offer them to, the old place might as well be enchanted into a Pict's house at once. And now, what does Peggy think of Fowlis? And how does she like the marquis when she sees him among his own people in his own place?"

"Fowlis is very pretty; it is quite thickly wooded," Margaret answered demurely, giving the judgment of a Shetlander, to whose eyes, accustomed to treeless moors, a simple plantation seems almost a forest. "And Lord Fowlis is exactly the same as he always was," she added.

The old laird chuckled, and said no more. But his questions were not objectless. Lord Fowlis and he had snatched several short interviews during the day, and there had at last dawned on the father's mind a suspicion on a certain subject, concerning which all his household and most of his tenants had been quite confident since the marquis's last visit to the far north. It may be sweet to any parent's heart to see a child "respect it like the lave," but to all save the very young there is pain in any prospective change. Margaret fancied her father was rather quiet during that homeward drive. She thought only that he was a little tired.

(To be continued.)

## THE OBSERVER.

BY DORA HOPE.



THIS is the time to begin to notice and make collections of all kinds of flies and insects, which are beginning to come out to bask in the warm sunshine. Bees are an especially interesting study, and offer plenty of variety, as there are more than two hundred different kinds in England.

Hen birds are sitting on their nests, while the cock birds are flying about in search of food for their mates, and later for their young families. It is interesting to notice how the different kind of food they are searching for. The swift, for instance, flies high over the housetops, where it will find small flies of many kinds; while its kinsman, the martin, which feeds on aquatic flies, skims the surface of ponds. Tomtits very often hang head downwards among the bushes, picking off insects from the underside of leaves, while robins, thrushes, blackbirds, and many others hop about on the grass looking out for worms and grubs.

One can sometimes watch a tug-of-war between a robin or thrush and a fine lousy worm. The worm seems suddenly to have developed a dozen pairs of hands with which to hold on to his house and home. The robin, with his legs wide apart and firmly planted, tugs and pulls with all his little might, till the worm, feeling himself vanquished, all at once gives in, and, the resistance unexpectedly ceasing, the victor tumbles head-over-tail backwards. Recovering himself, however, too quickly for the vanquished to gain anything by this last manoeuvre, he picks up his enemy in his slender beak and carries him off to his little ones in the nest. Then, to prove what a fine, bold fellow he is, he smooths his ruffled feathers, and, perching on a neighbouring twig, sings a little song of victory before returning to his work of providing food for his family.

The flowers to be found this month are too numerous to mention; for May comes in like a spendthrift, lavishing them in profusion on every hand.

One of the most interesting phenomena of spring to the botanist, and, indeed, to every intelligent observer, is the ascent of the sap in trees. Trees rest during the winter; the sap is diverted from the leaves, which in consequence wither and fall off, and there is very little circulation of sap at all. But in the spring, when they have had sufficient repose,

the roots draw up water, and various mineral substances mixed with it, from the soil, which rises up the trunk through vessels, like the veins in our bodies, running up the inner part of the wood round the pith which occupies the centre of the trunk. This ascent can be watched by putting a branch or young plant into coloured water for some time, and then cutting it in sections.

The sap then crosses the trunk and flows along the branches till it reaches the leaves, which are covered with minute openings, through which the air can penetrate to the sap, and which also act as pores through which unnecessary moisture is thrown off. The oxygen has the effect of producing a chemical change in the sap, just as it has upon the blood in our bodies when taken into the lungs. The sap begins to descend through tubes in the outer bark, having been transformed by the oxygen into the proper nutritious juice which the tree requires for its growth, all that is superfluous being thrown off by perspiration from the bark and leaves.

An easy way of interesting children in botany is to let them watch the gradual development of a plant from a seed. Some germinate very quickly, such as mustard and cress and melon seeds; but large ones can be more easily watched. Take, for instance, a chestnut or acorn, and lay it on a vessel of water (a bottle or specimen glass), propping it up so that the bottom just touches the water. In a short time the moisture will cause the outer covering to soften and swell, so that when the embryo plant is ready to come forth it will the more easily be able to force a passage. The kernel of the nut contains a sort of thick mucilage, which is meantime feeding the young plant within it, till it has grown sufficiently to burst open the outer shell, and by a wonderful arrangement, in whatever position the nut is placed, the tiny rootlet will begin to grow downwards towards the earth, while the leaflets shoot upwards. If it were not for this arrangement, half the seeds which are sown broadcast over the soil would die. The first leaves to appear on the stem are thick and fleshy, and contain most of the substance of the whole seed, and are of a different shape from the ordinary leaves of the tree. They are sometimes called the nursing leaves, because they are not a proper part of the plant itself, but are only there for a time to protect the embryo, which is safely hidden between them, till it is able to support itself, and to feed it with the stores of starch which they contain. But before this food is fit for their charge, they have to drink in oxygen from the air, which the embryo is not yet strong enough to do for itself, and which changes the starch into a kind of gum—just the best food for the young tree. This goes on for some time, till the tiny rootlets are strong enough to draw nourishment from the soil, and the real leaves, which have been expanding under the shelter of their protectors, are sufficiently grown to take in the oxygen from the air; and then the nursing leaves, having done their work in the world and given their charge a fair start in life, fall off and die. You can easily prove how dependent the infant tree is upon its nurses; for if you pull them off a young plant, being unable to take care of itself, it will fade and die.

