THE DAILY RECORD-UNION.

THE RED SCALE.

THE RAVAGES OF SCALE INSECTS IN ORANGE ORCHARDS.

A Subject of Importance to the Fruit Growers of California—A Remedy Suggested.

During a recent visit to Southern California our attention was called to a pest found in some of the orange orchards, known as the Red Scale. It is not only found on the branches and foliage of the tree, but also spreads over the fruit. We have not had time to make such inquiry or experiments as we would wish to, but it has been our good fortune, since our return, to meet a gentleman from Louisiana who is thoroughly acquainted with the culture of orange trees during the past fifty years, and also with the troubles growers have to encounter—such as scale insects, etc., etc. He attributes the cause of such pests, to a great extent, to want of care and proper attention; growers taking crop after crop for a succession of years, neglecting to make an effort to strengthen and nourish the tree—only what can be obtained from mother earth and the pruning-knife. We will repeat a comparison made by him: "Take the human being, for instance. Exact from him more than ordinary labor, deprive him of proper food, etc., etc., and he will become filthy. So with the fruit." He states that a trench dug around the tree and filled with strong manure, then covered with the earth taken out, or giving the body of the tree a good washing with strong soft-soap lye or the refuse known to soap makers as "nigger," will have a salutary effect. In addition, wash the branches and foliage with some alkali wash to complete the work. If either of the above preparations are properly applied all insect life will be destroyed.

R. Williamson, of the firm of W. R. Strong & Co., sent us from a neighboring county some specimens of apples, and also pieces of branches of the tree they were taken from, which were covered by a scale somewhat similar in appearance to the so-called red scale found on the orange trees, though not quite so large. We visited the orchards where they were taken from, also other orchards in the neighborhood, and found this scale also on the pears trees and fruit. In many cases limbs and branches are completely covered, and in some cases the parts of the trees affected are only dead timber. This scale is also found on the fruit of trees affected.

We have tried some experiments on the specimens now in our possession, both of the orange and apple trees, and we believe that if the trees are thoroughly saturated with the wash used for the codling moth, that it will not only destroy the scales on the tree and foliage, but will protect the tree from further attacks. The wash for the trunk of the tree should be made and put on as thick as possible. [Directions for preparing and applying this wash will be found in the RECORD-UNION of January 1st.]

Mr. Titus, of San Gabriel, Los Angeles county, very kindly gave us a description of an apparatus he constructed for washing trees. He placed on the bed and running gear of a wagon a large wine cask—capacity about one hundred gallons—to which he attached an ordinary force pump. The fluid wash is put in the cask and forced by pump through a hose with perforated nozzle. With this apparatus from seventy-five to one hundred large orange trees can be thoroughly washed in a day. For apple and pear trees, when stripped of foliage, the ordinary garden pump will be sufficient.

In a flower-garden in this city we found a rosebush that was nearly covered with a species of this scale insect. We applied the sulphur and lime solution in July, but it had little effect. On the 15th of September the stem and branches were covered so thick that they appeared as if whitewashed. We applied the codling moth wash, and in a few days the scale was destroyed. We have called the attention of several persons, and had them examine the residue left on the stem and branches. Among those who examined was I. N. Hoag, Secretary State Agricultural Society. All agree that the destruction of the insect was complete.

At Los Angeles Horticultural Fair (1879), we met Albert S. White, of Riverside, San Bernardino county, and requested him to try some experiments by applying the codling moth wash on the scale found on orange trees. We forwarded to him a package of the preparation, and have received the following report:

RIVERSIDE, November 3, 1879.

Messrs. Cooke & Son—Gentlemen: I have given the preparation sent me a thorough trial, and find that it makes very short work of the scale bug.

Yours, truly, ALBERT S. WHITE.

We are under obligations to C. H. Dwinelle, of the State University, Berkeley, for the following communication in answer to our inquiries concerning the scale insect:

UNIVERSITY OF CALIFORNIA, BERKELEY, November 15, 1879.

Mr. Matthew Cooke—Dear Sir: The specimens which you sent me of the scale insects from the rose, and your inquiries in regard to similar pests found in our apple, pear and orange orchards, have interested me very much.

