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VOL. XXIV.

AUGUST 3, 1907.

No. 616.

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VOL. XXIV. No. 616.

AUGUST 3, 1907.

Weekly Presentation Design.

HUNGARIAN PHOTOGRAPH FRAME.

With Circular Opening.

ALTHOUGH apparently simple and plain in general form, a beautiful Photograph Frame can be made from this design.

The style is of an Eastern European type, not often seen in this country, but which meets with great favour in the farther parts of the Continent where ornamental wood structures are a special feature.

The Frame is for hanging on the wall, and a pair out in oak or walnut would make a most acceptable gift to anyone whose tastes guide them to appreciate what is artistic, although not necessarily common. The article consists of a back, about fourteen inches long and nine inches wide, an overlay photograph rim, and two projecting arms which can only be dimly indicated on the front view miniature we show. These side arms, which are purely decorative, greatly help the appearance of the finished work.

The skilled fretworker will notice at once that, only by the exercise of care, can the Frame be well made. It may not exactly be what one calls a *severe* design, but even a first glance will show that there are numerous straight lines, rectangular corners, geometric curves and a general symmetry of form which mean patience

and care in the work of cutting. The overlay requires special attention, and the whole pattern is one on which it is worth while to spend some time. As only wood of three-sixteenths inch thickness is required, with one-sixteenth inch

pieces for the overlays, two Frames may be done at one cutting.

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LIFE STORIES OF FAMOUS ARTISTS.



I.—SIR LAURENCE ALMA-TADEMA.

HERE are, doubtless, many readers of this paper who make a hobby of painting or drawing, and for them particularly some account of the many famous artists, who, starting their careers as amateurs, ultimately devoted themselves entirely to art and thereby won their way to the very front rank of their profession, must have numerous points of interest.

It will, however, not be out of place in the first of this series of articles if some note of warning be given to those of our readers who contemplate an artistic career as a means of obtaining a livelihood.

In these days of strenuous competition, one expects to be told that most professions are overcrowded, and, as regards art, this is undoubtedly the case. During the last few years the numerous art schools have contributed so many budding artists, both male and female, to swell the already immense numbers who use the brush or the pencil, that for all of them to find work to do, and that in sufficient quantities to earn a living, has now become practically an impossibility. Thus, as it follows that only those gifted with exceptional ability can hope to succeed, the would-be artist of only average talent would be well advised to seek some more promising walk in life. It is, of course, difficult to form a just opinion of one's own work and it is natural to conclude that there are many of our readers who are quite undecided as to what their chances of success would be should they endeavour to become artists. Whenever possible, it is best for them to seek expert advice.

What we have written above will, perhaps, strike our readers as a somewhat gloomy outlook as to the prospects of a successful art career, but they may be assured that there is much solid truth contained in these few words. On the other hand, there is much consolation in the fact that here, as in all other professions, there is always room at the top, and that hard study, energy, and a determination to succeed go a long way towards the making of an artist. And, to return to the subject we have in hand, what better example could be instanced than the career of one of the best known artists of the day, and one whose reputation is world wide—Sir Laurence Alma-Tadema? There are, it is safe to say, few artists whose work is more popular alike with the public and his brothers of the brush than that of this brilliant Royal Academician, and yet he started life with the idea of becoming a lawyer.

SIR LAURENCE ALMA-TADEMA

is a Dutchman by birth, although he is now a

naturalised Englishman. His father, Pieter Tadema, was a prominent lawyer in the village of Dronryp, near Leeuwarden, and he, dying when quite young, left a large family, including Laurence, who was only four years of age at the time, to be brought up entirely under the supervision of the mother. The means at her disposal were comparatively small and the widow had, consequently, to face a situation which it is abundantly clear was fraught with innumerable difficulties and hardships for many years. Sir Laurence has always been known to speak of his mother with a feeling of much veneration, and, indeed, she was a woman of rare strength of character and fully capable of dealing with the many problems which she had to solve. Sir Laurence would be the first to admit that her early training and example have had much to do with the sterling qualities of perseverance and heart-whole enthusiasm for his work that he undoubtedly possesses.

"THE BOY IS FATHER OF THE MAN."

A casual study of the lives of eminent painters will reveal the fact that in nine cases out of ten a desire to draw or paint was one of the earliest ambitions of childhood, and in a very marked degree this was so in the case of young Alma-Tadema. When little more than a baby, a pencil and paper usurped the place of the childish toys usually associated with the days of infancy, and, indeed, drawing seemed to come quite naturally to him. From the first, in fact, it is said that at the tender age of five years, he corrected an error in his own drawing master's design. In spite of this display of early talent, his mother not unnaturally desired that Laurence, who was her favourite son, should follow in his father's footsteps and become a lawyer, particularly as art, in those days, was not considered to be either a desirable or a profitable profession. Thus it was that the boy entered the public school at Leeuwarden and began his legal studies.

With his future career apparently settled, it might well be imagined that Alma-Tadema would give no further thought to art, but this was by no means the case, for, though he persevered with his legal studies as in duty bound his chief recreation was drawing. And to such an extent did his passion for art take hold of him that day after day, in the early hours of the morning, he would rise from his bed and devote himself heart and soul to the pencil and the brush, until it was time for him to resume his dry-as-dust, and, it must be added, distasteful legal work. Alma-Tadema, at this time, had no art master to guide him, yet such was his

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natural ability that a portrait painted by him of his sister was considered worthy of exhibition in a local art gallery.

Time went on and the embryo lawyer's studies became more and more exacting, and notwithstanding the added strain upon his constitution, Alma Tadema still devoted as much time as he could possibly spare to art. As was only natural, under the circumstances, the double effort at last undermined the health of the young student, and this to such an extent that the doctors declared that he had not many months to live. It was therefore decided that his legal studies should be abandoned and that for the short time he had before him, he should be free to give himself up entirely to his beloved art. Accordingly he entered the Academy of Art at Antwerp under Wappers and De Keyser, and to the great astonishment of his doctor and his family, the relief afforded by the removal of the double strain resulted in his taking a new lease of life and being rapidly restored to robust health, which, happily, he has retained up to the present day. While at the Antwerp Art School, his energy and industry soon won for him the golden opinions of his teachers and finally it was admitted by his family, albeit with some reluctance and misgiving, that his talent justified his becoming an artist. His subsequent career may be summarised in a few words. In 1858 he left the Antwerp Academy and became a pupil of Hendrik Leys, a famous Belgian historical painter, and under his tuition he laid the foundation of his fame by painting "The Education of the Children of Clovis," which he sold for £65.

Alma-Tadema experienced his first great grief in 1863, for in that year his mother died. His first wife was a French lady, who died in 1869, and in the same year he came to London, where he has resided ever since. His first contribution to the Royal Academy was made in 1869, when he exhibited "The Pyrrhic Dance," and every year since that date the walls of Burlington House have been enriched by an example from his masterly brush. In 1871 he married, as his second wife, Laura Theresa Epps, an art student, who is to-day a distinguished lady artist. In 1876 he was elected an Associate of the Royal Academy, having three years previously become a British citizen by naturalisation. Elected Royal Academician in 1879, his genius received further and well-merited recognition in 1899 when he was accorded the honour of knighthood and became Sir Laurence Alma-Tadema. He has produced a long list of masterpieces, chiefly classic scenes of ancient Greece, which are now to be found in all parts of the world; many of them are doubtless well-known to our readers, none, perhaps, more so than "An Earthly Paradise," a charming picture of a young mother bending devotedly over a couch on which reposes the dimpled figure of an infant. Other celebrated works of his are "Unconscious Rivals," "At the Shrine of Venus," "The Proposal," "Sappho," "Spring," and "A Reading from Home," while still fresh in our memory is his "The Finding of Moses," which attracted so much attention at the Academy in 1905, and which, by the way, was purchased by Sir John Aird for £14,000. Seventy years of genuine hard work have resulted in a noble total of well over three hundred paintings, and even now Sir Alma-Tadema works hard every day and it may be said, all day long. Painstaking to a degree, many of his pictures

take him years to complete. What better example is it possible to give our readers as a model than the subject of this article; hard study, hard work, an absolute determination to overcome all obstacles, with the saving clause of ability, have been the determining factors in his career, and, given these qualities, ultimate success is as assured as anything may be in this world of uncertainty, and therein may be much encouragement to those of our readers whose ambition it is to become artists. It is, however, impossible to hope for any measure of success without a preliminary groundwork of years of hard study, and for this purpose it is absolutely essential that the would-be artist should enter a really good Art School.

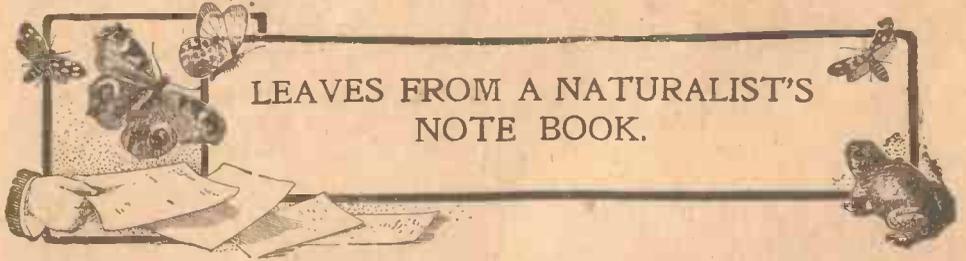
Beech Nut Cups and Acorn Cups.

Pretty little odds and ends are to be made out of a collection of beech nut cups and acorn cups such as may be picked up in the woods on almost any day. If they can be had with two or three on one stem so much the better, but if this is not possible they are not to be despised for being single. The cups must first be thoroughly cleaned and allowed to dry. The worker has then to decide whether she will leave them in their natural colour or whether she will paint them in any way. It is a good plan to colour them according to nature, merely washing them over with enamel and letting it dry before proceeding with the work. Another plan is to varnish them without using any colour at all. Some people prefer to stain them and to tip them with gold or bronze. When thus treated they, of course, lose a great deal of their natural appearance, but this is of no consequence considering the purpose for which they are required.

The cups may be utilised as tiny cushions for pins, if liked. All that is necessary for the making of these is to tie up a little bran, or emery powder, in a scrap of silk or satin and to glue the cushion thus made firmly into the cup. The cups look very pretty when several are tied with coloured ribbon on to a wire stem or on to one provided by a slender, irregular twig.

Scent sachets may be made in much the same fashion to imitate rose-buds. In such a case it is advisable to paint the cups green and to cover a ball of wadding well sprinkled with scent-powder with satin or silk. If these rose-buds are mounted with a few leaves we get a charming and uncommon-looking little sachet that is sure to give pleasure to others besides the maker. The scent powder must be very powerful as to its odour as it has to penetrate the wadding as well as the silk. It is not a bad plan to omit the wadding altogether, especially when the cover is of such a thick and close material as satin. Needless to say, the rosebuds are to be made with the beech-nut husks, not with the acorn cups.

Acorn cups can be converted with very little trouble into sheaths for knitting needles. They need nothing more than painting, or varnishing, or gilding, and should then be united with a band of narrow elastic. Each end of the elastic should be secured to the edge of one of the cups and these should be set at such a distance apart that they will fit over the points of the needles without any undue stretching and yet tightly enough to prevent them from falling off at the slightest provocation. Small bows of coloured ribbon can be attached to each cup.



LEAVES FROM A NATURALIST'S NOTE BOOK.

HOW BIRDS LEARN TO SING.

BY THE REV. THEODORE WOOD, F.E.S.

HOW do young birds learn to sing? Three replies to this question seem to be possible. The first is that their song comes to them simply by inheritance; the second, that it is taught to them by their parents; and the third, that it is impressed upon their receptive memories while they remain in the nest, and is reproduced in later life by a mere act of recollection. None of these explanations, however, is sufficient to cover the whole of the ground. Number one is undoubtedly exemplified in the case of the cuckoo. The mother cuckoo lays her eggs in the nests of a great variety of other birds, and her young have manifold opportunities of hearing the song of their foster-parents, or of being taught to sing by them. Yet they invariably adhere—or at any rate the males do—to their own distinctive call, though they are unable to utter it till the period of courtship begins, nearly twelve months later. This is undoubtedly a question of inheritance. And Mr. Hudson tells us, in his “Naturalist in La Plata,” that a young specimen of *Rhynchotus rufescens*, which was taken from the nest when just breaking the egg-shell and reared artificially, learned nevertheless to render its characteristic song before it was fledged. In this case it could only have heard the parental strains while it still remained in the egg; and there is a good deal of difficulty in believing that under such circumstances the undeveloped little creature could note and remember the song so perfectly as afterwards to reproduce it without a mistake. But then, on the other hand, it is a well-known fact—the Hon. Daines Barrington, a correspondent of White of Selborne, called attention to it more than a century ago—that linnets, if brought up under the care of skylarks, woodlarks, and titlarks, invariably learned the song of the foster-parent instead of their own. And all trainers of song-birds know how indispensable it is that their feathered pupils should hear only the particular song which they are required to reproduce. In these cases the young birds undoubtedly learn by imitation. And Mr. Hudson tells us again that the cock and hen of the South American oven-bird sing a curious kind of duet together, and that the young, while still in the nest, may frequently be heard practising it during the absence of the parents. This seems to point to explanation number three. But I have a very interesting record of a case in which two young yellow-hammers were obviously receiving a singing lesson from an older bird, presumably the father. “On a very hot August day,” writes my correspondent, “I was stretched

on a heathery slope on Hindhead, in the Surrey hills, enjoying the sunshine, the bees, and the pleasant rustle of nature. To the right, some twenty yards distant, there sloped a belt of young larch and fir, and to the left various-sized thorns and gorse-bushes. From one of these last-mentioned low bushes a yellow-hammer began to pipe forth his sad little song. This continued for ten minutes or more, the bird evidently not moving from his perch. Then, from the belt of firs at the other side of me, came forth the sweetest little trembling imitation of the first part of the older bird's song, the two end notes, and sometimes more, being left out, and the beginner only getting as far as ‘A-little-bit-of-bread-and-but—’ and stopping there. After a little, a second youngster took it up, and in his turn began in quavering tones to imitate the adult bird, who sang and then paused, when one of the young pupils would again try the strain. The interest warmed, as by degrees the uncertain little notes grew steadier, and then at last ‘ter-please’ was added by one. To the very end of the lesson, however, the other little scholar failed to get the ‘ter’ properly, generally leaving it out and skipping over to ‘please.’ One very curious thing about the lesson was the extreme politeness amongst the birds. If any two of the three happened to commence together, one immediately stopped and allowed the other to continue. I could find no distinct code of precedence about it; it seemed to be a natural courtesy in each. Sometimes it was the adult bird that stopped, and at other times the younger; and only once did it occur that both stopped simultaneously. This continued for fully an hour, and at last I left the two young ones practising by themselves, one having entirely accomplished the full cadence, and the other still occasionally leaving out the last note but one of its sweet and still tremulous baby-song.”