The planets visible in the evening this month are Venus, which does not set till shortly before midnight, and will be found in the constellation Gemini, or "the heavenly twins"; Mars, in Leo; and Jupiter, to the west of Leo.

The moon will be full on May 10.



My answer was very brief. It was only one word—

"Come."

What followed I will not write down here. I cannot dwell on that hour. Can one be too happy? I think not. God is good, and smiles on the joy of His creatures.

As we re-entered the *salon*, some time later, we found Miss Treherne and Beatrice as its only occupants.

"Oh, here you are!" cried the latter. "Why, Herr Lichtenstein! and you, Esther! How very odd!"

"It is not odd," replied he. "I had been asking your young friend, Miss Treherne, if she will come to Leipsic, and stay there always to make bright the home of a crusty old professor. She has said yes, and therefore that we should be together will never be odd any more, Miss Beatrice."

I cannot attempt to depict the changes that passed over my elder friend's face at that moment. Pleasure at my happiness, pique that she had not been consulted, annoyance that I should be "engaged" before Beatrice or Laura, self-congratulation at being the source of the whole affair, fought for mastery. At last she said—

"Well, Herr Lichtenstein, I cannot, I am sure, express my opinion on such very brief notice. You have seen so little of Esther."

"A fortnight of holiday all-day life together is worth twelve months of visits now and then," he replied. "I left her, for I thought I must look at my own self, and I feared to be too sudden to her. But I haf come back; for I could not stay away."

We regained our mountain home on the following day, Laura in the wildest spirits careering on before to proclaim the news, Max and I following in quieter happiness, Beatrice tired and slightly cross, Miss Treherne in decidedly good humour, for she had heard all about Herr Lichtenstein's affairs, had satisfied herself that his mother (to whom in imagination I turned for love and comfort) would welcome me, and was pluming herself on the credit she would win for benevolence with all the "very superior people" of her acquaintance, by marrying the poor daughter of her old friend. The news did not seem absolutely to stun everyone at the *pension* with astonishment, and Miss James actually said she had expected it!

Happy was the evening, as he played in the waning light, and I sat watching the coloured awning of the balcony fade out against the dark cliffs opposite. Happy tenfold were the walks and rambles that followed, when I learned to know the full value of the heart I had won, and realised the life towards which, by his help and stimulus, it would be my privilege to rise. Even the farewell to our sweet mountain home was not sorrowful, for we promised ourselves to visit Gimmelwald at some future time together; and when we parted at Berne, I remembered that the day was fixed when Max would come and fetch me to his German home.

And now I sit in my own London dwelling again, wondering greatly at the good thing that has come into my life, and scarcely believing that I am the same girl who left this homely interior but one brief month ago. Pictures of ineffable beauty live in my brain to abide for ever; lessons of indelible meaning have sunk into my heart. I hope I am better and worthier, as well as happier. Not through suffering only do we learn to lead the higher life. I have sate in the school of Sorrow in the past; but Joy also has her lessons. The story of my brief stay at Gimmelwald is not wholly free from pain and humbling memory, but the crowning note of all is happiness. And as I stand on the threshold of another

and I hope a nobler period of my life, my only prayer is that I may be enabled so to live that at its close the note of sorrow may still melt away into the abiding tones of joy.

LILY WATSON.

[THE END.]

## THE OBSERVER.



THIS is the best time of the year for noticing the flight of birds. Nearly every kind of bird has a different manner of flying. The differences are to a great extent owing to the great variety in the shape and size of the wings, which are adapted to the different habits of the birds. For instance, all birds which catch their food in the air, such as swallows, have very long wings, in most cases pointed—that is, tapering off from the outside quill, which is the longest, to the comparatively short feathers close to the body. Rounded wings are always short, and suitable only for slow and short flight, and birds which have wings of this kind take much smaller and quicker strokes than those that are almost constantly on the wing. Sea-birds have especially long and powerful wings; the albatross, petrel, and others of the same class, are capable of more rapid and long-continued flight than any others.