You have opened a subject, the importance of which, to the fruit-growers of California, can hardly be overestimated. The rose scale has been known in the counties about San Francisco Bay for many years past, as one of the worst parasites of the rose bush.

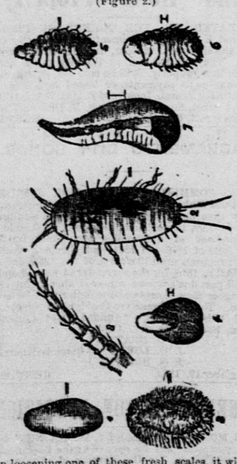
The scale insects or bark lice belong to the order of the *Hemiptera*, which includes the true "bugs." The chinch bug, squash bug and their allies, are good examples of the order, and are notorious for their evil doings. The phylloxera is also a worthy representative. The family of the *Coccidæ* includes the scale insects proper. Over thirty species have been found in Great Britain, and it is not likely that California will have to yield anything in point of numbers. A glass of considerable power is needed to study them to advantage.

The most common apple-scale insect is generally known to naturalists as the oyster-shell bark-louse (*Aspidiotus conchiformis*), named from the form of the scale. Packard says that it does more harm to the apple tree than any other insect known. Prof. Riley also notes its occurrence on the pear, plum and currant. I believe that the first I saw of it in this State was about the spring of 1865, in Oakland, but it may have been an old settler then. The first cut here given (Fig. 1) shows this scale of natural size, as it appears on the apple bark.

(Figure 1.)

The scales of the present season are of a dark brown color and smooth surface, as if waxed or varnished, and fastened securely to the bark to keep out the elements. At the small end of the scale is what appears like an oval plate, of a light amber color, which is said to be the cast-off skin of the insect in the larva state.

(Figure 2.)



On loosening one of these fresh scales, it will be found nearly full of pure white eggs (1, Fig. 2, greatly magnified), closely packed, and waiting for the warm weather to hatch them out next spring. There may be anywhere from ten to one hundred eggs under each scale. Fortunately some of the small birds, as the wrens and chickadees, devour immense numbers of these eggs before they hatch. It is said there is a mite, similar to those found in cheese and raw sugar, which sucks the eggs of this *Aspidiotus*. I saw such a one in a colony of apple scales yesterday, but did not catch him in the act of egg-sucking. The mites may be distinguished from the young of the scale by having eight legs, instead of six. You may have to put a drop of alcohol, benzine, or the like, on one to keep him quiet enough to make out the number of his legs.

The time when the eggs of the scale hatch depends much on temperature, and varies with locality. On the Atlantic coast it is the last of May and first of June. I cannot give the date for this State, although I have often noticed the young insects. Each fruit-grower should keep watch of the insects on his premises, and note the date of their transformations, for on this knowledge the success or failure of his efforts to exterminate them will largely depend.

One authority says that on their first appearance the young (2, Fig. 2) are nearly white, another that they are reddish. Those that I have noticed were so dark as to appear to the naked eye like a rust. Besides their six legs they have two antennæ, and the female has two stylets or hair-like appendages from the rear of the body. Fig. 2 (8) is one of the antennæ highly magnified. Although at first active, the female becomes stationary at the end of about ten days.

A white, waxy secretion issues from the body in the shape of fine threads (3, Fig. 2). This secretion increases and hardens into a yellowish-brown oval scale, which hides the body of the insect. An addition is soon made, which is wider than the original scale and darker in color, as in 4, Fig. 2. The scale continues to enlarge until it assumes the form seen in 7, under side, and is about 12-100ths of an inch in length, while its occupant is only about one-half as long. This development occupies about two months from the time of hatching. Meantime the female has lost her limbs and other appendages, so as to assume the form shown in 5, and finally as in 6.

Ten or twelve days after her scale has reached its full size the female begins to lay her eggs, and completes the process in about two weeks. She decreases in size, until at last, when she dies and dries up, it is hard to find any trace of her. In the Mississippi valley there is but one generation in a season, but I know of no one who has watched the pest close enough to say whether such is the case here or not.