So it would seem that all three replies to the question which I placed at the head of this article are correct. Young birds learn their songs in three distinct ways, some by inheritance, some by imitation, and some by direct instruction on the part of the parents. Young birds first begin to sing, as a rule, in September. After the great August silence their voices are generally the first to be heard. Perhaps some of my readers may be fortunate enough, during the coming autumn, to hear some of the youngsters practising, or receiving tuition from their parents. The subject is a little known as well as a very interesting one, and affords plenty of scope for original observation.

Another question which I should much like to

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have, answered is this. What is the bird, beast, or insect which devours the abdomen of the handsome chafer *Anomala Frischi*, and leaves the mutilated insect still alive? Some years ago, on the sandhills of the Norfolk coast, this chafer was very abundant, and I found specimen after specimen which had been "divided," like McPhairson Clongcloyetty Angus McClan, close to the waist, but yet retained sufficient vitality to crawl about quite actively. The only birds to be seen were lapwings, which never seemed to settle, however, except on the marsh-land below; sandpipers, which confined themselves pretty well to the edge of the water, fifty yards away; and a wagtail or two. There were gulls, of course, but these were occupied with other matters; and bats could not have been the culprits, inasmuch as this particular chafer is diurnal.

It seems strange that a beetle should be able to sustain such an injury as this without immediately dying. But it takes a great deal to kill an insect, probably because the nervous system is broken up into a chain of ganglia, instead of being centralised in a single brain. The consequence is that two or three or even more of these ganglia may be completely destroyed, while the remainder still retain sufficient nerve-force for the discharge of the vital functions. I have known a moth, for instance, to live for two entire days without a head, and to be able to flutter about with some activity on the third day. And I have seen a wood-leopard moth walking about after it had been first chloroformed and then stuffed, the entire contents of the abdomen having been removed, and replaced with cotton wool. And an entomological pin, moreover, had been passed through the thorax, bearing about the same proportion to the insect as a good stout walking-stick would to a human being of average size! Everybody knows, too, that if a wasp is snipped in two while drinking syrup it will go on drinking syrup, and will obviously enjoy its meal quite as much as before! In fact, its powers of enjoyment seem to be absolutely increased by the mutilation, since its appetite is no longer limited by considerations of abdominal capacity.

Collectors and Collecting.

The sale of a collection of old cockspurs at Sotheby's, a few days ago, recalled the old sport of cock-fighting. Eighteen pairs of spurs with blades measuring from 1½ in. to 2¼ in., made by famous amateurs, realised £26. Many years ago it was quite a common practice to collect cockspurs, some of which were beautifully wrought in silver and tipped with steel. Cock fighting was quite common in England as far back as the reign of Edward III. It became a royal pastime, and Henry VIII. had a cock-pit built at Whitehall, which James I. is said to have visited at least two or three times a week. In course of time it was recognised that the sport was a very cruel one and during the reign of Queen Victoria an Act of Parliament was passed making cock-fighting illegal.

Many curious collections have been made at different times, but among those which have been brought under the hammer, possibly the collection of garters which is to be offered in a London auction room, is likely to create the most interest and amusement of any of such old collections.

It contains the garters of many notables, among others a pair of garters worn by the famous *Neu Gwynne*. They are of sheepskin ornamented with red and gold roses, the clasps being of gold. Another pair of garters in the famous collection made of pale red silk, the buckles of silver, were once the property of *Mary Stuart*.

Old silver spoons continue to sell for high prices. A *William and Mary* rat-tail spoon with notched top handle was sold for £20; and another, a seal top for £12, quite recently. Indeed, old silver has been selling for very much higher prices during the present season than in any other recorded. A small saucepan, in the collection of *Viscount Falkland*, sold at 24s. per oz., but in the same sale a porringer of the time of *William III.*, realised 140s. per oz.

When *Speaker Hammer* resigned office in 1713, he took away a quantity of official silver—perquisites which it was then decided he had a right to retain. Most of these pieces made by *Louis Metlayer*, weighing in all about 235 ounces, was sold under the hammer a week or two ago, realising on an average 80s. per ounce. Ten years ago similar silver of the same date fetched 27s. per ounce, showing the advance in the value of old silver plate of that period.

The high prices realised for genuine prints after *Morland*, such as the beautiful mezzotints, by *William Ward*, have induced the forger to produce modern copies which, although obvious forgeries to the practised eye, are very misleading to the amateur. Collectors must be very wary, for quite a number of these reproductions are about. Still there is hope for those who are on the look-out for bargains, for every now and then a genuine old colour print is found worth £100 or more, the possessors of which will often gladly part with it for a few shillings.

Many people own quaint statuettes made of lead—indeed, some really beautifully-moulded figures are met with in old gardens where they have weathered the storms of two or three centuries. These articles are not valued very highly, yet one only 2½ inches high sold at *Christie's* last week for seventy-two guineas. Why this lot with no special pedigree realised so much it is difficult to say.

An *Achaian* peasant has been the fortunate discoverer of an ancient gold ring of the *Mycenaean* period, with a gold chain on which fourteen figures of remarkably fine workmanship were carved. It has been taken possession of by the authorities, and will doubtless find its way into the *Museum at Athens*.

Three pre-historic clay urns containing human bones have just been discovered under the stone flags near *Ballywilliam*.

Now and then old musical instruments are discovered, many of them realising several hundred pounds. A genuine "Strad" has just been found by a *Smithfield* clothier, who secured it for a few pounds. It is expected to realise quite a large amount.

CYCLE CARNIVALS.

HINTS ON DECORATIONS.

AUGUST is usually the favourite month for cycling carnivals, and, from the fact that the proceeds of such displays are devoted to charities, it behoves wheelmen to take every opportunity of personally assisting. We therefore give some hints that will be of service to those who intend entering for their first cycling carnival.

Many cyclists enter simply for the fun of the thing and also to make use of an opportunity of sporting a fancy dress in the open air; others go in more seriously with the object of gaining one of the prizes usually offered by the promoters of the carnival.

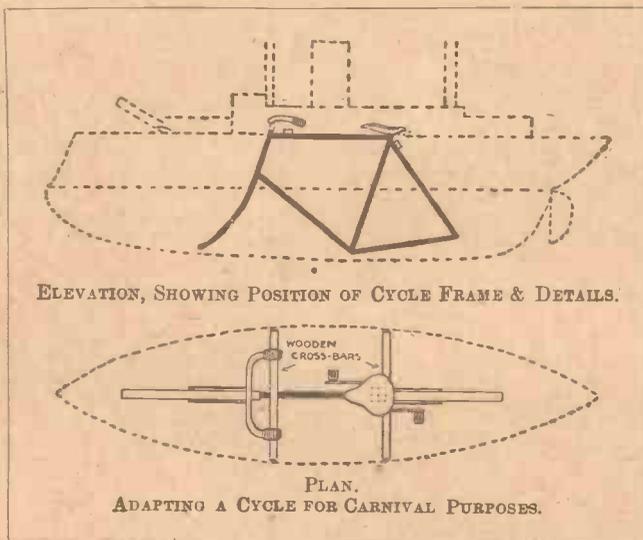
In this case careful consideration is absolutely necessary, for the role to be adopted must be

striking and novel, while the joint effect of the cycle and rider must be equally prize-worthy. It is useless to have an expensive dress and neglect the decoration of one's mount; on the other hand, a tastefully decorated cycle has its effect hopelessly marred by the want of a suitably attired rider. Cowboys, clowns, Ally Slopers, and "common objects" of this kind add materially to the display—but they are far too numerous to appeal to the judge's eye. Cycles simply decorated with coloured paper, yet still giving visible evidence that they are cycles, stand very little chance of a prize, so one can readily see that one's mount, disguised so as to practically lose all appearance of a cycle, ridden by its owner in a tasteful, yet novel costume, has more than a sporting chance of "scooping the pool."

Now as Jack Tar is ever popular, anything relating to a seaman's life is pretty sure to earn a good reception. By a very little trouble and ingenuity one's cycle can be converted into a ship. The chief difficulty is attaching the hull. This is best done by making two cross bars to

the machine, each arm projecting two feet from the frame. The cross bars can be made by taking two pieces of inch by inch wood, four feet in length, for each bar. These pieces can be placed one on either side of the top bar, and, by being lashed tightly at the extremities, jam themselves into position. Care must be taken that they do not obstruct either the steering or the rider's legs. The lower front tube can be fitted with but one cross bar, as the rider's legs prevent another. To prevent the bars slipping round, they can be "guyed" to the frame by stout string. The outline of the hull can be obtained by two pieces of inch by inch wood, each not less than seven feet in length. They are attached to the ends of the two top bars, and their ends

lashed firmly together. The hull "plating" is then tacked on. This can be made of strips of cardboard, stout canvas, or even of tin. Masts and funnel are added, and the affair decorated to taste. The rider, attired in sailor's or naval officer's costume, can steer his craft with ease, though mounting is an awkward job, as it necessitates climbing under the



"hull."

Similarly a submarine can be constructed, the rider being entirely hidden under the huge conning tower. When the judging takes place the rider, of course, dismounts; and should be rigged out as a diver (with tinfoil helmet, dummy lead weights, electric lamp, air-tube, lifeline and all complete) his chances of being successful are great!

Tandem crews will find the ship idea especially suitable.

With a little skill a cycle can be disguised as an animal, and then one's possibilities are unbounded! For instance, a war-horse, with trappings, is easily made, the difficult portions of the animal's face being conveniently hidden

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with armour. Cardboard, paste, silver paper and the use of a pair of scissors will work wonders, and there is no reason why one should not appear in the carnival as a knight in full armour.

Several members of a club could readily make up a tableaux, and lady riders could put the finishing touch to a really fine show.

As regards costumes, they can be made at but a small outlay. Sateen is good enough, while gold and silver braid is but a few pence a yard. Wigs and beards, if sufficiently good in quality to bear the light of day, cost a fairly large sum, but most theatrical costumiers let these out on hire.

Racing Pigeons.

YOUNG BIRD RACES AND NOTES ON THE MOULT.

THE young bird races are now proceeding and the birds engaged must be receiving the fanciers' utmost attention. The successful fanciers are trying their hardest to keep up their good form and the others must put on their considering caps and try to find out the reason of their non-success. The direction of the wind, the position of the loft and seconds lost in catching often make the difference between the first and twenty-first positions, and are all matters to be taken into consideration when asking yourself the question, "Did my birds do their best?" If not, then do your best to find out the reason, and remedy it if possible. Some strains do not shine as youngsters, but show much better form as old birds; others again are very fast as youngsters and yearlings, but fail to do good work afterwards. The birds should be exercised three times a day, morning, noon and night, and should fly at least twenty minutes each time. The earlier they are turned out the better, as they fly with more vigour and vim in the early morning than at any other time in the day. Keep them on short rations and always feed them in immediately they drop. Quick trapping then becomes a habit. It is apparently immaterial what particular kind of food is used. Some fanciers use only maple peas, others tic beans, some both peas and beans, and others a mixture of peas, beans, maize, dari and tares, but whichever is used, have the best you can buy. The best is decidedly the cheapest. We ourselves use half maple peas and half tic beans with the addition of a little canary seed at mid-day. The moult should be carefully watched, as some birds will probably be nearly bare on the head, neck and shoulders, and birds in this state should not be handled or sent to race points. They will do better work if jumped to the next stage than if sent away in this condition. Should any birds return knocked up, let them take it easy for the next few days, and you will be surprised at the form they will show later on, after having been given a chance to pull round. The best-looking and best-bred youngsters should be stopped after they have flown 100 miles, a distance quite sufficient to test them for working purposes and which will also enable them to compete in the show pen for the valuable prizes given for trained young birds. The second batch of youngsters should now be in training, and if the fancier wishes to win fame and prizes in long distance old bird races he will take great care of these later-bred

pigeons, as they are likely to make the best old-bird racers for this reason. Being bred late, they hold their feathers longer and are consequently easier to condition when preparing them for the long races two seasons later. An easy training of fifty miles will be quite sufficient to teach them what they will be required to do, and they can then be allowed to rest until next season. The old birds moult must now receive attention, and the birds intended for the long races next year should be allowed to rear another nest. A peculiarity about the moult is that although early breeding and feeding start the moult, rearing a youngster later in the year helps to retard it, and by keeping the moult back now the birds will naturally start later next year. Those birds intended for the earlier shows should now be separated or the nest boxes closed, and breeding stopped. All breeding should cease in September and the birds should be separated if possible. The moult seems to progress more rapidly and easily when the sexes are apart, but if the loft is divided by partition we strongly recommend these to be of upright lath-work, and not of wire netting, as the birds fly on to the netting and damage their tail feathers to a considerable extent. They should be allowed to bath twice a week, and a little sound linseed may with advantage be added to the daily ration of canary seed, as the oil is of great assistance in growing the new feathers. A little green food should also be given once a week. Do not handle the birds when rough in moult. In fact, the less the birds are handled at any time, the better they will look and the happier they will be. It is not necessary to keep on handling birds to see if they are going on alright. A practical fancier can tell with almost half a glance if any of his birds are out of sorts. The first indications of something wrong are usually loss of appetite and a dirty, greasy looking wattle. Experience only can teach the fancier what may be the particular trouble. Expert advice on the ailments of pigeons is given in all the fancy papers and experienced fanciers are usually only too pleased to give any earnest enquirer the benefits of their own experience. However prevention is better than cure, and if the loft is cleaned out regularly, fresh water given twice daily, and the birds fed on good food and given good grit, you are not likely to be troubled with illness of any description.