It is not quite decided how much the tail is used for steering, and how much merely for balancing the body; but it is expanded during flight, and is certainly used sometimes to direct the bird, as you can see by watching a rook alight on the ground; his tail has to come down nearly at right angles to his body before he can settle.

It should be pointed out to children how wonderfully birds' bodies are adapted for flight. The feathers all point backwards, so that the quicker the bird flies, the closer they are pressed to the body. The bodies of birds are wonderfully light in comparison to the size; the large bones are hollow, and so arranged that the bird can fill them with warm air from the lungs, and so make itself lighter still. All the little birds, and others with short legs, tuck them up close to the body under their feathers as they fly, so that they offer no resistance to the air; but long-legged birds, like herons, and nearly all swimming birds, stretch them out behind them as they fly.

Although birds fly so easily and gracefully when once they are poised in the air, the starting is with many of them a very great difficulty. If they have been perching on a tree or ledge, they just throw themselves off and begin to beat the air with their wings. Birds standing on the ground, bend their legs and leap up as high as possible, and flap with their wings as quickly as they can to get a start. It is easy to see the process by watching an agitated hen trying to leap on to a high wall. It is still harder for sea birds to rise from the water; they make an extraordinary flapping and splashing in the attempt. Even the albatross, with its wonderfully powerful wings, cannot rise from a level surface. If one is caught and put on the deck of a ship it cannot fly away, nor can it rise from the

sea when it is smooth. When it is rough they float up to the crest of a wave, spread their wings, and as the wind catches them from below it lifts them up, and they start at first with heavy lumbering strokes, till they have risen high enough to attain the full grace of their beautiful flight.

From studying the flight of birds, one comes naturally to noticing different ways of walking, especially the swing of the arms and legs. Most men swing the right arm and left leg forward together; everyone does so till they have been specially taught not. Try walking with the right arm and right leg moving together; you will find it extremely awkward, and directly you leave off thinking about it, will fall back into the old motion. Four-legged animals walk in this way: right fore and left hind feet together, or nearly so; in trotting they are almost identically together. It is not easy to see this, but it can be watched in the slow motion of animals grazing. It is only necessary to look at a sheep with its legs on the same side hobbled together to see that it is not its natural way of walking. As a rule the swiftest animals have the smallest feet. Gazelles have tiny delicate feet; those of elephants are large and ponderous.

Girls in the country with an eye for beauty of colouring will appreciate the endless different tints of the mowing grass before it is cut. No two blades are of exactly the same shade of colour; the older blades have a darker tint than the young shoots, some are ripe and some only just budding into flower, while the succession of shadow and sunshine across the field adds to the variety, and the gentle breeze blowing over the meadow alters the arrangements of the leaves and produces ever-varying harmonies of colour.

Another interesting study just now is the growth of climbing plants and their curious ways. There is hardly one little town garden or window-box, and surely no country walk, in which their strange habits may not be studied. Darwin has described them all, the garden pea, twining round against the sun; the hop, with the sun; the wonderfully strong yet elastic tendrils of the red-berried bryony and passion-flower; the clinging fingers of ivy and virginian creeper, and the many wild and cultivated kinds of clematis and honeysuckle. They will well repay careful observation.

DORA HOPE.

## Sunlight.

THE TITLE OF OUR SUMMER NUMBER FOR 1884.

Oh happy sunlight, foe to sorrow,  
Charming from earth her sweetest store,  
'Tis not alone thy name we borrow,  
To grace our wealth of summer lore.  
Through fact and fun and fiction pleasant,  
That shall the reader's thought engage,  
We'd have thy genial brightness present  
As well as on our title-page.

The growth that shuns the light is sickly,  
Nor health nor beauty can it win;  
Young life would lose all vigour quickly  
If pleasure had no place therein.  
And so, to truth and progress leaning,  
We send our "Sunlight" forth to fame,  
That eager eyes its treasure gleaming  
May own it worthy of its name.

capital to start it. A good pair of breeding ostriches is worth £60 to £80. In the new collection they may be seen grouped with their enormous eggs, baby chicks, and growing youngsters.

Those who assert that the ostrich lives on broken glass and iron nails are not quite right; but that it swallows pebbles to assist its digestion, as do many other birds, on a lesser scale, when in a state of nature, and pieces of wood, metal, or what not, when in a state of captivity for the same purpose, is most undoubted. The strength of the ostrich is quite equal to carrying a man on its back at a rapid rate of progression; the negroes often use it for riding purposes. Dr. Livingstone tells us that the legs of an ostrich running at full speed can no more be seen than the spokes in the wheel of a vehicle drawn at a gallop. The ostrich can run about thirty miles an hour, and the Arabs would never be able to overtake them but for the stratagems employed. They first follow them for a day or two, without pressing too closely, but sufficiently to prevent them taking food. When they have tired out the hungry bird, they pursue it at full speed, and, taking advantage of a fact well-known to them, that the ostrich always describes a curve in its course, themselves make a direct straight "short cut," and so gradually get within reach. Each adult bird produces about half a pound of white and three pounds of black feathers; those from the male bird are most highly esteemed, and all are in best condition when plucked from the living bird.