The *Coccidæ* injure the trees by piercing the bark and sucking the sap. Although so very small—the one in question being five one-hundredths of an inch in length—their numbers often enable them to destroy large trees. Fruit is also diminished in value when infested by them. The male insect does not lose his legs while under the scale, but his beak, or sucking apparatus, disappears. He finally emerges with a pair of gauzy wings, and so different in appearance from the female as frequently to be taken for an insect of an entirely different order.

Another apple scale, which is also found on the pear, is known as *Aspidiotus Harisii*, has the scale oval, nearly flat, and of a milk-white color, while the eggs are red. I do not know that it has been reported as yet in this State.

The greatest execution can undoubtedly be done when the insects are just out of the egg, and not yet covered with their scales. There are many washes which will destroy them at that time, if but a drop touches them. As a rule, alkaline washes of moderate strength are good; for example, two pounds of potash in seven quarts of water; diluted lye made from wood ashes; lime water, etc. Some years ago Prof. Hilgard advised a nurseryman in this vicinity to use coal tar water, that is, water that had stood for some time in a barrel with coal tar at the bottom of it, the tar being stirred up occasionally. This year the San Jose papers report good results from using this remedy. Any of these may be applied by means of a garden syringe or engine so as to wet every part of the tree. The young insects usually appear soon after the tree blossoms.

At this time of the year the scales should be loosened by using a stiff brush, and at the same time applying the wash, which should be calculated to dissolve the wax. Strong soap-suds have long been commended for this purpose. In Western New York I found a solution, in which whale-oil soap and tobacco juice were the chief ingredients, to be a sovereign remedy for all insects that could be reached by it. The scraping and washing advised by you for the codling moth ought to exterminate the scale as far as it goes.

The scale should be destroyed in some way, for the tree infested by it cannot thrive. The trunk and limbs, as far as accessible, should be thoroughly cleaned. All trimmings should be burned as soon as possible. If the trees are yet young it might pay to cut them back so that every part could be reached, even if the fruit be lost for a season. Repeat the application after a few days, to destroy late-hatched insects or those overlooked the first time.

The orange and lemon scales belong to several genera, *Aspidiotus*, *Lacanium*, etc. Their development is, in a general way, similar to that of the apple scale. Their presence must be recognized, and they must be fought, if our orange-growers hope for the highest success. The remedies already given above are good, if faithfully applied at the right time. I have neither time or space to pursue this subject further at this time.

If by your efforts you can rouse our fruit-growers to the study of the insect enemies that are causing them so much loss, and persuade them to take active measures to subdue them, you will "deserve well of your country."

Wishing you all success in your efforts, I remain, yours, truly, C. H. DWINELLE.

Any person interested can have a package of the codling moth wash, free of cost, to experiment on the scale insect, by applying to Messrs. Hutchings & Co., No. 517 Front street, San Francisco, by letter or otherwise. All persons having any wash or remedy for this pest, by sending us a package, we will have it thoroughly tested and report results. We have nothing of the kind to sell; only wish to find the best.

Any information in our possession will be freely given to any person applying by letter or otherwise. COOKE & SON,
Proprietors Pioneer Box Factory,
Sacramento.

Sacramento, November 20, 1879.

SCIENTIFIC PROGRESS.

M. De la Bastie is reported to have lately invented substantial improvements upon his well-known process of tempering glass. His recent procedure will be found described in the bulletin of the Societe d'Encouragement.

Bower, the inventor of a process for protecting iron against corrosion by coating it with magnetic oxide, by means of air at a high temperature, has just taken out a German patent for a procedure involving the use of highly-heated carbonic acid gas on iron, and of carbonic oxide on metallic surfaces previously oxidized to sesqui-oxide.

Herr Koerner, of Freiberg, has devised an improvement in miners' safety-lamps, by constructing the same in such a manner that the entire air-supply which feeds the flame is made to pass into a wire-gauge chamber through a filter of pumice-stone, impregnated with platinum block. The action of this device is based on the property of platinum block to condense on its surfaces such combustible gases as light carbureted hydrogen, and effect their slow combustion. The mechanical details are not given.

"Highly important, if true," may be applied to an alleged discovery, attributed—not very lucidly—to "a German scientist," by which the image of a common mirror may be rendered permanent, like a photographic print. The discovery relates to "a chemical composition" with which the metallic surface is prepared; the mirror is then held up before the person or thing to be photographed. The result is said to be a permanent image, "in natural colors;" all of which is highly problematical.—[Engineering Journal.