A PROCESS has been discovered by which sails of vessels of all kinds can be made out of paper pulp, and it is claimed that they serve quite as well as canvas, and are very much cheaper. They swell and flap in the wind like the genuine old-fashioned article, and are supposed to be untearable.

INVESTIGATION of fuels by the United States Geological Survey has shown that a ton of bituminous coal is capable of producing two and a half times as many heat units when producer-gas is made from the coal as when it is burned in the usual way in the fire box of a boiler.

SELLING BURKE'S ESTATE.—There has been a great demand for Burke's historic estate at Beaconsfield, and the greater part of the first portion, advertised for sale, has been sold by private treaty. It formed part of the estate which Burke bought for £22,000.

FULLY 100,000 inhabitants of London are night-workers.



XV.—DEVELOPMENT AND SPECIAL TREATMENT OF ENLARGEMENTS.

THE development of enlargements is conducted in practically the same way as that of ordinary prints on bromide paper, except that their large size renders it somewhat more difficult to deal with them. The developer used may be any that the operator finds give good results with bromide paper of the make he usually employs—either metol-quinol, rodinal, or amidol, &c. This latter gives probably less trouble than any other, as the fact that it requires no washing between development and fixing does away with a great deal of trouble that otherwise besets the path of the manipulator. The formula for this developer has already been given in the article on bromide paper in Number 608 (page 230), it is easily made and fairly cheap, but it should not be used more than five days or a week after mixing. With this developer the process is very simple. It should be poured into the ever-useful mug and kept ready at the right hand of the worker. The paper is taken out of the enlarging apparatus and placed in a clean dish, film side up. It is then flooded with water, and care should be taken that the whole of the film is thoroughly soaked all over, or air-bubbles may result. If the enlargement is of some size—say 12 by 10 and upwards—the paper should be raised two or three times and lowered again into the water, so as to wash the water all over the film and leave no part untouched. Air-bubbles are the great difficulty in making very large pictures, as large spots of white paper, where the developer has failed to act, entirely spoil the enlargement, however good it may be in other ways. When the water has been on the film for a minute or two it is poured off and the developer is poured on. Now comes an anxious time, for the developer has to be kept travelling over the whole surface of the paper all the time the picture is coming out. It is essential that every part of the picture should receive its full share of the developer's action, or uneven development will, of course, result. The best way to ensure even action is to keep the dish actively in motion from side to side, taking care that, each time it is inclined, the developer washes over the whole surface of the paper. It is most interesting to watch the picture coming out, and the worker will feel an immense satisfaction the first time he does it, at seeing all the details of the picture so greatly magnified. As a rule, the picture should be left to develop until it looks somewhat too dark by red light, as, when it comes out into the broad light of day it will look considerably lighter than it does by the red lamp's light, and it also loses somewhat in the fixing bath. When it has been developed until almost dark enough

it is a good plan to pour off the developer into the cup and watch the print, now flat at the bottom of the dish and saturated with developer, while it gains strength. As soon as the requisite strength is reached, the fixing bath, which should have been previously prepared and be ready in a bottle—is poured on; thus no time is lost in stopping the action of the developer at the right moment, whereas, if the developer were left on till the last moment, and then poured off, the action might go on too far while the pouring was done, and before the fixing bath could be poured on to it the picture might be irretrievably spoilt by over-development.

The negatives that give the best enlargements, which need least trouble in development, are those which have fairly strong images, but without excessive contrasts, the detail being plainly discernible all over the picture. It must be remembered that quite a small spot of film that is too dense, and thus gives a little white spot on the small print, will make a distinct blemish on a picture 20 by 16 inches in size.

Similarly a spot which appears insignificant on the small print will look anything but satisfactory when magnified into a large black smudge in the middle of the large picture. The greatest difficulty of all is in enlarging skies, in which some small black spots are almost sure to appear in the small print, and to be largely magnified in the enlargement, thus spoiling the cleanly appearance of the sky, which should, of course, be free from all spots. The only way to avoid these minute spots, when they are owing, &c., to pin-holes on the negative, is to touch them out with paint on the negative, but this needs no little skill.

It may be remarked that a white spot on the enlargement is better than a black one, as by skilful treatment with a fine pen and water-colour paint exactly matching the enlargement it is quite possible to touch out such spots in such a way as to escape detection, but to touch out a black spot and make it appear white is practically impossible with any hope of the spotting not being observed. For this reason, if a white spot, pin-hole, &c., appears on the negative, and makes an objectionable black mark on the enlargement, a good way to remedy matters is to spot it out carefully on the negative; then if it prints white on the enlargement it can be carefully spotted out, which would have been scarcely possible if it had been allowed to print black on the big picture. This is a dodge to which the writer has frequent recourse in his own experience.

One difficulty with respect to the making of enlargements is the necessity for large dishes,

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which are very expensive to purchase. It is, however, not essential that these should be made of porcelain, tin (or, better still, zinc) dishes will do quite as well, but they should be given several coats of enamel inside before use. Some solutions, such as washing soda, take off the enamel very quickly, but a varnish made of asphalté is sold which is said to be impervious to the action of acids or alkalis.

It is not at all necessary that the dishes should be composed even of metal—very serviceable dishes can be made in the following way:—Take a large strong cardboard box (one of those in which milliners pack dresses, &c., will do very well) and if too deep, cut it round so as to make a flat tray about two inches deep and sufficiently large to hold the size of enlarging paper to be developed (of course, the more near it is to the size of the paper the better, as it will hold less developing solution). The edges and corners of this should be strengthened by glueing strong tape over them—preferably two layers of it. When dry this should make the box very strong. The tray is now to be heated in front of a fire, and some paraffin wax melted in an old saucepan until quite fluid. The amount of wax is difficult to state, as it necessarily depends upon the size of the tray, but sufficient must be melted to run all over the surface of the tray when it is poured into it. The tray is to be inclined in all directions until the melted wax has permeated the cardboard, especially at the joins. If it cannot be got to cover the sides properly an additional quantity can be put on by means of a hot brush. The dish is then set aside to dry, and when the wax is hard it should be quite solid, and impervious to fluid. It is, of course, an additional security to go over the interior with enamel or asphalté varnish. These dishes, with proper care, will last for years.

It was stated in the last article that one disadvantage of using an enlarging lantern is that the negative cannot be got at when any modification of treatment is required. Those who advocate the use of lanterns will reply that the modifications can be made by acting on the print itself, as supported on the easel, by means of shading. This is quite true, but somehow such a proceeding does not seem to give quite such satisfactory results as shading the negative—for one thing it is obviously not so easy to provide an accurately cut mask of large size as to make one the size of the original negative. Let us suppose that we have to enlarge from a negative which is perfectly good except that in the middle of it there is a girl with a white dress, which dress insists upon printing as a perfectly blank space instead of the frounces, &c., showing. What we have to do is to bring out the details of the dress. This can be done by local reduction, but it is a most risky proceeding in the hands of the inexperienced, and before attempting to do that we will try another plan. Make a print on ordinary P.O.P. of the whole negative and (without toning, or fixing it) stick it down to a piece of ordinary writing paper (to make it stronger and less likely to curl), picture side upwards of course. Put this in the dark under a weight, and when dry cut out the white dress as accurately as possible, thus forming a mask. This has now to be fixed to the back of the negative by the bottom edge (the negative being upside down in the enlarging apparatus) by means of a strip of sticky paper over the edges, and in such a position that the

hole cut out comes exactly in front of the white dress. The negative is then fixed in the enlarging camera as usual. It is now obvious that the dress alone will print, but if the mask is allowed simply to hang down the probability is that there will be a sharp line round the dress. This must be avoided by slightly bending out the edges of the mask round the opening and then by keeping the mask in motion by moving it out from the back of the negative and letting it go back again. It is on such small matters as these that complete success in making an enlargement with no flaws in it entirely depends.

The exposure of the dress will depend on its density, but whenever it is concluded it must not be forgotten that the rest of the picture has received practically no exposure at all. The mask has now, therefore, to be lifted right up out of the way of the negative, and the whole permitted to print, as before. Of course, the white dress will not only receive the extra exposure, but also be exposing while the rest of the negative is doing so. The result should be to show all the details of the dress without any sign of a join.

The above explanation has been given at some length because, as a matter of fact, the blemish of some too white spot in an otherwise properly exposed negative is of extremely frequent occurrence, owing to the very common error of under-exposure—nowadays almost all amateurs seem to be overwhelmingly desirous of giving the shortest possible exposure even to old houses that have not moved for a life-time, or to remains of by-gone humanity like Stonehenge, which have not shifted an inch for centuries! It is far better always to give a full exposure whenever this is at all possible, and there will not then be any occasion to mask any special portion of the negative. The mask (which has not been toned or fixed) will go the full depth of colour of the paper when exposed to daylight, and thus become perfectly opaque. It can remain attached to the back of the glass and ready for use whenever that negative is printed in future.

Now, on the other hand, if we have part of a negative which insists on giving a perfectly black print in the enlargement, when the rest is properly printed we can dodge this by holding it back. A print is to be made, as before, and the too dark portion cut carefully round. This is fixed in front of the too-light portion of the negative, and thus checks the exposure. The difficulty is that it cannot remain there during the whole of the exposure, or nothing at all would come out. The writer has his own special dodge for this—whether others manage it in the same way or not he does not know—it is to cut out a piece exactly the shape of the dark portion in some thin paper (P.O.P. is too thick) and wet it. By this means it will adhere temporarily to the glass side of the negative during exposure, but can be removed easily in the middle of the exposure without shifting the position of the negative, a knife edge being inserted underneath it. If skilfully done it can be made to give a quite satisfactory result, but it is certainly not so easy to remedy this fault as the one previously described. The expedient of the wet paper would scarcely be possible with an enlarging lantern.

There are certain other dodges sometimes used in development, but as a rule it is better to take whatever steps are necessary for its alteration before the enlargement is removed from the enlarging camera.



FARMHOUSE CARPENTRY.



REPAIRS TO FARM BUILDINGS.

WE will now deal with some of the more usual repairs which are inevitably required in connection with farm buildings, most of which may very well be carried out by the handy man, the tools required being of the commonest description, and the actual skill necessary being but little.

In many farm buildings the sides are formed of wood, as previously described, but in too many cases, instead of a brick foundation, as we have invariably recommended, the posts are fixed in the ground, and as these are liable to decay at the ground line, not one only, but the whole of the posts which support the building, it follows that the latter will soon show signs that something is wrong, while if this is not attended to at once, the whole structure will soon be on the point of collapsing.

It is probable that some of the posts will be decayed only partially, as A Fig. 1, and if the sound portion is of reasonable size, and seems solid and strong, the post may be saved for a time, by "spurring," as shown.

The spur B, should have a good solid bottom to enter the ground, and should also spread well out from the bottom of the original post. While in the case of a corner post, two spurs may be used, one on the front and one at the side. The upper part of the spurs should fit closely to the post, and be fixed to it, with wrought iron nails, or better still, with bolts. In the latter case, the nuts and projecting ends must be kept on the inside or under the boards, so that they will not injure cattle or horses in any way.

In Fig. 2, we show a post which is decayed quite through at the ground line, making any attempt to save it by spurring an act of folly, the only cure being to insert a new post. To do this it is necessary to prop up the building while the old post is removed, and the new one placed in position, which is best done by means of the arrangement shown in Fig. 3.

The prop C is placed under the portion of the building to be lifted, the bottom end resting on the plank D, which is supported at each end by the blocks E. The actual lifting is done by means of the lever F, working on the fulcrum G. As the lever raises the end of the plank D, small blocks are inserted on those shown at E, and by moving the lever alternately to either end of the plank, the building is raised to any extent, easily and without any danger.

The weight to be lifted is only regulated by the length of the lever. We have lifted as much as seven tons single-handed, but when it comes to heavy weights such as this, careful work is required. All blockings must be flat, and of

wood, on no account use round blocks of any kind, neither bricks, as these will crush with the weight.