The last of the curious birds about to be mentioned, the toucan, is equally remarkable for its ugliness and for its beauty. See it "squatting," the only correct expression for its mode of rest, on a tree, with its enormous bill threatening almost to overbalance it, and nothing much more ill-shapen or clumsy can be found. But its beautiful feathers, long used for ladies' adornment in Brazil and Peru, are now greatly esteemed in Europe, and muffs made from the throats of toucans are quite valuable.

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## THE OBSERVER.

By DORA HOPE.

SUBJECTS of all kinds are much more interesting when they can be studied from real life and personal observation than when merely learnt from books, and happily there are very few girls so circumstanced that they cannot study animal life in this way.

A small but very interesting aquarium can be made by those who cannot afford expensive tanks from a wide-mouthed bottle of clear glass. It will do for either fresh or sea water, and is often as healthy as a more ambitious venture.

Girls living in towns can find many interesting objects for an aquarium in the lakes and ponds in public parks, especially where water weeds are growing, and the weeds themselves have much of interest about them. The only difficulty is to get the balance of life—that is, to get the right proportion of animal and vegetable life to support each other, as the weeds give out the oxygen necessary for the fish, while the fish exhale the carbonic acid gas needed by the weeds. In so small an aquarium it is necessary to add to the supply of oxygen by taking away a little of the water frequently and pouring in fresh from a height above the bottle, so as to force air down into the water.

Water snails are amongst the objects of interest always to be found amongst water weeds. They are necessary in even the smallest aquarium, to keep the sides clear of green growth. They have, in common with

their land and sea relations, a most wonderful set of teeth, or tongue, or "palate," as it is called. This tongue is like a ribbon, set lengthwise with rows of sharp flint teeth, shaped like hooks. The number of rows differs with the kind of snail. This ribbon, moving at the creature's will, cuts or scrapes off its food. You can watch one on the glass sides of your aquarium, the mouth opening regularly, and the tongue licking the glass at each movement. There is much more of interest in the water snail, such as the wavy edge of its body, by which it moves along, called the "foot," though anything more unlike a foot cannot be imagined, and the little towers or horns on its head, through which the eye runs up like a watchman. The eye has wonderful strong muscles to draw it up and down. Snails have ears, too, or at least something equivalent by which they can hear; but in water snails they are difficult to find. Their shells, too, are an interesting study, for, instead of leaving them when they become too small, as crabs and lobsters do, they build on another storey, and widen them out at the bottom.

There are many larvae of flies to be found now in ponds and streams, and they are interesting objects when examined with a common magnifying glass, and much more so when a microscope is used; and the spiracles on both sides of their bodies can be seen, their gills keeping up a constant motion as they swim about; all their internal arrangements can be traced, and their fierce goggle eyes and ferocious jaws.

There are more plants in flower in July than in any other month in the year, and, as in the early spring, the majority of them are yellow. In a list of flowers compiled by Alfred Waller it is computed that during July there are ninety-four varieties of flowers to be found in different shades of yellow, while of white, the next in number, there are only seventy-one, and sixty-four purple. There are twenty varieties of blue more than in any other month, and twenty-nine of pink or rose-colour. Red flowers are most plentiful during June.

The moon will be full on the 8th of July. There is no real night during the early part of the month; for, besides the moon, there is either daylight or twilight all through the night till the 20th of the month.

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## NEW MUSIC.

ORSBORN AND TUCKWOOD.

*Cousin Madge.* Words by F. W. Waithman. Music by George E. Iles.—A simple melodious setting of well-written verses.

*Forty Winks.* Words by G. Clifton Bingham. Music by Arthur Carnall.—A very taking song, with a dreamy refrain, which is both agreeable and pleasing, likewise free from difficulty.

*My Queen of Hearts.* Words written and music composed by Edward Harper.—A well-written and pretty song of moderate compass. Although there is no great originality, it will find many admirers.

*Beyond the Gates.* Words by Lindsay Lennox. Music by Ciro Pinsuti.—An able and musically setting of grand and poetical words. Ciro Pinsuti is always happy in his arrangement when given a worthy theme. It is written in two keys—compass B to D and C to E.

*Epineuse.* Rigodon. By Henri Stanislaus.—An interesting short piece for small fingers.