A fire and water-proof paper is prepared according to a recently published recipe as follows: The basis of the paper is a pulp composed of two-thirds paper pulp to one-third of asbestos pulp, prepared in a strong solution of common salt and alum. The mixture is put through the engine and run off through a Fourdrinier. The paper thus made is run through a bath of gum-shellac dissolved in alcohol or other solvent, and subsequently through the finishing rolls, when it is ready to be cut in sheets. The addition of salt and alum to the pulp is said to add considerably to the strength of the paper, while it materially contributes to its fire-resistant qualities. The shellac gives it its water-proof quality, rendering it quite impervious to moisture, while it does not seem to prevent a sufficient absorption of ink when applied in the usual manner in printing or writing. The paper so prepared is recommended as of special value for account-books, and public and other valuable documents, since it is claimed that such books or documents exposed to the action of fire and water in a burning building will not be so far injured as to destroy their value.

"The Sun as a Source of Power," is the title of an interesting paper by Prof. Langley, a well-known American astronomer, recently published in the *Scientific American*, in which we find a very striking example given to illustrate the magnitude of the work performed by the sun on the earth's surface, which receives only an infinitesimal fraction of the floods of power that the central body of our system is constantly radiating into space. He puts the case in this way: Taking the area of Manhattan Island to be 20 square miles, and the quantity of rainfall it receives to be 30 inches annually, he shows that this speck of the earth's surface receives 1,393,920,000 cubic feet, or 38,781,600 tons of water in a year. Comparing this quantity of water with the pyramid of Cheops, which weighs less than 7,000,000 tons, he makes it appear that this amount of water in the form of ice would many times replace the largest pyramid of Egypt. To transport it would require 3,821,800 cars, carrying 12 tons each, and these, assuming an average length of 30 feet to the car, "would make six trains reaching in one continuous line across the continent, so that the leading locomotive of each train would be at San Francisco before the rear car had left New York." Estimating a day's rain-fall of one tenth of an inch over the area of the United States to weigh 10,000 millions of tons, he shows that it would more than demand the united action of all the pumping engines of Philadelphia, Chicago, and other large cities of the country, working day and night for a century, to pump back this water to the mean height of the clouds from which it fell.

It is the work of a philosopher to be every day subduing his passions, and laying aside his prejudices.—[Addison.

BEAST, BIRD, FISH.

SOME ODD PARAGRAPHS ABOUT ANIMALS AND THEIR DOINGS.

Expressions of Sympathy for Animals and Anecdotes Concerning Them—A Reprobate Horse.

SYMPATHY.—I cannot understand that morality which excludes animals from human sympathy, or releases man from the debt and obligation he owes to them.—[Sir John Bowring.

SAGACIOUS.—Dr. Abbott is the possessor of a fine setter-dog which seems to be endowed with more than its share of intelligence. The sagacious animal, which can be often seen serving as a hitching-post for the doctor's steed, will, when ordered by his master, take a prescription to such a drug store as may be named, wait for it to be compounded, and return to the doctor's office with it as soon as possible thereafter. He is equally at home in seeking out any article that may be needed from the doctor's office, and conveying it to any distance.—[St. Paul Pioneer Press.

GOLD FISH.—Charles J. Fentland, of Newburyport, has in his garden a tank containing some fifty gold fish, which are supplied by a fountain of pure water, which bursts up from the center. These fish are so tame that they will come at his call and take his fingers in their mouths when put into the water. On being fed he calls them to the surface, and they take their food like so many hungry birds. They manifest no shyness and are a happy and contented family.—[News Germ.

PIGEONS.—Bingley gives a singular anecdote of the effect of music on a pigeon, as related by John Lockman, in some reflections concerning operas, prefixed to his musical drama of "Rosalinda." He was staying at a friend's house, whose daughter was a fine performer on the harpsichord, and observed a pigeon, which, whenever the young lady played the song of "Speri-si," in Handel's opera of "Admetus" (and this only), would descend from an adjacent dove-house to the room window where she sat, and listen to it, apparently with the most pleasing emotions; and when the song was finished, it always returned immediately to the dove-house.