Having lifted the building clear of the faulty post, prepare the new one, mortising and tenoning it as required, so as to be exactly as the old was originally, and in removing the bottom of the old post, make a long hole in the ground, as dotted lines in Fig. 2.

The problem now is how to lift the new post into the mortise in the plate. This is best done by lapping a chain or rope round it, just clear of the ground, and lifting it by means of a lever in this, blocking up under the bottom as the post is lifted. In doing this, the post should be made somewhat too high, as when the weight is put on, it will surely sink a little.

The post in position, gradually lower the building by means of the lever, taking out small blocks only, until the new post has the weight, when it may be rammed tightly, and made secure.

In cases where the post is braced to the plate, as H Fig. 2, the braces will drop, as dotted lines, on removing the old post, and they must be inserted in the mortises made to take them in the new post, as the latter is lifted in position; they cannot be got into their place after.

Fig. 4 illustrates the consequences of a building which was improperly tied in when built, or in which the tie has given way. The most simple remedy is to pass a chain round the plates as shown, and having fastened the ends as tightly as possible, twist it up as shown, thus shortening the chain and bringing the plate together.

Fig. 5 shows how to connect the chain by what is called "shooting a link." One link is passed through another and a pin passed through it, thus holding it effectually.

Having brought the building into its original position, we have to keep it there; this is best done by means of iron "dogs," screwed to the sides of the tie, and clipping the plates at each side, as in Fig. 6. These dogs are made from two-inch by half-inch iron, twisted at the end as shown, and fixed by a series of coach screws to plate and tie; they can be made locally by any blacksmith.

Buildings will sometimes reel sideways as in Fig. 7; this is caused through the posts decaying, or not being inserted far enough into the ground, or through being in an exposed situation, where the wind could affect it from one side only.

To remedy this fault, dig away the earth at the side of each post, as dotted lines in Fig. 7.

HOBBIES.

EXPLANATION OF DRAWINGS.

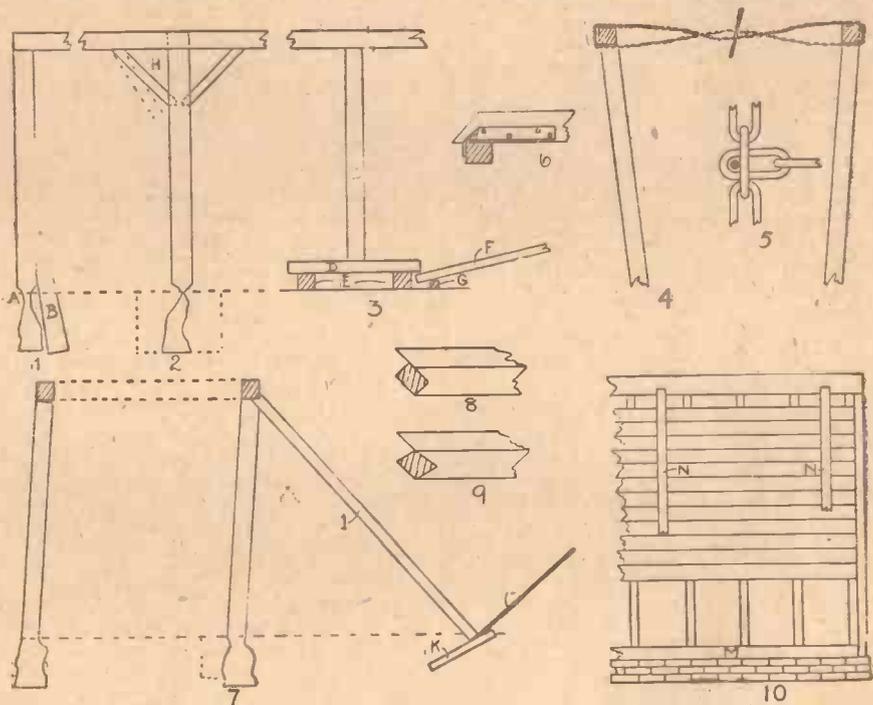
- Fig.
1. Post strengthened by "Spurring."
 2. Post to be replaced with new.
 3. Method of lifting building.
 4. Method of pulling in building.
 5. Chain fixed by "shooting a link."
 6. Iron dog in position.
 7. Building reeled to one side.
 8. Strut correctly notched.
 9. Strut incorrectly notched.
 10. Insertion of new sill.

and lever the building back into its position, by the means shown. The strut I is notched at the top end to fit on to the plate, and at the bottom end rests on the plank K, which is inserted in the ground at such an angle that as the strut is forced downwards by the lever L, it pushes the building over.

The notch in the end of the strut must be cut as in Fig. 8; if made as Fig. 9, it will split with the pressure. If the building is of any considerable length, it may need several of these struts to push it back, and they should be placed opposite the ties of the building, or they may spring the plate and do mischief that way. Do not push one strut only to extremes, but work all together gradually.

To prevent a recurrence of the trouble, insert spurs to each post, spreading well out, so as to

GERMAN papers report that a new anæsthetic juice has recently been discovered in Japan, the product of a plant growing in that Empire. This anæsthetic has been called scopolamine, and is said to be superior in its effects to all other articles of this kind. It is administered hyperdermically and produces a deep sleep lasting from eight to



DRAWINGS ILLUSTRATING REPAIRS TO BUILDINGS.

act as permanent struts against the pressure of the wind, or whatever the cause of the trouble may be. Sometimes in a building which rests on a foundation, the sills will go rotten, and require new. To insert these prop up the building with struts as I in Fig. 7, both inside and outside; remove the old sill, and if necessary cut off the struts, &c., till the sound wood is reached; in any case cut off all tenons, then push the new sill in position, and nail the studs, &c., to it from both sides. After the struts are removed, Fig. 10 shows the new sill inserted, the board at the bottom being removed to make room for this, and one board at the top, to make room for the struts. In this drawing, M is the new sill, and N the struts.

In the next article we will deal further with repairs

nine hours. If the assertions concerning scopolamine are confirmed, it will certainly be used in surgical operations, as it is claimed that it does not produce the slightest ill after-effects, which are always to be feared with the anæsthetics hitherto used.

THE islands in Chesapeake Bay frequented by fishermen and duck-hunters are so rapidly disappearing beneath the assault of the tides that in a few years there will be none left. A striking instance is Tangier Island, where the British fortifications of 1812 are under water.

It is curious to note that wood-tar is prepared just as it was in the fourth century B.C. A bank is chosen and a hole dug, into which the wood is placed, covered with turf. A fire is lighted underneath, and the tar slowly drips into the barrels placed to receive it.

HOBBIES FOR THE HOLIDAYS.

To Preserve Seaweeds.

Most people become imbued with the desire to preserve some of the beautiful seaweeds that are found on some of our British coasts. Some few require them for the purpose of study, others merely because they are things of beauty and they wish to keep them as souvenirs of a happy holiday. Others like to use them as ornamental borders for photographic views whether these are mounted in a book, or on a series of loose cards. On the whole, seaweeds are perhaps more satisfactory to preserve than are wild flowers and ferns, for, however carefully these are dried, they inevitably lose their colour at last and many of them have the bad habit of falling to pieces.

The seaweeds to be mounted should be laid in a shallow pan of cold water and lightly stirred about to free them from sand and any other matter that may not be wanted.

The paper, or card, upon which the plants are to be mounted should be gently slipped under the weed as it floats which must be encouraged to spread itself out in its natural position, if required for utility, or in a more studied fashion if it is to serve merely as an ornament. A camel's hair brush is invaluable for gently stroking out the fine filaments and some of these may be snipped off where they grow so thickly as to spoil the delicate appearance of the spray.

As soon as the seaweed is arranged in the position needed, the paper or card should be placed between sheets of botanical drying paper if possible. Failing this, blotting paper may be used, but it is considered too absorbent to be successful. Over the seaweed, to prevent it from coming into direct contact with the paper, should be laid a piece of soft muslin, or cambric. Even the most sticky of the specimens will not give trouble by adhering to this. The sheets should be placed under even but not too heavy pressure. At first the drying-papers will need to be changed at least twice a day, but as the moisture becomes gradually absorbed, once a day will be enough until the seaweeds are quite dry. The muslin or cambric may be left in its place till it is ready to be removed altogether. It should then be deftly peeled off, being taken from the stem end of the specimen upwards.

If the collector means serious business as regards seaweeds he may obtain them in one of three ways. The rocks may be carefully searched as the sea recedes and, quoting a well-known writer on the subject, "Every pool, creek, cave, and overhanging or perpendicular rock, should be carefully examined; all large, coarse weeds should be pushed aside, or removed, so as to reveal any of the smaller species that may be sheltered beneath them, or may grow parasitically on their roots, stems, and fronds."

Another plan is by picking up such as are cast on shore by the sea and the third is by dredging. The best season for starting a collection of seaweeds is from the beginning of May to the end of September, but there are certain species that are only found in perfection in the winter. The collector should be provided with some small tin boxes, water-tight if possible, a good strong walking-stick, a useful knife and a magnifying glass. Needless to say the costume must be weather-proof and coarse enough not to be torn by jagged rocks.

Painting on Stones- and Shells.

It may so happen that our summer-holiday takes us to a district abounding in large smooth stones, or in large flat, handsome shells. Both these are, in some places, to be had for the trouble of stooping to pick them up. The amateur artist turns her attention to most things, and amongst others to these stones and shells. One of the former can be sunk into a block of polished or stained wood, about half the stone being left above the level of the surface, and thus it becomes converted into a useful paper-weight. If the stone is very large it may be mounted in a similar fashion and made to do duty as a door-weight. In any case, the pebble selected should be as smooth as possible, and free from cracks or irregularities of surface. The shape also must be even and symmetrical.

The first thing to be done is to wash the stone well to remove every particle of sand or mud. If tiny cracks or chips are unavoidable upon the side that is to be painted they may be filled up with plaster of paris and glue. This cement, when dry, should be well rubbed down, so that the surface becomes perfectly smooth.

The style of ornament upon the face of a pebble of this sort generally takes the form of an oval panel which should be coated with Chinese white, and any good medium, such as Miss Turck's Mirrorine or Florentine, according to whether water colours, or oil-paints, are to be used. The painting must be as fine and delicate as the artist can manage to make it, and care must be taken to let one wash of colour dry before the next is applied.

When the painting is finished, and quite set, a coat of copal varnish should be applied, and when this, in its turn, is hard the stone is ready for mounting.

Large flat shells need very little preparation inside to make them agreeable for painting upon, for they are generally smooth enough, and have a beautiful pearl-like appearance that needs no added background.

The outside requires to be thoroughly cleaned by rubbing with hydrochloric acid (to be used

HOBBIES.

with care) and then polishing with Tripoli powder, and finally with olive oil. Sometimes, the appearance may be improved by a coat or two of varnish, but if the shell is to be sunk into a hollow piece of wood, as described for a stone, the outside will be scarcely visible and need not be so elaborately treated.

The painting may be executed with oil or water-colours as preferred, the medium being chosen accordingly.

These shells can be mounted on plush mounts for pin-trays very successfully, and one set in the centre of an ordinary toilet pincushion makes an excellent receptacle for small trinkets, such as rings and lace-pins.

New Uses for Seaweed.

It is quite a new notion to combine seaweed with embroidery, but it has been done lately with considerable success. Needless to say the articles so ornamented are not such as require washing or cleaning, but for handkerchief sachets, the flat mounts of photograph frames, and other things that do not need much handling, the general effect is excellent and uncommon.

The seaweed employed may be the fine and medium fine kinds, or with less trouble, the coralline that is washed up in great abundance on some shores after a storm. The basket is intended to be embroidered and there is no trouble in procuring one of Messrs. Briggs' transfers that will supply a good pattern. It may be carried out with gold thread, or with coarse gold-coloured thread and chenille, if liked.

The red seaweed can best be applied to the material after the embroidery has been done. It will not stick with its natural mucus upon linen, so it will be necessary to paint it over with seccotine mixed with water and then to carefully stroke out the tiny fronds and press them down with the blade of a blunt knife, or with any tool to which they will not adhere. If coralline is employed it will not have to be secured with seccotine, but may be fastened with a fine thread taken over the main stem here and there and tied on the wrong side. It must be cleansed and freed from sand before being used. Some people like to dye it and this is easily done by dipping the branches into a mixture of paint and gum and shaking them about till they are dry. If the branches are already clean and fresh-looking they need not be dyed but may merely be dipped in gum and water to stiffen them slightly.

In the sketch it will be noticed that there is a diminutive bow which ornaments the handle of the basket. It may be made, if liked, of narrow fronds of a certain kind of red seaweed that is not uncommon, or of a thin, green one that can be cut into strips as required. The mauve seaweeds found in rock-pools can also be cut and shaped to anything and they are easily made into bows and either gummed or sewn into place.

If preferred, it is easy enough to embroider the bow closely with little stitches of silk, shading it here and there to make it look as much as possible like ribbon. Another plan is to take some China ribbon and to tack this down with invisible stitches upon the background. Or, the stitches may be so worked that they are ornamental and form an extra decoration for the design. They can take the shape of little crosses, arrowheads, or swallow-tails, or they may be tiny French knots if preferred. Green, or blue, can be more effectively used for the bow than any other colour. Narrow velvet is also pretty in its results upon some backgrounds.