*Dance Moderne.* Composed by Sidney H. French.—A very pretty instrumental piece of four pages; will be welcomed by our young musical aspirants.

J. B. CRAMFR AND CO.

*Primrose Lane.* Words by Mary L. Campbell. Music by James J. Monk.—A lively, tuneful song; the modulation into A flat is effective and agreeable. We think it deserves to become popular.

*The Evening Rest.* With harmonium *ad lib.* Written by Edith Ramage. Composed by James J. Monk.—A very charming song; the verses descriptive of the repose at close of day—

"The cares and labours of daylight cease,  
And all is peace, sweet slumb'rous peace."

The change of time from 4-4 to 6-8 is bright and sparkling; the harmonium accompaniment is most effective. We recommend this song to our musical girls.

*Home Recollections.* Written by Samuel Jones. Music by James J. Monk.

*Love is a Wicked Boy.* Words by Claxton Bellamy. Music by James J. Monk.

Both these songs are simple and pleasing, and may become favourites with many.

*The Song and the Singer.* By Henry Parker. Words by Nella.—Is a most effective song, and will help to sustain the composer's deservedly high reputation. It is published in three keys, and has also a violoncello accompaniment.

STANLEY LUCAS, WEBER AND CO.

*Inclusions.* Written by Elizabeth B. Brown-ing. Composed by Annette Leigh Hunt.—A song of more than ordinary merit.

*Gondoliera.* (E. Geibel.) Translated by Claxton Bellamy. Music by Mary Carmichael.—An extremely pretty song; well sung, and accompaniment smoothly performed, will be a welcome addition to the vocal repertory of many a young singer.

*Tommy and Barbara.* Song, for one or two voices. Words by W. H. Wright. Composed by Carl Th. Kühne.—A lively composition, both as regards words and music. We give the preference to its being sung as a duet.

We have received a batch of new songs, including *Bygone Days* (Halldan Kjerulf), *Castles in Spain* (Lady Benedict), *Fettered, yet Free* (Antonio L. Mora), *Spring Showers* and a *Portuguese Love Song* (Emily J. Troup), *When all Around is Still* (William Harold).—We are glad to see Halldan Kjerulf's songs presented to English musicians, as has been done by Mr. Theo Marzials, who has set the Scandinavian composer's music to various English verse. We venture to think, however, that, in this instance, Robert Burns's lyric hardly suits the music to which it is here set. Kjerulf's celebrated "Brudforden i Hardanger" has been given, we note, already in London this spring. The song, "Bygone Days," presents some of the same characteristics as the music of the "Brudforden." "Castles in Spain," by Lady Benedict, has a pretty refrain, but is not very striking in other respects; the words by E. A. Allen are effective. The "Portuguese Love Song," by Emily J. Troup, has a well-written accompaniment, which will help to brighten a somewhat monotonous air. It has Portuguese as well as English words—not a very common language to meet with in the songs of the present day. More pleasing is "Spring Showers," by the same composer, an effective musical setting of Robert Buchanan's words. "Fettered, yet Free" is a sentimental song by Antonio L. Mora, who has written a rather commonplace air to the equally commonplace words of H. L. D'Arcy Jaxone. "When all Around is Still," by William Harold, is a simple but very pretty song, best suited to a contralto or baritone, and though not, perhaps, strikingly original, will be a welcome addition to many port-folios.

it is by no means in harmony with the sacred subject.

No. 294, "The Captive Family of Darius at the feet of Alexander, after the Battle of Issus," is another large picture we possess by this same fine colourist. In this instance we gladly admit that display really is suitable to the subject. Here we cannot but admire the gorgeous dresses, the shining armour, the trophies of all kinds—horses, monkeys, dwarfs, etc.—that swell the retinue of the conqueror, and the noble architecture of the background, on the topmost distant balconies of which are crowded troops of spectators; all tend to enhance the feeling of victory and grandeur in which Veronese so delighted. All this is characteristic of the place and time in which this artist lived. He was a complete representation of the Venice of his time—a time of lavish magnificence, and I might say of almost vulgar ostentation. Venice was then the Queen of the Adriatic, the home of wealth and commerce; when, according to an old Italian saying, "the magnificoes of the Republic plated their ceilings with their ducats." We seem to have come a long way from the simplicity and religious enthusiasm of the times of Giotto in Italy, or of Master William and Master Stephen of Cologne. We may liken them to the early dawn. The suns of Religion and her handmaid, Art, have risen, and have warmed the earth, and been received into the hearts of men with fructifying power. But Art has run her course of greatness, and her sun is setting, setting in glorious colours it may be, but still setting. And much as we may admire the works of Paul Veronese, we are fain to admit with an able art critic\* that "his magic creations only dazzle the mind by their splendour, and leave no other impression than that of a gorgeous dream." After this great time of Venice, which was co-incident with that of Raphael and Michelangelo in Florence and Rome (of whom I have yet to speak) there was a last short afterglow.