ABOUT A HAWK.—An engine driver on a French railway gives some singular details concerning an old hawk which is accustomed to profit by the fear excited in young birds by the noise of the locomotives on that line. The little bird of prey displays an instinct closely bordering upon reason. "He is," says our informant, "accustomed to fly beside the trains passing between Mesgrigny and Romilly, and has been known to the officials for more than fifteen years. Having learnt from experience that the terror inspired by the trains drives such birds as may be near the railway out of the hedges on either side of the line, the hawk soars evenly a few yards above the carriages, and carefully keeps himself hidden in the cloud of steam emerging from the funnel. So soon as a suitable victim appears, he is incontinently pounced upon and devoured. Should, however, the piratical bird by chance fail of his object, he returns to his place amid the steam, from which even missiles cannot dislodge him, a slight turn of the wing always enabling him to evade them. The bird's flight is extremely rapid, as, indeed, that of all hawks is well known to be. If the train is, say from 150 to 200 yards ahead, and going at express speed, a few seconds suffice to place him in turn the same distance in front, even after chasing a bird along the hedges.

MEMORY OF THE HORSE.—The powers of memory of a horse were illustrated at Rochester, N. Y., the other day, where the driver of a hook and ladder truck tried an experiment to test them. Three and a half years ago the city sold a team of horses that had been used for drawing this truck, and since then they had been employed in different work. The other day the driver took the horses into the truck house and turned them loose, whereupon each went directly to his own stall, and when a gong was sounded ran out and took their accustomed position at the tongue of the machine.

CANARIES AS CONCERT-SINGERS.—An entire novelty in the concert-singing department of musical art is promised to the lover of sweet sounds by an ingenious citizen of Phœnixville, South Australia. This gentleman has for some years past devoted himself exclusively to the training of canary-birds in every known method of vocalization, and, as we gather from antipodean journals, with extraordinary success. But he has recently crowned his triumphs as a very Lamperti of feathered songsters by inventing a mechanical apparatus by which his yellow pupils will be taught to perform music of a more recondite and complicated character than mere ballads and opera-airs. He proposes, with the aid of this contrivance, not only to produce canary soloists, capable of executing airs like "Dip Your Chair," or "Dee Tanty," as the immortal Jeames de la Pluche designated the florid displays fashionable in his day, but to teach his pupils part-singing and the rendering of the most difficult modern operatic choruses. These astonishing results are to be attained by the following process: The cages in which the professor's pupils reside are hung up in front of a mirror, behind which is fixed a musical-box, which plays the solo, part-song or chorus they are desired to perform. The birds listen eagerly to the music, turning their attention to the quarter whence it proceeds. Their gaze is naturally directed to the mirror, in which they see the reflection of their own graceful persons. At once they hop to the conclusion that their counterfeit presentments are real live canaries, melodiously engaged in singing the unfamiliar strains that delight their ears. From observation to imitation, it appears, is but a step with the intelligent and tuneful canary-bird. He is apt, in concerted music, to double a part, and betrays a predilection for the "leading business;" but, being gifted with a quick ear, he soon recognizes the desirability of filling up the notes wanting to complete the chords, and adapt himself to harmonic requirements with artistic promptitude. Wagner's "Trilogy," performed by a company of canaries, may thus be an attractive item in the operatic performances of the future!—[London Telegraph.