Souvenir Wooden Spades.

AFTER the holidays are over, the little wooden spades, if they are still in good order, may be converted into trifling knick-knacks that will serve as souvenirs of happy days spent by the sea. The wood lends itself very well to painting upon, provided that the usual rubbing down is thoroughly done.

Then comes the question of what may be made of the spade. It makes an excellent key-rack. The wood must be prettily stained, or enamelled, and otherwise decorated in any way the worker pleases. All that is then necessary is to screw in a series of small brass hooks to hold the keys, scissors, china cups, or any other treasures that it may be destined to take charge of.

Another use for a spade is as a pincushion, which might be formed of the always convenient mattress shape and then be glued firmly into the blade. If a clean, well-polished cockle, or pecten shell is available, this might be filled in with a plump pincushion covered with satin and then glued to the spade. The shell may be fixed all the more securely if holes are bored in it, a wire passed

through these and through corresponding holes in the blade. A wire will serve admirably to secure the shell and it can be hidden beneath a bow or rosette of ribbon.

Some people like to use the spade merely as an ornament and content themselves with pasting on it a photograph of the place at which it was used and surrounding it with a row of tiny shells, or with a little wreath of seaweed. Ribbons of two colours should be twisted round the handle and tied in a knot and loose streamers at the top.

A little spade to which happy memories are attached is sometimes merely stained and painted with the name of the place at which it was used across the blade in the post of honour. Then, as other places are visited, their names and the date are painted on streamers on satin ribbon which is knotted into the loop and the end of the handle. This method of treating a wooden spade is an American idea, but instead of a spade, our cousins often use nothing more nor less than an ordinary bone ring, or sometimes a toy ladder, anything, in fact, into which it is possible to knot the ribbons.



EMBROIDERED BASKET AND SEA-WEED.

Ladies' Work.

FRUIT BASKETS AND HOW TO USE THEM.

DURING the summer months many families who are dependent upon the local greengrocer for their supply of fruit get a collection of flat, round baskets which it seems a pity to throw away. When they are

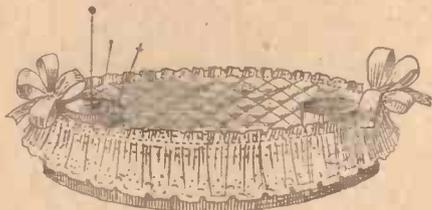


FIG. 1.—TRAY FOR TOILET TABLE.

fresh and clean they may be made up into handy little egg baskets, or they may be employed for carrying small parcels or purchases. It is as well to disguise them a little. This is easily done

by painting or enamelling them some pretty colour both inside and out, or by staining them with wood-stains. Yet another plan is that of ornamenting them with small devices done in pokework which, by the time the details have been filled in with colour, will give the baskets an extremely dainty, foreign appearance.



FIG. 2.—WORK BAG.

If the baskets are in the least degree stained with fruit there is nothing for it but to cover them entirely. When this has to be done they may be made very ornamental in appearance by using for the purpose some pretty printed sateen, or printed cretonne. Even art muslin can be employed provided that it is made up over a calico or sateen lining to give it a certain degree of substance. In Fig.

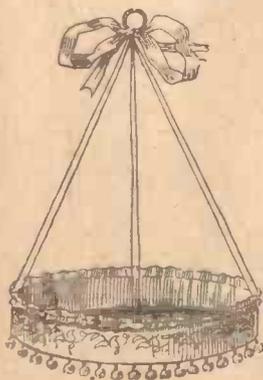


FIG. 3.—TRAY FOR TRINKETS.

I we are showing a basket of this kind covered inside and out and so arranged as to make a useful tray for standing

on a toilet-table to hold trinkets, lace, brooches and other odds and ends.

The basket should be lined with quilted sateen which may be laid smoothly over the inside. The outside should be covered with the same material, but over this should come a flounce of some pretty, plain coloured fabric such as silk, or satin, or sateen, if liked, with a frill of lace laid over it. For the inside of the basket should be fixed a couple of round trays made of cardboard or perhaps of cardboard boxes of suitable size covered with sateen to match the rest. One of these should be stuffed to serve as a pincushion and the other either left open as a tray, or filled in to hold hairpins, or hat-pins.

In Fig. 2 we have a similar tray covered inside in the same way as is the one that we last described.

Yet another make of useful "catch-all" for odds and ends is shown in Fig. 3. Here the basket itself is first to be covered inside and out much as in making the tray in Fig. 1. It requires, however, to be trimmed more elaborately.

Shell Applique.

(Continued from last week.)

THE stems are most satisfactory when they consist of a line of fine wire laid on a streak of the cement over the design and afterwards painted. Leaves always offer a difficulty to an amateur worker, but it is not often possible to do without them. It is a good plan to use well-made artificial leaves, laying them on a thin film of the cement and afterwards touching them up and improving them with a few additions of paint. They should be wired at the back so that they can be curved up instead of being laid flat on the wood. They will then look far more artistic and will give a far better look to the whole thing than might have been expected.

There is yet another way in which flowers may be made of small shells and attached to a long stem so that they may be mounted as sprays and laid

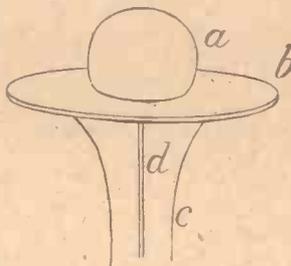


FIG. 3.—DESIGN SHOWING MOUNTING OF FLOWER.

across the corner of a box, photograph frame or easel. For each flower a wire stem is required twisted round which is green paper or silk. A ball of cement must be prepared just as is described for the flatter work and the stem is pushed into it as far as it will go without coming through at the top. It has next to be passed through the centre of a piece of stout card, and then into a vase. The cardboard will rest on the top of the vase which will support it conveniently while the shells are pushed into their required places.

In Fig. 3 is a diagram that shows exactly how this is managed. At a we have the cement foundation, at b a circle of card resting on a vase c, the stem d being seen inside the vase. Any shape of flower may be built up in this way.

A Chapter on Photographic Chemistry.

NEW amateur photographers realise, as they carry out the various everyday operations, the wonderful chemical changes and actions which are taking place. From beginning to end photography is a most interesting chemical study, and it is, indeed, only rendered possible by the extraordinary power of light to cause chemical change.

If you dissolve a few grains of silver nitrate in a little distilled water, and in another vessel dissolve a little salt in water, and then pour one solution into the other, you will get a white precipitate, which will quickly sink to the bottom; if now you pour off the clear liquid, and spread this white substance on a piece of paper and leave it in the light, you will find it quickly discolour, and become a deep violet colour.

This changing of colour of the white substance (which is silver chloride), is made use of in P.O.P., which is simply a gelatinous emulsion of this sensitive silver compound, containing also an excess of the nitrate of silver, spread upon paper.

What, then, is a dry plate composed of?—In this case we have a piece of glass coated with a cream-coloured film. If you examine a plate in the light, you will find this to be the case. The film consists of gelatine, with which is mixed the pale yellow substance, bromide of silver, which is the most sensitive compound yet discovered. An exposure to sunlight of a hundred-thousandth part of a second is sufficient to make a change in the sensitive film. But no change is visible this time, as in the case of silver chloride, and P.O.P. Yet the change is effected by the light; for if we now place the exposed plate in a developer, it will gradually turn black, whilst a developer will not blacken an *unexposed* plate.

So, during the exposure given to the plate in the camera, a definite chemical change takes place in the film, and this change is made visible by the wonderful process of development.

Let us leave photography just for a moment, and take the case of iron ores as they are dug out from the earth or rock; pyrites is a common iron ore, and consists of a chemical combination of iron with sulphur. The metallic iron is got by roasting the ore, when the sulphur is driven off, and the iron itself left behind. This process is known as *reduction*.

Now the development of a plate is nothing else than reduction, but a point to remember is that only *exposed* silver bromide can be reduced by a developer; hence the unexposed parts of the film remain unaltered. The developer gradually "splits off" the bromide from the silver bromide, and we are eventually left with an image of pure silver, or a black form.

If you were to look at a developed plate, before it is fixed, you would see that the black image lies imbedded in the original cream coloured film. The unreduced silver bromide is of course still sensitive to light, and must therefore be dissolved out of the film. This process is called fixing, and the fixing bath is therefore a chemical solution which will dissolve silver bromide.

A simple experiment will show this quite clearly. Make up a solution of potassium bromide in water, and another of silver nitrate in distilled water. Mix the two, and you will get a precipitate of creamy-yellow silver bromide.

Allow this to settle, and then pour off the clear liquid. Next pour some strong hypo solution on the silver bromide, and shake it up well. It will readily dissolve, giving you once again a clear solution, of *silver bromide dissolved in hypo*.

We know that after fixing the negative, it requires to be well washed. This washing is necessary in order to remove the hypo which is left in the film, because it would eventually cause fading away of the image by decomposing the gelatine and acting on the silver.

If you take some water containing the tiniest trace of hypo, and add to it a little hydrochloric acid and put a few pieces of granulated zinc in also, the unpleasant smelling gas, sulphuretted hydrogen, will be formed, and you can trace this by moistening a piece of blotting, or filter, paper with lead acetate solution, and laying this over the top of the vessel which contains the weak hypo, &c. This paper will turn quite brown after a time, owing to the formation of lead sulphide. This test is sometimes applied to last washing waters of a negative or print, to see if any traces of hypo are still left.

Let us leave the subject of negatives now, and see on what chemical basis the making of a print lies. We will take the case of the P.O.P. print. Here we start with a piece of paper coated with a perfectly white film of gelatine and silver chloride, together with the nitrate of silver and citric acid, which latter substance is used as a preservative in the manufacture of P.O.P. The paper is put under a negative in the printing-frame, and exposed to daylight. The exposed parts quickly change colour, and we get a purple or reddish chocolate coloured image—a "negative" of the negative, therefore a *positive* of the original subject.

When sufficiently deeply printed, we take out the picture from the frame, and in order to prevent the light from acting any further on it, it has to be fixed. But if you fix a print in plain hypo, it turns to a very obnoxious orange or yellow colour, and such a print would soon fade, owing to the reddiness with which the sulphurous gases in the air react with silver. The print has therefore to be toned, and in the operation of toning we once more have a beautiful illustration of *chemical reduction*.

If you make up a solution of ten grains of silver nitrate in an ounce of distilled water, and drop into it a spiral of fine copper wire, and leave it overnight, you will find the next morning the copper covered with a fine deposit of bright metallic silver; rather more than six grains of silver metal could be reduced by this means from the ten of nitrate. Now, just as copper will cause silver to deposit from a solution of silver nitrate, so the P.O.P. image will cause gold to deposit from a solution of gold chloride. Whilst, therefore the print is in the toning bath, exceedingly fine particles of actual metallic gold deposit themselves on the image.

If you looked through a very thin film of gold, you will find it appeared of a greenish, purple colour, and it is this property which imparts the *tone* to the print. Short toning means that insufficient gold is deposited to nicely colour the print—hence it becomes brown merely; we know, on the other hand, that long toning gives quite a bluish-purple picture.

The fixing of the print is like that of the dry plate; the hypo again dissolved out of the film all the non-discoloured silver chloride, and we are left with a gold-plate silver image.



THE FAST BOWLER.

BY ALBERT TROTT.

THE fast bowler is a necessity, and during my twelve years in England I have naturally come across a good many.

To-day, Neville A. Knox, who has only been known to the public for three seasons, is the fastest bowler in England. He is a left-handed bat and right-handed bowler. Dulwich College is where he learned his cricket. If you had watched him in July against the South Africans, and had seen his tremendous pace, you would have noticed that he has an undeniable off-break, and the only fear one has is that, as he finds it necessary to take such a long run, he may not long be able to stand the strain of modern cricket. This season wickets have been all against him, but there should be no limit to his success if he can only manage to keep sound. Loose-limbed and standing well over six feet, he has every physical advantage. Notice his chief peculiarity, a long and strange run which starts close by mid-off and makes his bowling difficult in its flight.

If you ask me who are our leading fast bowlers, I should reply that among them are W. Brearley, G. H. Hirst, A. Cotter, J. J. Kotze, Tom Wass, A. Fielder, J. H. Hunt, A. Kermode, A. R. Warren, W. Bestwick, G. J. Thompson, and W. Lees. It will be noticed that Sussex, Hants, Worcestershire, Warwickshire have all openings for fast bowlers.

Now Mr. A. G. Steel, K.C., says of bowling: "The skill, science and practice which are necessary before a man can throw a good salmon fly, or before he can reckon to bring down pheasants are equally necessary for one who wishes to become an adept at bowling." The object of the bowler is to out-manoeuvre the batsman; he has either to hit the stumps or draw him into some incautiousness or hesitation of play, which will result in the ball being caught from the bat, or in the batsman being stumped out by the wicket-keeper. The bowler must think, before he delivers each ball for none should be delivered without a particular object. The object of every bowler is always to bowl a good length; that is to pitch the ball so close to the batsman that he cannot play it on the bounce, and yet so far from him that he cannot play it just as it touches the ground or immediately on the rise. There can be no exact spot given you because the good length ball will vary in its pitch according to the state of the ground, the pace of the bowler, and the height and style of the batsman. When the ground is as it has so often been this season, "slow," after rain, the good length ball will have to be pitched considerably farther than when it is "hard" and "fast" as the ball will come faster off the ground when it is "sticky" than when

in the former state. The reason why the delivery of this particular ball is always the object of every bowler is because it compels the batsman to meet the ball with the bat by forward play, and because in so doing he often loses sight of the ball from the moment it touches the ground till it strikes the bat.