In Bologna, in the next century, the three Carracci established a school, the object of which was by careful study to endeavour to re-unite the best qualities of all the previous great men. Their ambitious motto was "the colouring of Titian with the design of Michelangelo." Technical excellence was their chief aim. Their one consideration, not what, but how they painted. They are called, variously, the Eclectic school, or the school of the Academics. Their chief followers were Domenichino, Guido, and Guercino. They drew well; they painted many clever pictures, sometimes for churches, sometimes for palaces. But in all their work we feel that they cared but little for their subject, whatever it may be. They were chiefly intent on showing their knowledge of composition, or their manner of arranging the groups on the canvas, their immense facility in throwing the figures into difficult positions; and they succeed in making us exclaim, "How difficult that must have been to draw! How clever the artist was to do it so well!" But the subject never touches us. The saints appear to be very muscular, the Magdalenes very sentimental. The want of earnestness in the artist leaves the spectator as uninterested in the work as the artist evidently was himself. Specimens of their work are to be seen in our gallery. I must add that the principle of the Carracci has been (with but few exceptions) the principle of all the modern schools which have succeeded them. The how, and not the what, the technique and not the subject-matter has been the first thought of all modern painters.

With the early work—the thought—the subject was all-important; but the power of expression was weak. We do not, perhaps, always sympathise with the subject chosen by

the painter, or by his treatment of it, but we are touched by the deep earnestness which we feel inspired the painter. Now, the power of expressing on canvas is perfected; but where is the inspiration to worthily use so great a power? We spend our strength on picturesque details of daily domestic life, or on ordinary scenes of the passing hour. I do not say such things are not worth doing, and doing well. I only wish to point out that the early painters strove to give expression to the highest thoughts and devotest feelings, and were, in fact, teachers and preachers in their way. Modern art has rarely a higher aim than the amusement of our leisure hours.

E. F. BRIDELL-FOX.

### THE OBSERVER.

FOR holiday-makers at the seaside there are objects innumerable to observe. In rocky pools—"the water-babies' gardens," that Kingsley tells of—along the sandy or rocky beach, on the walls of sea-caves, there are interesting and wonderful things, for those who know how to look for them. One of the commonest objects, either alive or dead, the jelly fish, has a most wonderful life-history. They go through the same number of changes as a butterfly, and for a long time naturalists thought they were distinct creatures, and gave them different names in their various stages; but at last their history has been traced from beginning to end.

The jelly fish makes its first appearance as an egg, which, however, remains connected with the parent until it is hatched, when it immediately swims away and begins life on its own account. In this second stage it is entirely unlike the parent. It is oval in shape, and has no mouth, and is covered with *cilia* (strong hairs), with which it swims about. Soon, one end fixes itself to a stone, or weed, and at the other end a mouth is developed, which at once begins to make up for lost time by eating voraciously. At this stage numbers of little buds shoot out from the sides, which grow, and in time become perfect creatures, just like the one they have sprung from, till a whole colony is settled on the one stone, where they remain sometimes for months, in some cases even for years. But another change comes; the original stock from which these buds have sprung grows larger, and looks as if threads had been tied tightly round it all the way down. The threads gradually tighten, till the animal looks like a pile of tiny cups or saucers, one on the top of another. This goes on till the topmost little cup breaks off and swims away, turning over with its mouth downwards—a perfect jelly fish at last.

They are of many different kinds and sizes, from the tiny globules of jelly, hardly bigger than a pin's head, to giants a foot and more across.

It is very interesting to watch the seagulls, with their wonderfully powerful wings, flying frequently right into the teeth of a strong wind, or allowing themselves to be driven along before it, and now and again darting suddenly down to the crest of a wave which has brought up a fish within their reach, for they are unable to dive, and have to depend upon any food which comes to the surface, or is left along the shore at low tide. They have wonderfully sharp sight. Girls who have the opportunity of yachting can test this, especially on a calm day, when food is scarce, by throwing out pieces of bread or fish from the stern of the yacht. The gulls may be far away, soaring so far aloft as to be almost out of sight, but they never fail to see the offered food; and frequently one or two will dart together at the tempting morsel, and then a sort of free-fight ensues, with a great splashing of the water and flapping of wings, till at length one flies off victorious. They are more timid near the

shore, and will not often come for food, except on very unfrequented coasts. There are three species of gulls common along our shores, but several other varieties are occasionally seen.

Amongst the most interesting natural objects to be found at this time of year are the different kinds of luminous insects and plants, which girls, spending their holidays in the country, should not fail to look out for.