HOW GEORGE HONEY HUNTED BATS.—Here is a story far funnier than most of the anecdotes one finds under the caption of *nouvelles a la main* in the *Journal Amusant* or the *Figaro*. It is a story of George Honey, the distinguished actor, who, many years ago, while on a tour in the provinces, had taken lodgings in a humble house, somewhat the worse for wear. Soon after retiring he was awakened by a fluttering noise, as of a bird, around the curtain of his bed. He sprang up, struck a light, and saw a dark little creature with wings blundering about the room. Not being well acquainted with natural history, he did not recognize it as a bat, but determined to catch it, if possible, and examine it carefully in the morning. Taking up a felt hat, he began the hunt, and tried to capture the intruder for a long time in vain, but at last he pounced upon it, took it from under the hat, shut it up in a drawer, listened to its struggles to escape—wanting to be sure that he really caught it—and went to bed, dreaming of flying dragons. But he was not destined to sleep long. Hardly had he dosed off when a further fluttering awakened him, and lighting another match, he found another bat. After this one he had another hunt, caught it, put it in the drawer with its brother, and again went to bed. Again, however, he was awakened in a similar manner; bats came not in single spies, but if the expression be pardonable—in "battalions." Mr. Honey hunted diligently making quite a collection of specimens, and put them all with great care in the drawer. Heated with the chase, he then opened the window, and, tired out, at last enjoyed a few minutes sleep. Waking with the morning light, he jumped out of bed and opened the drawer very cautiously to look for his bats; but lo, and behold! there were no bats there. He opened the drawer wide, and then discovered that it had no back to it. He had, in fact, been passing all his night in catching the same bat, which had flown out at the back of the drawer as soon as he had put it in at the front, and when the window was opened had finally escaped.—[Howard Paul, in the American Register.

A "REPROBATE" HORSE CONVERTED.—Cross, in his "Autobiography of a Stage Coachman," tells how his employer had commissioned him to look out for and purchase horses. He says:

One afternoon a tout, or horse-dealer's cad, came and told me, as a great favor, of a horse that was to be disposed of for a little money. I went with him and was shown a very useful coach-horse. I asked to see him out. This was complied with, and running my eye over him, and approving his action, I said, "Sound?"

"Perfectly; but I don't warrant him."

"Age?"

"Six years old."

Looking into his mouth, I found this to be correct. "Price?" I said.

"Ten pounds," was the reply.

I immediately concluded something was wrong, as he looked like to me a five-and-thirty pound horse.

"He's not a kicker?" I said.

"You can't make him kick," was the reply.

I was almost ashamed to say, "You won't warrant him quiet, I suppose?"

"You can't expect it at that price, but all I have told you is true."

"Then I'll have him," I said. I observed a titter on the lips of the stableman as I followed him into the house to give him the money, when the seller candidly told me he had given thirty pounds for the horse, and had sold him two or three times for more money; but he had always been returned, as he would not go in harness. Early next morning I borrowed a break, harnessed him, and put him to with another horse, but he would not move; and, touching him with the whip, he reared right on end, then threw himself down, and there lay. At this I thought it was a bad case, when my friend, who had kindly put me up to this great bargain, called to me and said—

"Master, light a truss of straw and put it under him."

Nothing loth to make trial of such a remedy, as I had heard of it before, though I had never seen it practiced, and there not being many people about, as it was early in the morning, we unbuckled his traces, got him out, and with the other horse drew the break out in the corn market, and put him to again, as I was not to be beaten without a further trial. My friend, therefore, procured me a whisp of straw and strewed it on the ground under him, and when I was ready to set fire to it, the animal made two or three plunges clear of the straw, and then threw himself down. Satisfied now that he might be made to go, but not by such means, I thought I would try another element which I had before seen applied with success. After getting him up, I had him taken down to the canal, where I found a barge just going to start with two horses at length; giving the bargeman half a crown to lend me some draught harness, we put him in behind the other two, first taking the precaution to have the barge moored clear of the quay and other craft. We then moved on, when the brute threw himself about, first up in the air, then down on his knees, up again, then forward, then back on his haunches, but the two fore horses kept on, and their traces acting upon the barge, did not give him time to lie down, and after two or three attempts to baffle us, he rolled off the towing path into the canal. Here, after two or three plunges, and immersion in water, the tackle holding good, he regained the towing path, and the other two horses keeping their places and pace, and the barge being in motion, there was nothing left for him but to keep quietly on or put up with another ducking. He chose the former, walked to his collar, and took his share of the draught for about two miles without the least attempt at jibbing. We then took him out, and returned to the Roebuck (Oxford). The coach arriving in about half an hour, I put him in off wheel, and drove him to Benson, twelve miles, our first stage, and no horse ever went better or quieter. The next day I drove him back with equal success, and continued to drive him as long as the coach lasted. Many were the like "reprobates" that tried the nerve and patience of the whips of old.

ISOLATION.