Now while fast bowling seems to be most affective in very dry seasons, when the ground is difficult to get smooth, and has plenty of fire in it, yet Tom Wass and Fielder have done much to upset the theory. But a fast bowler must be very careful not to bowl beyond his strength. Here is the great danger: by bowling beyond your strength you cannot increase your pace, and are sure to become slow and stale.

A golden rule for fast bowlers is:—Keep your delivery well within your strength.

Speed is, I know, the chief aim, but it must be reasonable. The object of fast bowling is to beat the batsman by the flight of the ball. Yet one feels C. J. Kortright, Tom Richardson, S. M. J. Woods, and Arthur Mold all retired years before their time. I fear N. A. Knox will go the same way. One who, like Brearley, can keep on all day is valuable. But very few are like him. He is just 31, and is a powerful and accurate right-hand bowler. He is well worth watching, and Mr. G. W. Beldam, who has made a life-long study of bowlers, says "that his pace comes partly from a free natural swing, but chiefly from sheer strength, for his swing is not elastic enough to produce quite unlabourious speed." That being so, his main characteristic, namely, a quite remarkable stamina, is worthy of note. He is not one of those bowlers whose bolt is shot in a dozen overs; with occasional rests, he can maintain his speed all day. He takes a deliberate striding run of moderate length, beginning with a curious sideway step to the left. Both his run and delivery remind one of Arthur Mold, except that he keeps his arm straight throughout his action. In a technical sense his bowling is plain, that is to say, it has no artificial or inherent peculiarity of flight, such as distinguished Lockwood's bowling, and no abrupt action flight from the pitch, such as made Tom Richardson's difficult. But this plainness does not mean that he is easy to play, for his bowling is fast enough in the air, and fast enough off the pitch to be troublesome to the best batsman. This speed-strength, combined with accuracy, makes him a first-rate fast bowler. He uses a clever variation of direction. His best ball is delivered from the outside corner of the bowling crease, so that a ball pitching just outside the off stump, even if it has no action-break at all on it, swings in a little toward the wicket. With exactly the same

action he delivers a ball from quite close to the wicket, which if it pitches on the off stump, swings away somewhat outside the off stump; the difference between this ball and the other produces catches at the wicket and in the slips. Unlike most fast bowlers, he can bowl very well on a slow wicket, provided the ground gives him a fair foothold. His action is high and his length very good indeed.

The other fast bowlers are G. H. Hirst, A. Cotter, J. J. Kotze, A. R. Warren, of Derbyshire, Walter Lees, of Surrey, A. Fielder, of Kent, W. Bestwick, of Derbyshire, G. J. Thompson, of Northampton. Any of these are well worth watching, and Hirst cannot be copied. His swerve is got by a new ball and a slight wind blowing from the direction of third man, and Hirst can bowl a ball which during the first half of its flight is travelling so that if it keeps straight on in the air it would pass a foot outside the off stump, but which in the last half of its flight swings in enough to pitch on the middle stump, and pass outside the legs of a right-hand batsman.

In Brearley and Knox you have good length bowlers. There is no doubt that the long run keeps the batsman in an uncertain state of mind. Some fast bowlers send down a slow ball about once an over. In his great seasons, when he did such deadly work for the Amateurs, S. M. J. Woods used to get batsmen out in this way. He could disguise his change of action as few men can.

Now always bowl a few balls before a match and two or three before going on. It helps you to get your arm in order, and just to gauge the pitch. A great many left-hand fast bowlers have a ball that goes with the arm. If you have two fast bowlers on your side, one right and the other left-hand, do not have both on at once. Let a medium slow bowler keep on the other end. Straight first, pitch and length next, pace last. As a coach it often falls to my lot to meet youths who bowl fast. One never hears more of them, because they have never had a regular run. Erratic men may do well now and again, but few last. A simple straight fast bowler will often get wickets, while if he can send down a "Yorker" as a surprise he is sure to do good work.

Learn how to place your field for a good fast dry wicket, for a fiery wicket and also for a slow easy wicket. It is difficult to explain! If you are in London go to the Oval when Knox is bowling; if in Kent to Maidstone when Fielder performs; and if in Yorkshire go and see George Hirst, and if you reside in the Midlands—watch Tom Wass. As I write this, 1,200 runs have been made at Lords in two days and the heat is tropical. If it remains so, we shall have a great harvest of wickets for fast bowlers, and 1907 will redeem its character of being the worst season since 1879, so Attewell, the famous umpire, tells me.

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Correspondence.

DRAUGHTS.

Our next Solving Tourney will commence the first week in September, and run for three months.
R. WATKIN (Pulford).—Your solutions Nos. 927-8 are correct; also the win in No. 921, already pointed out. Problems in competition for the monthly prizes received from J. H. Jones (Capel) and J. Milner (Middlesbrough).

VIOLINS.

C. EVANS (Dresden, Staffs.).—The label on your violin is an imitation of those in the instruments made by the celebrated Antonius Stradivarius, who flourished at Cremona, Italy, between the years 1644 and 1757. A genuine Stradivarius violin is worth from £500 to £1,000, or even more for an exceptionally good one. We fear, however, that there is no reason at all to suppose that yours is one of these. It is practically impossible that one could still be in private hands after the assiduous search that there has been for them. Forged violin labels are also, as we have pointed out to previous correspondents, about as common as Stradivarius instruments are rare. Genuine labels of this famous maker always have a monogram composed of a double circle enclosing the letters A.S. and a cross. Of course your violin may be a good and valuable one, but we cannot say without seeing it.

MISCELLANEOUS.

A. W. HEATH (Banbury).—The best way to make wine glasses sound is to dissolve a little gum in the water with which the performer's finger is moistened.
A. L. (Bakewell).—Thanks. We hope to publish a short article on this subject later.
BRIGHTON.—We can supply you with "Practical Boat Building," price 2s. 8d. post free.
E. H. (Rochdale).—We think you will have no difficulty in finding the solution. We are unable to print it now.

Items of Interest.

It takes from six to eight years for the antlers of a stag to attain their full size.

A HEALTHY baby increases to treble its weight at birth in the course of its first three months.

GOLDFISH are of Chinese origin. They were originally found in a large lake near Mount Tsientsing, and were brought to Europe in the seventeenth century.

OF the thirty-eight Sultans who have ruled the Ottoman Empire since the conquest of Constantinople by the Turks, thirty-four have died violent deaths.

IF a pair of herrings could be left to breed and multiply undisturbed for a period of twenty years, they would yield an amount of fish equal in bulk to the globe on which we live.

A FAVOURITE mode of suicide among the African tribes who dwell near Lake Nyassa is for a native to wade into the lake and calmly wait for a crocodile to open its mouth and swallow him.

OF the newspapers published in the United States, 19,582 are in the English language, with 741 German, 65 Swedish, 56 Spanish, 51 French, 35 Bohemian, 33 Polish, 25 Italian, 18 Dutch, and 18 Hebrew.

NEARLY everybody smokes in Manila. It is a common sight, after sundown, to see a father out for a stroll with his wife and children, and every one of them over the age of five years smoking a cigarette.

POPULAR MECHANICS.



SYMPATHETIC INKS.

SYMPATHETIC ink is a fluid with which writing may be executed on ordinary paper, which writing, when dry, shall be invisible to the observer, unless the paper be subjected to some after treatment, such as warming before the fire, immersion in some fluid, exposure to certain vapours or even to certain kinds of light. But sympathetic inks also admit of other applications, as there are some which show distinct and beautiful colours either on the application of heat or by treatment with certain solutions, so that it is possible to draw a landscape which appears with all the dreariness of winter when in its ordinary condition and which, on being warmed before the fire, shall acquire the verdure of the present month of August, and the blue skies which indicate the presence of the genial summer season. We give here a few recipes for the preparation or the use of these inks, pointing out that in all cases the operator must use a *clean* pen for every fresh writing or drawing; and that the pen employed should preferably be an old-fashioned quill cut to a good hard nib. One of the simplest, and, at the same time, very satisfactory sympathetic ink, is the juice of the common *onion*. The best way to use this is to cut a large juicy onion in half, and to plunge the nib of the pen into the centre of the cut surface so as to cause it to take up a sufficiency of the transparent juice wherewith to write. As the writing will be absolutely illegible when the fluid dries, the writer must complete his task as quickly as possible; otherwise, he may run the risk of missing spaces or writing over what he has already written. When it is desired to render this invisible writing legible, all that is necessary is to hold the inscribed paper before a rather warm fire, "a toasting fire," when the writing will appear of a brown colour on a white ground. Ordinary milk may be used with a quill pen to effect the same purpose; when the writing will be nearly as distinct as in the case of onion juice, but not quite so deep in colour. Two other simple inks may be made by dissolving 1 drachm of blue copperas, or 1 drachm of green copperas in $\frac{1}{2}$ ounce of water. Writing executed with either of these inks and allowed to dry may be rendered instantly visible by floating the sheet in a solution of prussiate of potash in cold water, of the strength of 1 drachm of the prussiate to 1 ounce of water. The colour assumed by the writing will be a ruddy brown in the first instance, and a beautiful blue in the second. Or the experiment may be varied by using a decoction of gall nuts wherewith to "bring out" the writing in the second case;

if this be used, ordinary ink is produced and the writing appears in the usual violaceous black due to that menstruum.

A very favourite sympathetic ink is that consisting of a solution of cobalt chloride in water, strength about 1 drachm to the half-ounce. If the cobalt chloride be pure and free from nickel not only will the resulting writing be invisible when dry, but it will also acquire a very beautiful rosy-violaceous tint when dried before the fire, which tint, however, will again disappear if the paper be allowed to cool, more especially if it be breathed upon or otherwise re-absorb moisture. So sensitive is this ink to drought and moisture that a "chemical barometer" may be prepared by painting a strip across a sheet of white paper and noticing the colour that the painted strip shows with each change in the weather. It will be found that, when the weather is very moist, little or nothing will be seen, but when the atmosphere is very dry, the strip will acquire a more or less pronounced bluish tint, varying from pale sky blue to the intense blue shown by the summer sky. The salts of nickel, such as the nitrate, or the chloride, dissolved in water in the same proportion as directed for cobalt, also furnish favourite sympathetic inks; but the colours resulting from the chloride or the nitrate of nickel, partake of decided green tints when heated or dried. For this reason, they are largely employed by the artistically inclined, in the production of the "changing landscapes" to which we have adverted in the preceding paragraphs; all that is necessary being to paint in the foreground, trunks of the trees, and all these portions which are common both to winter and to summer, with brown or black tints, and to fill in those portions which have to acquire verdure or the blue tint due to running water, to the sky, or the dissolution of white patches of snow, with artistically and suitably selected details, with solutions of the chlorides of cobalt or of nickel, according to whether these portions are to appear blue or green. These pictures, when finished, may be mounted as transparencies on a frame or screen; and it will be found that, when the weather is dry and genial, the pictures will acquire the colours which we usually connect with the genial season; whereas, if the weather is dull, damp, and lowering, the colours will disappear and the landscape will acquire a wintry appearance.

There are some bodies which possess the peculiar property of "fluorescing," that is to say, of becoming visible when exposed to certain rays of light. Of these, we may mention an extract made from the horse chestnut; for instance, if

HOBBIES:

We take a few fresh horse chestnuts (known to us when children as "conkers,") and, having removed the beautiful brown skin, infuse a few of these in half a tea cupful of warm water, we shall get a solution of what chemists call "aescualine," and this if used as a sympathetic ink, will be absolutely invisible until the writing be subjected to the rays of the electric light, when it will be found to glow with a rather brilliant blue colour, becoming again invisible if the nature of the light be changed. That common medicine, "sulphate of quinine," is also gifted with the same properties. To make use of this sulphate of quinine for this purpose, the operator should squeeze about two tea-spoonfuls of lemon juice into an egg cup in which he will stir up about six grains of ordinary sulphate of quinine. This latter will dissolve freely in the lemon juice, but will not do so in plain water. If, with the solution thus prepared, writing be executed on white paper, with a clean quill pen, the said writing will be absolutely invisible when dry but will be distinctly visible with a bright blue colour if the inscribed paper be held in the proximity of a small vacuum tube actuated by an induction coil. The subject is most interesting, and some of the results are very astounding; for instance, if a piece of stout mill-board, say $\frac{1}{2}$ in. thick, which is totally impervious to ordinary light, be coated on one side with a little thin gum water, and be then dusted over on the same side with crystallised calcium tungstate, it will be found to be absolutely opaque; but, if, behind the mill board, there shall be placed an X-ray tube in action, the X-rays will be found to have the power of penetrating right through the mill board and of causing the calcium tungstate to glow with a very beautiful violaceous light, which, however, can neither pass through metals, nor bones, so that calcium tungstate can be used as a screen for the detection and location of bullets, etc., in places where they should not exist.

Camera Notes.

MOUNTING TROUBLES.

It is by no means an easy thing to mount a photograph, but as slip-in mounts are decidedly slipshod in appearance, practically all amateurs prefer to battle with paste and the ordinary "paste-down" mounts. Prints, to be mounted, may be roughly divided into two classes—those which are on ordinary glossy or matt paper, and those which have been specially glazed on glass, or ferrotype plates. We will deal with the ordinary kind of print first. The primary object to keep in view is that the surface, or film of the print must not be scratched or made dirty; clean hands and fingers are always to be desired. The next important thing is to have a really good mountant, and it may be said without hesitation that dextrin is a long way better than anything else. Flour paste and starch paste can neither be recommended, as both are apt to turn sour, and it is not always easy to prepare either without small lumps. Gum and glues, such as fish-glue, should not be used, as these are acid and will stain or fade the prints sooner or later.