The commonest of these, in England, is the glow-worm, but in many other parts of Europe and America, the best known is the fire-fly; which, however, is of the same family as our glow-worm. Both are beetles, but the glow-worm (or rather the female, which is the chief light-bearer) has no wings, and is soft bodied, looking more like a caterpillar than an ordinary beetle, while the fire-fly has long wings, and flits through the air like a tiny meteor. The male glow-worm has wings, and has the same four tiny points of light as the female, but they are much fainter. Both can extinguish and re-light them at will.

The glow-worm is not the only insect that is luminous in England. There is a kind of centipede (not strictly an insect), *Scolopendra electrica*, which is frequently to be found, and which shows a light all along its body; if you touch it, a light, apparently phosphorescent, is left on your fingers. Besides this, earth-worms, caterpillars, and beetles, in a diseased state, sometimes throw out a faint light.

Certain flowers, too, chiefly yellow or white, are sometimes faintly luminous, after a dry, warm day. Amongst those which have been noticed to occasionally emit a light are the evening primrose, nasturtium, sunflower, and marigold. The subject of luminous plants and insects has not been much studied till lately, and comparatively little is known on the subject. Could not the readers of this paper send notes of any cases they meet with for the benefit of the other girls?

On the night of August 10th great numbers of shooting stars are usually seen, and continue to fall, to a smaller extent, for several nights afterwards. They come from the constellation Perseus, and are consequently spoken of as Perseides. As August 10th is St. Lawrence's day, it is said that, amongst the early Christians, this annual fall of meteors was spoken of as the fiery tears of that saint.

DORA HOPE.

### THE GIRL'S OWN HOME.

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\* Symonds' Renaissance in Italy.

together with the men. Formerly they waited on the men, and had whatever might have been left after the men had gone. And in many other ways the same spirit was shown. It is common to poor humanity to err on one side or another, and while acknowledging their defects, I feel even this slight sketch of life in Brittany would be incomplete were I not to add one of the many instances of their devotion and loyalty during the great French Revolution, given from the above-named Jephson's work on Brittany, whose writings, with those of Weld, De Quetteville, Souvestre, and others, I have consulted to help my recollections of a tour made so many years ago.

Madame Gildas told me that her father had been one of the unfortunate Royalists shot in the Champ des Martyrs, and that her grandmother was one of the most zealous of those who in the first revolution had harboured the persecuted clergy, and arranged the midnight meetings in the ocean, where the people, like the early Christians in the catacombs, worshipped God with death and torture staring them in the face.

"It was in those bays and creeks which I had passed in the morning, that when the ministers of religion were hunted down, when not even a barn was to be found in which it was safe to worship God; when French soldiers occupied every village, and no clergyman might invoke a blessing on the union of the bride and bridegroom, the zeal of the people and their clergy bade defiance to the iniquitous law of the State. Midnight strikes, a flickering light shines at a distance on the ocean, the tinkling of a little bell is heard, almost lost in the grand murmur of the sea.

"Straightway from every creek, from every rock, from every little bay shoot forth long black lines, which glide over the waves. They are the boats of the fishermen laden with young men and maidens, old men and children. All steer for one point. Presently the sound of the bell approaches nearer, the distant light becomes more distinct, and finally the object towards which this throng advance with one mind appears in the midst of the waves. It is a boat, in which a priest stands prepared to celebrate the commemoration of Christ's death. Hither, certain of having God only for a witness, he has called together the surrounding parishes, and all the faithful have come to assist. All are upon their knees, between the sullenly-murmuring ocean and sky." In reading this passage from M. Souvestre's book, I thought it too romantic to be true, but my hostess talked about it as if it were quite a matter of course. Her grandmother had told her of these midnight meetings a hundred times. It must indeed have been a scene never to be effaced from the memory, and on which one who had borne a part in it would love to dwell. A gorgeous cathedral, a pealing organ, polished rhetoric, impress the mind with awe; but what are all these things to the stary heavens, the vocal worship of a congregation of two thousand confessors, responded to by the booming of the ocean, and a poor priest braving death that he may sustain the drooping faith of his persecuted flock by commemorating in the simple words of the ancient liturgy the death of Him who was the great *proto-martyr* of righteousness?

I cannot do better than end here, with this noble example of faith and courage, only adding that in the general restoration of churches we saw everywhere going on throughout Normandy and Brittany, we were reminded of the Divine promise, "They shall call on My name and I will hear them."

E. MACIRONE.

## THE OBSERVER.

By DORA HOPE.