Close by the miry edge
Standeth my hermitage,
An humble cot, low-roofed, with moss o'ergrown;
It hath no mantling vine,
No sheltering voiceful pine,
Even the birds its lattice seem to shun.

Though the bleak wind doth blow,
'Gainst my dark lattice so,
I see far out upon the sunny hills,
Cloud shadows blithly play,
Around their summits gay,
And a fierce yearning all my being thrills.

Weary leagues intervene
Those happy hills between
Flat, trackless marshes, without bush or tree.
Deep streams the way impede,
Thickets of tangled weed,
And the tall rushes nodding gloomily.

Low o'er the landscape dull,
I see a gray sea-gull
Come from the distant shore on idly flapping wing.
O thou last ocean-bird,
Hast my complaining heard?
Dost thou to me a happy message bring?

But when the sunset dyes
In gold the western skies,
With adoration deep my warm heart is filled.
My eyes are turned that way
Till its last golden ray
Fades, and the fog-clouds o'er it deep are piled.

On the late autumn eves,
Through the dark tule leaves,
Cometh the night wind with its eerie moan.
Like the sad wails of those
Souls who know not repose
When their wild, unrepentant lives are done.

How can I fate oppose?
My casement then I close,
Above the embers on my lone hearth to bend.
Here in the chilly murk,
Where care and sorrow lurk,
"I stand and wait," serving unto the end.

—[A. G. Cowan.

AN UNDERCROWDED BUSINESS.

The extraordinary progress made in the graphic arts of late years, the multiplication of popular illustrated works and periodicals, the tendency of large firms and corporations to use pictures instead of letterpress in advertising their commodities, are trustworthy indications that the business of an engraver is now more than ever before a promising field for a beginner with an aptitude in that direction. But if we accept the statement of the engravers themselves, without an allowance for that sense of personal disappointment and weariness which we have previously spoken of, no occupation is so barren of inducements as this. They are more emphatic than the telegrapher, the architect, or the soldier in saying, "Don't put your boy to our trade; turn his footsteps in another direction." As a matter of fact, the standard of a successful engraver is higher now, and the necessary qualifications greater, than hitherto. Formerly the office drudge, without education of any kind, and without any definite intelligence or aptitude, was allowed to practice at blocks in his spare hours; and by degrees he acquired a certain mechanical facility that qualified him for a position in which he hacked out whatever beauty and softness the drawings intrusted to him had. He was the bane of artists, not having the capacity either to understand or to interpret them. But the art revival has compelled a change; and, besides perspicacity and manual facility, the engraver who would succeed must have a knowledge of drawing and color and a sympathetic understanding of the work submitted to him. For this reason a young man, ambitious of becoming an engraver, should have some preliminary training in art, and, we might almost say, should be a finished draughtsman before he attempts the sister profession. But even supposing that he has an education, that he can draw and has art sympathies, he must in most cases enter the office as a subordinate and carry the burden of many profitless details before he is afforded an opportunity to develop in the direct line. He is received in the office as a boy, with a salary of $3 or $4 a week. Eventually, superior equipment and intelligence will be recognized, and with ordinary talent one may obtain a lucrative and honorable position. The salary of an engraver is from $20 to $50 a week, but a master hand of positive ability and experience commands $4,000 or $5,000 a year. This profession is also adapted to women, and two or three have already acquired high rank in this country.—[Scribner for December.

AN ORIOLE.

How falls it, Oriole, thou hast come to fly
In tropic splendor this our Northern sky?
At some blithe moment was it Nature's choice
To dower a scrap of sunset with a voice?
Or did some orange tulip flaked with black,
In some forgotten garden ages back,
Yearning towards heaven until its wish was heard,
Desire, unspeakably, to be a bird?

Convey thy love to thy friends as an arrow to the mark, to stick there; not as a ball against the wall, to rebound back to thee.—[Quarles.

BETROTHAL AND WEDDING.

Some Interesting Facts About Them from an English Writer.