Some photographers find it most convenient to mount their prints whilst still wet, i.e., directly after washing. This is quite a good method, and we will briefly describe it accordingly. A clean

sheet of glass, or failing this, a sheet of clean paper, is placed on the table, and a wet print laid face down upon it, and the moisture removed from the back by means of a sponge or the flat of the hand. The mountant is then applied to the back of the print, which is, of course, uppermost, by means of a good stiff flat brush, which should be one and a half or two inches in width. Too much mountant must not be used, otherwise the print will be liable to fade.

Do not at once place the pasted print on the mount, as most amateurs do, but let it remain for a few moments, so that it may actually begin to dry. In this way the paste becomes much more adhesive, and when the print is laid on the mount and rolled firmly down by means of a squeegee, it will stick perfectly. The face of the print is then gently wiped with a sponge to remove any dirt or fluff, &c., and the mounted photograph is then allowed to dry.

When dry prints are to be mounted it will be found best to damp the backs with a wet sponge, and to then apply the mountant in the ordinary way. As before, a moment or two should be allowed before the pasted print is placed on the mount, and when mounted a squeegee should be used to press it firmly down upon the card. A final sponging of the print concludes the operation.

There are two ways of mounting a highly-glazed print without causing it to lose its gloss. The first is to only apply the mountant to the edges of the print, and in this case a very strong medium such as fish-glue may be used. The other method is to squeeze a *backing paper* to the back of the print immediately the latter has been squeegeed to the glass, or ferrotype plate. When dry, the print and backing paper are, of course, like one thick print and peel off together. The print may be mounted with fish-glue or strong dextrin paste, and the entire gloss will be retained.

BACKING PAPER FOR P.O.P.

Cut to the size desired some good unglazed printer's paper or note paper, and brush it over with the following solution whilst warm:—

Water (boiling)	10 ozs.
Nelson's No. 1 gelatine	$\frac{1}{2}$ oz.

Stir this until the gelatine is dissolved; then strain through two thicknesses of muslin.

When each piece of paper is coated, pin it up by one corner to dry. Large sheets may, of course, be made if desired, and cut up to small sizes afterwards.

Photography.

SUBJECT FOR AUGUST:— Photographs taken during the Holidays.

PRIZES: First, £1 ls.; Second, 10s. 6d.; Third, 5s. 0d. In addition to these prizes, Hobbies Certificates of Merit of the First and Second Grade may be awarded, according to the standard of excellence.

Past Prize Winners and Holders of HOBBIES First Grade Certificates are not eligible.

Three Prints are to be sent in. These *must be mounted on card mounts*, and the title of the photograph and name and address of sender must be legibly written on the back. Photographs cannot be returned, and the Editor reserves the right to reproduce any of those received in HOBBIES.

Photographs must be received not later than August 31st, addressed:—Photographic Competition; Editor HOBBIES, 12, Paternoster Square, London, E.C.



SEASONABLE HINTS FOR THE WEEK.

THIS is a suitable time for sowing many Annuals, &c., for next year's display. A few of the chief things to be sown now are Clarkias, Convolvulus, Elichrysums, Eschsholtzias, Larkspurs, Godetias, Poppies, Lupines, Wallflowers and Violas. Sow the seed thinly and see that the plants do not suffer from drought or any other cause. It is a good plan to cover the beds with mats until the seeds germinate, but they must be removed as soon as germination takes place.

Unightly tree stumps may be covered effectively with Rambling Roses, if the grower cares to take the trouble to make up good soil for them. Ramblers always like fairly rich soil, as they have so much growth-to support.

Azaleas are very subject to thrip at this season, and unless thoroughly syringed every day, it soon gets a hold on them and does irreparable damage. If both sides of the foliage are thoroughly wetted once a week with a solution of soft soap and water, no insect pest will care to live on it, a soft brush or piece of flannel may be used for this purpose.

Many herbaceous plants that flower late in the autumn have a difficulty in many gardens in obtaining sufficient nourishment to build up good plants. This is especially the case with Asters or Michaelmas Daisies. To get the very best results from these, the roots must be liberally supplied with water, and if the soil is poor, liquid manure should be given.

The Michaelmas Daisy or Starwort, as it is called by many people, is a plant that plainly shows its appreciation of generous treatment, as when well cared for the blooms are always finer and brighter in colour than when allowed to look entirely after themselves.

Those who have a piece of rough grass at the side of the lawn should utilise it for growing that splendid single Rose "Una." The effect of this Rose, when rambling on the ground, is very striking.

For covering the dead branches of Trees, such as the lower branches of Conifers, Polygonum baldschuanicum is one of the most effective plants known. The effect produced cannot be well described, as it covers itself entirely for many weeks with such a mass of pinkish white flowers, as to remind one of a mist or cloud hanging over the branches. The plant is quite hardy.

Never rely on storm water for watering hard-wooded greenhouse plants that are standing outside to ripen their wood. It takes a tremendous amount of rain to thoroughly soak a pot full of roots, especially when the foliage of

the plant acts as a watershed and carries most of the water beyond the rim of the pot.

Bulbs that have been forced on and have been turned out from the flower beds should be thoroughly ripened off by now and in good condition for planting in the grass. If planted under these conditions and the ground is soaked every spring with liquid manure, they will increase rapidly, and will give a much more pleasing effect than when grown in lines.

Those three handsome plants, *Centauria gymnocarpa*, *C. ragusina*, and *C. maritima*, are best raised from seed sown now in boxes and wintered on a greenhouse shelf. They make excellent plants for sub-tropical bedding.

Most people grow Asters, Michaelmas Daisies and similar plants in the flower border. They always make a good display there, but they do not harmonise so well with their surroundings as when grown in rough grass or in the shrubbery border.

The Delphinium.

DELPHINIUMS are this year doing exceptionally well, owing to the excessive rainfall which we have experienced during June. Some of the plants have spikes of blooms from ten to twelve feet in height. To obtain large spikes the soil should be very rich, and the fact of the plants making such fine growths in a wet season points out that they should be given plenty of water. In three or four years a small plant of Delphinium will, if looked after, develop into a huge clump. To enrich the soil plenty of well decayed manure should be placed on the land before the Delphiniums are planted. It is well to fork over and loosen the soil every spring, and thoroughly mulch it with good stable dung. When the plants are just throwing up spikes it will greatly improve the size and colour of the blooms if the plants are watered with liquid manure. It is advisable to give this plant a corner of the garden to itself, as very soon it gets too large for the flower border. This plant is perfectly hardy, but it has one enemy, and that is the slug. This can easily be kept at bay with soot, and is not much trouble except during the early spring. The best time to plant Delphiniums is the end of October.

Successes.

At the National Rose Show, held at the Royal Botanic Gardens recently, Hobbies Ltd., staged a group representing all classes of Roses in open

competition with all the Rose growers of Great Britain, and were successful in obtaining the premier position. The group was particularly strong in *Rambling* or *Polyantha* Roses, which are now perhaps, of all sections, the most popular. The now well-known novelty "*Hiawatha*" was foremost in tall *Weeping Standards*. Its attractive crimson flowers, with distinct yellow stamens, formed a noble centrepiece to the exhibit. Another novelty of great merit was *Baby Dorothy Perkins*, which attains but a height of 12 inches, and is perpetual in blooming. A pleasing contrast was the *Rambler "Lily Ito,"* producing white flowers in huge clusters. Following the above success, was the obtaining of one of the Royal Horticultural Society's silver cups at the meeting under the latter society's auspices at the Holland Horse Show.

Our Weekly Special Bargain.

Our Horticultural Department will offer each week in this space an exceptional bargain to the Gardening readers of *HOBBIES*. The object of the bargain is to convince Amateur Gardeners of the high quality of the goods supplied from our Nurseries and Seed Establishment.

Special Offer for This Week.

100 *Seedling Wallflowers*, free for this week only for 1/3; usual price 2/6.

This offer will close August 10th.

HOBBIES HORTICULTURAL DEPARTMENT, DEREHAM. (London Depot:—17 Broad Street Place, E.C.)

NOTES ON SPECIAL OFFER.—There are but few of our Amateur readers who are aware of the fact that *Wallflowers* if planted in the late Summer months will produce a much more effective display in the Spring months than will those plants which are planted out in the Spring. The plants are now from 3 to 4 inches in height, and are stocky, and well suited for bedding out now. They should be planted 12 inches apart every way, and we venture to say that 100 plants will give a much more effective display for a small outlay than will any other subject.

ELECTRICITY is not a form of energy, any more than water is a form of energy, says Sir Oliver Lodge. Water may be a vehicle of energy, when at a high level or in motion; so may electricity. Electricity cannot be manufactured, as heat can; it can only be moved from place to place, like water, and its energy must be in the form of motion or of strain. Electricity under strain constitutes a current and magnetism; electricity in vibration constitutes light. The power obtainable by a given stream of water is, within a small factor, due to friction, directly as the head, but the water is not always applied to the greatest advantage.

FOR a cement for sticking leather fillet on brass patterns, melt together eight parts of beeswax and two of rosin; cut into strips when cold and apply with a sticking tool of the proper radius. A steel ball of the right size struck on a wire and heated in a bunsen burner is the best. The pattern should be slightly warmed. Superfluous cement may be removed, when all is cold, with a bit of waste dipped in turpentine.

Ornamenting Wooden Candlesticks.

AMONG the wooden articles that are sold for amateur artists are generally to be found candlesticks which, with a very small amount of skill, may be made extremely ornamental. As with other wooden things, it is necessary to rub the surface down till it feels as smooth and soft as satin to the touch. This is a matter in which most amateurs fail, and they do not realise how much they gain by performing it thoroughly. The enamel will then look like china when it is applied with a soft brush and it must be allowed to dry completely before any second coat is put on. At least two coats will be required if the candlestick is to prove itself really useful. It is a good plan to keep several pieces of painting in hand and in different stages, so that one may be proceeded with while the next is drying.

There is rarely much space for the design upon such a thing as a candlestick, and the kind we are now considering is of the tall, pillar-like form. It is better not to try anything very elaborate, but to paint scattered, star-like flowers upon the wood, using blue, pale green, red and gold and other colours. Mauve asters always look well, and should have bright yellow centres. Yellow *marguerites* are effective and the middles should then be brown. Blue *forget-me-nots* are also suitable. If any spaces in the candlesticks will permit of it, plain bands of colour always prove effective, and they are greatly improved by some dots of gold, or blue, along each side.

It is a good idea, too, to mix some of the colours with plaster of Paris, so that dots, centres of flowers, and such items may be slightly raised above the surface.

For more skilled artists, very effective designs may be produced with this paste. Thus, a snake winding its way round the candlestick is not very difficult to manage and the eyes can be made very telling with a couple of bright red beads. They will keep firm quite well if they are touched with *seccotine* before being pushed into their places.

A dragon may be arranged in much the same way as a snake, but as this creature is larger and bolder, it is necessary to make it over a core of wire, over which wool has been wound. Also, when the body has been so far finished as to have been covered with the paste, the scales must be marked in with the tip of a blunt fruit knife before it has had time to get fully set. Green paint is the most effective for the scaly beast and touches of gold or bronze paint to heighten its beauty should not be omitted.

THE largest kitchen in the world is in the great Parisian store, the *Bon Marche*, which has 4,000 employees. The smallest kettle contains 100 quarts, and the largest 500. Each of the fifty roasting-pans is big enough for 500 outlets. For cooking alone 60 cooks and 100 assistants are always at the ranges.

THERE are so many languages spoken in the provinces of Austria-Hungary that interpreters are employed in the various Parliaments to interpret the speeches of the delegates, and make them intelligible to all the members.

FIR will grow at as great an altitude as 6,700 ft. above sea level, yellow pine at 6,200 ft., ash at 4,800 ft., and oak at 3,350 feet. The vine ceases to grow at 2,300ft.

HOBBIES.

Chess.

AUGUST 3, 1907.

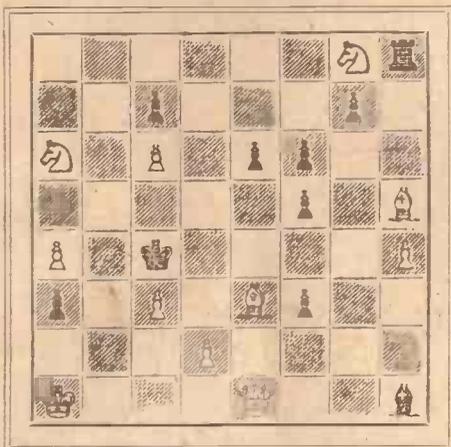
TO CORRESPONDENTS.

. All communications will be answered in HOBBIES. Readers desiring replies through the post should enclose stamped envelopes.

E. EGINTON.—Thanks for problem and kind remarks.

PROBLEM:

No. 280.—By E. EGINTON, Birmingham.
Black.—Ten pieces.



White.—Eleven pieces.

White mates in three moves.

Solutions not received by Wednesday following issue will be acknowledged the week after solutions are published.

SOLUTIONS.

No. 275.—By G. W. CHANDLER.