ON September 5th the moon will be full—the Harvest Moon. It has had this name for generations past. Long before astronomers knew anything about the cause of its movements, farmers had observed that just about the time that they were bringing in their harvest, the full moon rose early, about sunset for several evenings together, so that instead of being about fifty minutes later each evening, there was only about half that difference in its time of rising for a few days before and after full moon. This only occurs twice in the year—in September and October; in the latter month it is spoken of as the hunter's moon.

There is one remarkable object in the sky, some portion of which is always visible, but which is brightest between the months of July and November. The Milky Way, as it is commonly called, is an irregular fog-like band, really composed of countless minute stars. It stretches right across the sky every evening, from horizon to horizon. In one part of its course, that which is visible now, it divides, sending off a kind of branch which afterwards unites again with the main body.

On going out early on a calm, warm autumn morning, you will frequently find grass and trees all covered with a glistening filmy substance; and in walking along, a thread seems to float across your face, which you have considerable difficulty in disentangling. Myriads of tiny spinners have been at work for hours, and these fine threads, that are only visible in certain lights, are each made of a multitude of filaments twisted together. These are certain spiders, and those about the smallest of their respective tribes (being only one-sixth of an inch long), which at certain seasons of the year are suddenly seized with an excursionist fit. Mounting to the summit of a blade of grass, or any other suitable eminence, they emit from their spinning tubes, which are kept separate the while, a number of fine filaments, invisible to the naked eye. These are spread out and carried upwards by an ascending current of rarefied air, and, uniting into flakes, they soon acquire, by the action of the current of air upon them, a buoyancy sufficient to support the spider, who then quits her hold of *terra firma*, and launches into the fields of air. This performance can only be seen under suitable atmospheric conditions. It requires a warm, calm day, the former being necessary to create a stratum of hot air near the ground, and calmness is essential, as any wind would interfere with the steady ascent of the warm air which bears the threads upwards.

The curious manners and customs of spiders altogether are most interesting; and the construction of their webs alone well repays careful watching. The threads are of three different thicknesses; first a number of strong ones are laid across from one tree to another, or whatever other holdfast has been selected. These thick threads all radiate from the centre, and are then united by rows of thinner lines. These complete the actual web, but as soon as it is finished, the spider lies in wait for any unwary fly, ready to throw a cloud of very fine silken cords over her hapless prey; and these threads are much finer than the two kinds used for the web itself. The male spider is much smaller than the female, frequently not more than a quarter the size, and the female sometimes

takes a mean advantage of its superior strength, and has a disagreeable habit of occasionally killing and eating any obnoxious male.

Spiders are the easiest to watch of any insects, as they generally locate themselves in convenient positions; but many others are quite as interesting. Ants, for instance, are a never-failing source of interest, but so many books have been written about them that there is no need to describe their ways.

Insects have no voice, that is to say they make no noise by means of the mouth; but many of them make noises with their wings while flying through the air. Those that fly the fastest, so that you can hardly see the motion of their wings, make the most noise with them; those with slower flight make much less sound. Bees, wasps, hornets, and many humble-bees make a loud humming noise with their wings, which stops when the insect alights. Gnats, mosquitoes, gad-flies, and others of the same tribe all give notice of their approach by the same means. Crickets make their well-known shrill cry by rubbing their strong top wings together in a peculiar manner; while some kinds of ants, and a few other insects, make noises by striking wood or other substances with their mandibles.

Seeds of various plants are extremely interesting and beautiful under the microscope. It is a good thing to gather them now, and carefully label and date them, and keep them for examination in the long winter evenings; for there are plenty of other things to look at under the microscope now that cannot be kept till then. Every country pond and ditch, every pool left by the receding tide, has a world of wonder which the microscope will reveal.

But there is a great deal that is interesting about seeds, to be seen without the aid of a magnifying glass. The different ways in which the seed is scattered, for instance, are most extraordinary. Some, like dandelion, thistle, hawkweed, and coltsfoot, float away their seeds by means of their tiny downy umbrellas, on every passing breath of wind. Some, like burdock and goose-grass, have tiny but strong hooks on their seeds, which they attach to any passing object, our dresses, or the fur of animals, and are thus carried along. Others burst open their seed-pods suddenly, and fling the seeds far away; gorse does this, and on a dry, hot day, when the seeds are ripe, you can hear them in all directions, like a miniature fusilade. Wood-sorrel scatters its seed in something of the same way, though its pods are differently arranged. The beak of the storksbill springs away from the parent plant when ripe; it has a peculiar habit of twisting itself. If you can find one of these twisted capsules, wet it, and lay it on a piece of paper; you will find that it will crawl along for a short distance. These are but a few of the wonderful provisions of nature for the scattering of seed; and if you had nothing of interest to look at but seed-pods alone, you need never lack amusement on an autumn walk.