The Prince of Wales gave the Princess Alexandra a keeper-ring, in which the initial letters of the six stones—beryl, emerald, ruby, turquoise, jacinth, emerald—formed her favorite name for him, "Bertie." The language and properties of precious stones are as varied as are those of flowers; and, like the latter gems, have the proper seasons in which their good qualities predominate. High priests in this kind of knowledge inform us that whoever is touched with any stone set in a silver ring shall be immediately reconciled. A pale sapphire, set in gold and engraved with a figure, and with the half of a fish, procures any desire. Capricorn or cornelian, set in a silver ring and carried about, insures the wearer against harm in purse and person; no Judge can pass unjust sentence against him; he shall abound in business and honor, gain the friendship of many, and be all-powerful in battle.

A favorite supposition is that every month in the year is under the influence of some one of the precious stones. The garnet, signifying constancy and truth, is sacred to January; the amethyst (sincerity), to February; the bloodstone (courage and presence of mind), to March; the diamond (innocence), to April; the emerald (success in love), to May; the agate (health and long life), to June; the cornelian (a contented mind), to July; the sardonyx (conjugal felicity), to August; the chrysolite (antidote to insanity), to September; the opal (hope), to October; the topaz (fidelity), to November; and the turquoise (prosperity), to December. In Germany the turquoise is still the favorite betrothal ring; it is supposed to prevent dissensions between husband and wife, and also to give warning of danger. In addition to the virtues already enumerated the diamond is said to be an antidote to Satanic temptation. The ruby makes its possessor brave. The topaz is a preservative against poison. The amethyst is a preservative against drunkenness. The turquoise as a charm against the evil eye and from looks foreboding misfortunes. The emerald promotes piety. The sardonic sardonyx brings unholy thoughts, though it promotes conjugal felicity—is, in fact, a sort of bane and antidote affair. The opal, unless its influence is counteracted by having other stones set with it, brings luck.

One very pretty form of betrothal ring, which has fallen into disuse, was the gemmel or grimmal—that is, double or treble ring. This was made of two or three hoops so chased and engraved that when fastened together by a single rivet the whole formed one design. The usual device was a hand. When an engagement was contracted the ring was taken apart; one division was worn by the fiancee, one by the intended husband, and the third by a mutual friend and witness of the betrothal. On marriage, the three minor rings were reunited into one and worn by the bride as a "keeper," or as a wedding ring. Tertullian, who died A. D. 216, tells us that a golden ring was, in his time, sent to the intended bride as a pledge. Selden says that betrothal rings were first given as substitutes for dowery money. In earlier days, when the art of writing was not so familiarly known as it is at the present time, the ring had a greater significance as a symbol of power. It formed a seal by which all orders were signed and all things of value secured. Therefore, the delivery of it was a sign that the person to whom it was intrusted was admitted to the highest friendship and trust. For this reason it became used in marriage ceremonies; and, in some of the earlier marriages, we find that not only the ring, but also the keys, were delivered to the bride. Wedding rings were not always made of gold. Iron was at one time generally used; and the Roman Senators, in the primitive days of the republic, wore rings of that metal. Prometheus, whose ring was of iron, is said to have set this fashion. Among the very poor in England rings made of rushes were used in the marriage ceremony.

Though the ring of gold has long been looked upon as a necessity to the marriage ceremony, it is by no means indispensable, and civil marriages may be contracted without it. The Puritans abolished the ring, or rather tried to do so; they looked upon its use as superstitious and of heathen origin. Quakers generally object to the ring on account of its heathen origin; but the ladies of that persuasion have shown a determined preference for its continuance, on account of the invidious position in which a married lady might be placed for the want of it. Wedding rings are placed on the left hand on account of the obedience that is typified thereby. The converse is probably the reason why the engaged hand is placed on the third right hand finger of a fiancee, who still possesses a large amount of freedom, and frequently exercises her power in an arbitrary manner.

"Do you know anybody that's buried up in that cemetery," said an elderly lady passenger to a railroad conductor, pointing to a resting place for the dead that the cars were whizzing past. "No, ma'am, I don't." "How long have you been conductering on this road?" "About four years, ma'am." "Well, if I had been four years on this road, I'd found out suthin' or other. I sh'd hate to be so ignorant," an expression of extreme disgust stole over her face as she put down her parasol with a thud.—[New Haven Register.

GENERAL NOTICES.

In vain the eyes are filled with light;
In vain the cheek with beauty glows,
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d20-1m C. H. CUMMINGS, Secretary.

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