1 P-B6.

- | | |
|------------|------------------|
| If 1 B-K6 | 2 Q-KB5 ch, etc. |
| If 1 R-Q7 | 2 Q-Kt3 ch, etc. |
| If 1 K-Q3 | 2 Q-Q4 ch, etc. |
| If 1 Other | 2 Q-QB5 ch, etc. |

Two points.

Mr. Chandler's problem has been much admired by our solvers. It is an excellent specimen of the "threat" problem. Several solvers give 1 Kt-R5 as the key, but the black bishop stops the "try."

Solvers' list:—H. Ayre 8, G. C. Baxter 81, H. W. Baker 16, C. Blackwell 42, A. Bernstein 101, L. C. Brown 69, H. W. Bick 99, G. W. Chandler 101, H. G. Driver 85, W. H. Dawson 87, M. Dawson 3, E. Eginton 101, H. S. Elvin 15, S. D. Fresno 3*, H. Greenwood 7, H. Goodwin 90, H. P. Ho-good 10, Fred. Holmes 27, A. J. Head 34, J. Howell 36, H. Horsley 37, R. Hurst 27, F. Ibbes 34, F. Knowles 57, Howard Lawton 98, Henry Lawton 6, G. E. Moore 58, E. Perrin 72, E. Roome 63, J. Rust 68, A. L. Sanders 98, R. Thompson 74, W. E. Tucker 6,

H. A. Tate 3, J. D. Tucker 80, E. Wasserman 50, H. Zaak 98.

QUEEN'S GAMBIT DECLINED.

Played at Ostend:—

White. Salve.	Black. Marco.	White. Salve.	Black. Marco.
1 P-Q4	P-Q4	24 Kt-K5	R-K1
2 P-QB4	P-K3	25 R-QB3	K-K1
3 Kt-QB3	Kt-KB3	26 R-KK13	Q-B3
4 B-K15	B-K2	27 P-B3	BxKP
5 P-K3	QKt-Q2	28 Kt-Q7	Q-Q3
6 Kt-B3	P-QK13	29 P-Q5	R-K1
7 PxP	KtXP	30 B-B5	R-K2
8 BxP	KtXB	31 R-K16	Q-B5
9 B-Q3	B-Kt2	32 B-K6 ch	K-R2
10 Castles	Castles	33 K-K13	RxB
11 R-B1	P-QR3	34 PxR	BxP
12 Kt-K4	P-KR3	35 K-R1	Q-B4
13 B-Kt1	R-B1	36 Kt-K18	B-Q4
14 Q-K2	KKt-B4	37 R-KB1	Q-B1
15 KR-Q1	Kt-R5	38 Kt-KK11	QxKt
16 Kt-K5	P-KB4	39 KxP ch	K-R1
17 Q-R5	PxK	40 Q-B-K13	Q-KB1
18 Kt x Kt	R-B4	41 K-Kt2	R-K5
19 Q-Kt4	KtXP	42 K-R1	QxP
20 BxP	KtXP	43 K-K1	Q-B3
21 BxR	Kt x Q	44 K-Kt2	Q-B2
22 BxP ch	K-R1	45 P-R4	F-R4
23 BxKt	B-Q4	Resigns.	

IRREGULAR OPENING.

White.	Black.	White.	Black.
1 Kt-KB3	P-Q4	24 Kt-K3	KR-K1
2 P-Q4	P-K3	25 Kt-B2	P-K15
3 B-B4	B-K2	26 B-Q2	Kt-Q2?
4 QKt-Q2	Kt-KB3	27 Kt-K3	PxP
5 P-KK13	Castles	28 BxP	Kt-B3
6 R-Kt2	P-B3	29 Kt x QBP	B-K5
7 Kt-K5	Q-R4	30 K-K16	BxP
8 Castles	P-QKt4	31 PxP	R-K2
9 P-K4	B-Kt2	32 QR-Kt1	Q-KB3
10 Kt-Kt3	Q-Kt3	33 Q-K5	QR-K2
11 P-QR4	F-QR3	34 R-K2	Kt-R4
12 P-K5	Q-K2	35 P-KB4	BxK ch
13 P-KB3	P-B4	36 KxB	Kt-B3
14 P-B3	P-B5	37 Kt-B4	Kt-K15
15 Kt-Q2	KKt-Q2	38 Q-B5	R-B2
16 K-R1	P-B3	39 Kt-Q6	Q-Kt?
17 Kt x Kt	Kt x Kt	40 QxK	QxP ch
18 B-R3	P-B4	41 K-B3	Q-R4
19 PxQP	BxP	42 Kt x R	Kt-K4 d.ch
20 R-K1	Kt-B3	43 K-K3	Q-B6 ch
21 B-Kt2	Q-Kt2	44 K-Q2	Q-Q6 ch
22 Kt-B1	Kt-K15?	45 K-B1	Resigns.
23 Q-K2	Kt-B3		

Motor Omnibus Models.

As many fretworkers are, during the season, exhibiting Fretwork models of the HOBBIES Motor Omnibus, we offer:—

A special award of ONE YEAR'S FREE SUBSCRIPTION to "HOBBIES" to all fretworkers who, before October 5th, 1907, obtain a prize at any Industrial Exhibition with a Fretwork Model of the Motor Omnibus, cut from the design presented with Hobbies 1907 Catalogue.

The only conditions we impose are (1) that the Model is made according to the published Design, (2) that the value of the prize gained shall be not less than Five Shillings, and (3) that in the Fretwork section, in which the prize has been awarded, there shall have been not less than Five entries.

The award will, in each case, be made on receipt of a written statement by the Secretary of the Exhibition certifying that the prize-winner is entitled to the Free Subscription to HOBBIES according to the particulars given above.

FINISH planting the maincrop of Celery as soon as possible.

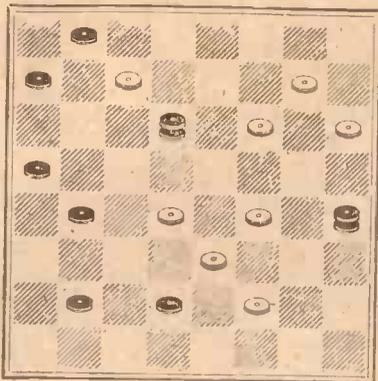
HOBBIES.

Draughts.

PROBLEMS.

No. 936.—By J. MILNER, Middlesbrough, Yorkshire.

BLACK.



Puzzles.

204.—CHARADE.

My first means to break the skin by rubbing.
 My second is a pronoun.
 My third is a common and little liked insect.
 My whole is a saurian reptile found in the
 West Indies.
 What is it?

205.—SKELETON PROVERB.

L-T-L-P-T-H-R-H-V-L-N-E-R.

Replace the dashes in the above sentences
 by letters, and a well-known proverb will come
 to light. What is it?

Answers to Last Week's Puzzles.

202.—DOUBLE ACROSTIC.

H OLLO W
 A BSINT H
 D AL I
 D EF T
 O CTRO I
 C ARBO N
 K E G

HADDOCK. WHITING.

203.—CURTAILMENT.

L A S T E R
 L A S T E
 L A S T
 L A S
 L A
 L

Pictures at Christie's.

AT Christie's recently the chief property to
 come under the hammer consisted of 89 lots of
 modern drawings, pictures, and pieces of sculp-
 ture, brought together by the late Mr. George
 Hodgson, Nocton Hall, Lincolnshire. William
 Collins' "Skittle Players," 1832, which remained
 in the hands of the artist for twelve years and was
 then sold to Mr. G. Young for 400 guineas,
 fetched 510 guineas. It had previously appeared
 thrice at auction during the last half-century.
 In 1856 it brought 1,150 guineas, in 1875 2,300
 guineas, and at the Bolckow sale in 1888 1,510
 guineas. Erskine Nicol's "Both Puzzled,"
 painted in 1865, realised 620 guineas, against
 670 guineas in 1887; Linnell's "Flight into
 Egypt," 1841, 130 guineas, which compared with
 950 guineas two decades ago of his "Minding the
 Flock," 28in. by 38in., 410 guineas.

Sir Luke Fildes "Fair quiet and sweet rest,"
 illustrating some lines in Tennyson's *Lotus
 Eaters*, was at the 1872 Academy. Fourteen
 years afterwards, in the Lewis sale, it was valued
 at 820 guineas. Yesterday's price was 155
 guineas. It will be recalled that two or three
 months ago this artist's "Venetian Fower Girl,"
 executed twelve years later, made the considerable
 sum of 1,650 guineas. From other quarters
 came Erskine Nicol's "A Dander after Rain,"
 43in. by 33in., which made 370 guineas, and
 Sir W. G. Orchardson's "Thoughts Far Away,"
 29in. by 38in., 125 guineas.

Home Pets Monthly Competition.

WE offer a prize of 5s. to the reader of
 HOBBIES who sends us the most interesting,
 practical and original paragraph during August
 upon his favourite domestic animals or birds.

The paragraph sent in each month which, in the opinion
 of the Editor, is most useful to the majority of his
 readers, will be awarded the prize. Address all commu-
 nications to the Secretary, Home Pets Monthly Competition,
 c/o The Editor of HOBBIES, 12, Paternoster Square
 London, E.C.

THE prize offered in July is awarded to Miss
 B. Ferguson, Dunsford Rectory, Ardglass, Co.
 Down, Ireland.

THE THRUSH.—The cage of a thrush should be
 a large wooden one, in which are several perches.
 Thrushes cannot stand extreme heat; they revel
 in a bath, which should be regularly supplied
 to them. There must be plenty of coarse sand
 in the cage, and the food should consist of bread
 crumbs, mixed with crushed hemp and German
 paste; but as the bread turns the food sour, it
 should be given fresh every day. Some thrushes
 will eat fig dust, mixed with milk and water.
 All like finely-shredded meat, and as the natural
 food of thrushes consists principally of insects
 and snails this is not to be wondered at. Some
 people give their thrushes little slugs to eat,
 which they swallow very quickly. When snails
 are given they require a piece of stone or brick,
 against which to break the shell. A little bread
 sop squeezed rather dry can also be given, or for
 a treat, a few currants, which are supposed to
 taste like flies, and crushed hemp seed mixed
 with the hard yolk of eggs may be given once or
 twice a week. (F.H.G.)

MICE NEST IN AN OVEN.—A curious discovery
 has been made at the headquarters of the 1st
 Volunteer Battalion Leicestershire Regiment at
 Leicester. When one of the large portable
 camping ovens was about to be overhauled for
 repairs, a nest of eight young mice was found
 inside. The nest is lined with odd pieces of
 newspaper. In order to convey the material into
 the oven for the purpose of building the nest the
 parent mice must have made some hundreds of
 journeys in and out of the oven by climbing up
 the iron legs. Apparently the door had been
 left slightly ajar, thus allowing the mice to
 make their entry and exit.

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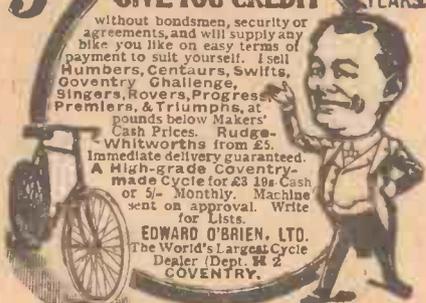
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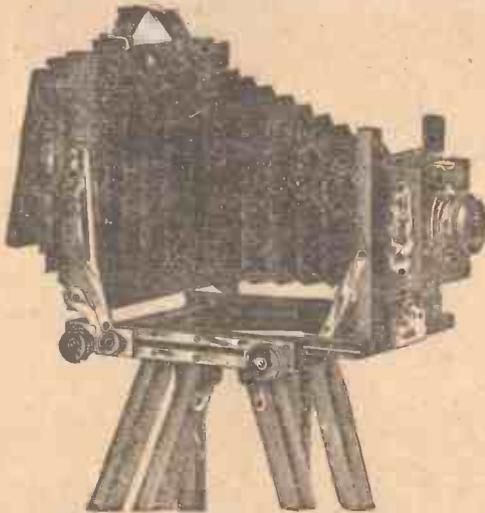
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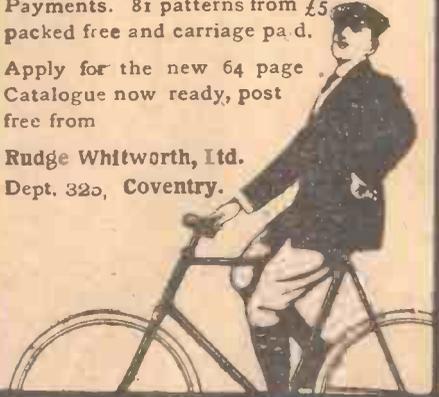
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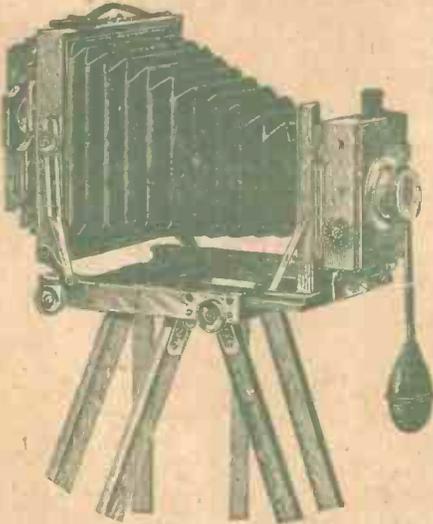
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