

GARDENING, PHOTOGRAPHY, NATURE STUDY, GEOLOGY.

ONE PENNY.

# Hobbies

FOR AMATEURS  
OF BOTH SEXES

VOL. XXIV.

JULY 6, 1907.

No. 612.

## THIS CRICKETER

SAYS:

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## HOBBIES.

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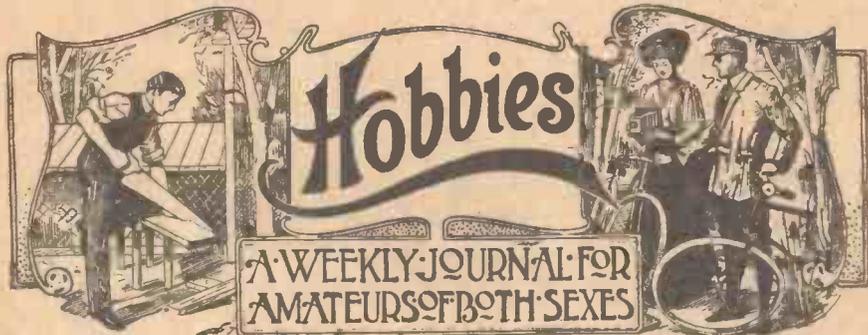
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**HOBBIES LIMITED,**  
12, Paternoster Square, London, E.C.



VOL. XXIV. No. 612.

JULY 6, 1907.

## Weekly Presentation Design.

### NURSERY BRACKET: "HUMPTY DUMPTY."

OF our popular Nursery Bracket series, five designs have already been published. The subjects of these are:—"Old King Cole," "Ride a Cock Horse," "Little Miss Muffet," "Where are you going, my pretty maid?" and "Little Bo-Peep." The sixth of the series, "Humpty Dumpty," which we now

above. The shelves are fretted, and the whole article has a bright appearance.

The HOBBIES Presentation Designs are not given away with back numbers. Additional copies may be had from the publishers, price threepence each.

FRETWOOD.—Parcels of selected Satin Walnut, with Maple for the Overlays, for making this Bracket, may be had for Eightpence, or post free for One Shilling per Parcel.



No. 612.—NURSERY BRACKET: "HUMPTY DUMPTY."  
Size, 16 $\frac{3}{4}$  ins. by 12 $\frac{1}{2}$  ins.

give, is designed on the same popular lines as before. The lower rectangular panel is cut from one-sixteenth inch wood and overlaid on the background. The upper circular panel, with the lettering, and all the other parts are fretted.

The back is nearly seventeen inches long, but may be sawn in two sections. There are three shelves, one long one below and two small ones

All orders by post should be addressed:—HOBBIES LIMITED, 12, Paternoster Square, London, E.C.

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# COLLECTING DRIED AND PRESSED PLANTS.

## A PLEASANT AND INSTRUCTIVE SUMMER PASTIME.

**A** DELIGHTFUL summer occupation is the collection of dried plants and leaves. Such a collection not only gives an added interest to country walks, but also sometimes awakens enthusiasm for many interesting plants generally termed "weeds." In the present article we shall describe how such a collection can be made by anyone without incurring any monetary outlay, the only materials required being a press for the purpose of drying and pressing, and the necessary material for mounting.

The press can consist of a pile of books or newspapers, with several pounds weight on top, or if preferred, may take the form of two boards clamped or strapped together. A proper press as well as specially prepared botanical paper, can of course be bought, but both are expensive and not absolutely necessary. When the press is prepared, it is necessary to decide upon the method of mounting. Shall we have a bound book-full or separate sheets? The writer prefers the latter, especially if the collection is to be progressive. They can be kept in a neat portfolio, and as better specimens are obtained or those that are spoilt, can easily be removed without interfering with the others. For fixing on the mounts, stamp-paper cut into thin strips is very convenient. It looks neat, and if the strips are mere shavings they are hardly noticeable. Gum arabic holds very firmly, does not show, and with it the plant may be fastened down all over. If you decide to mount on sheets, blank foolscap may be used; it is stiff and of a convenient size. If large sheets are required, they can be obtained from any school stationer.

When the press is ready, the plants may be brought in. If faded, they should be stood in water for a time, as it makes them spread out naturally, and opens the flowers. In putting them in, see that the leaves do not cross each other and that the flowers show up to the best advantage, avoiding as much as possible a stiff and unnatural arrangement. At least four layers of paper must be put between each layer of specimens. They should be kept while pressing in a cool place and as often as once a day changed into new paper. This is important because the paper absorbs the dampness of the leaves, which soon become discoloured if allowed to remain. In drying berries, it is always advisable to prick a hole and squeeze out the inside before pressing. If the stem or root is thick and succulent, as in the bluebell, &c., a portion of one side may be shaved off to make it thinner, and the cut side applied to the mount, also where there is a great mass of flower, a portion might be removed to make room for the remainder to dry properly, without spoiling its characteristic appearance.

Before mounting, be sure that the specimens are quite dry, for if they go on drying afterwards they will pucker up and cockle the paper. In gumming in, it is best to first gum the main stem and stiffer parts. Lay the plant in the position it is to occupy, and then gum or fix with the paper strips each leaf or flower as it lies.

The specimens should now be named. It is



### METHOD OF ARRANGING SPECIMENS.

usual to put the Latin as well as the local name, the date of finding, also the situation and locality, besides any other points about the specimen that are of interest to the collector.

Forest and autumn leaves may be dried and pressed in the same manner. They should be left in the press until thoroughly dry—about two or three weeks—and then given a coat of oil or varnish to preserve their colouring. An excellent recipe for this purpose is:—

- ½-oz. white varnish.
- 3 ozs. turpentine.
- 2 ozs. boiled linseed oil.

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The leaves should be pinned to a board and the varnish applied with a soft cloth. There must be no streaks left, as they show when dry. After the application, the leaves must be laid on blotting paper (not overlapping each other) to thoroughly harden. Another method for preserving leaves in their natural colours is by washing them over with sulphuric acid and water mixed in equal quantity. Use a large brush and be careful of the acid which is very poisonous. The best way, however, although requiring more trouble, is to dissolve one part salicylic acid in 600 parts of alcohol. Heat the solution up to boiling-point in a large vessel and draw the plants or leaves slowly through it. Shave to get rid of any superfluous moisture and dry between sheets of blotting paper under pressure.

Skeleton leaves may be prepared in the following manner. Dissolve a couple of ounces of washing soda in a pint of boiling water, then add an ounce of slaked lime, allowing the whole to boil for a time. When cool, strain the liquid into another vessel and set to boil again, when the leaves should be put in one by one. When they have been subjected to the boiling solution for a long enough period the fleshy substance can be quite easily removed by rubbing gently between the finger and thumb. If it does not come off readily from the skeleton, it is a sign that it has been insufficiently boiled and should be returned to the vessel to be further acted upon by the hot soda. When the perfect skeletons are obtained they should be bleached in a solution consisting of a small quantity of chloride of lime in water, with a few drops of vinegar. Let them steep in this for 15 minutes, and then remove and place between blotting paper, when you will find that they have changed their dingy hue to pure white, and are very charming objects. Bleached skeleton leaves may be laid on photograph frames, wooden trays, and suchlike, and varnished. They look particularly well on black-painted wood, when they resemble somewhat an inlaying of ivory.

Those collectors who may wish to preserve permanent impressions of leaves or plants in their collection may do so in the following simple manner. Obtain a pennyworth of bichromate of potash and dissolve in about two ozs. of distilled or soft water. When the crystals have dissolved as far as they will, to make a saturated solution, pour off the liquid into a shallow dish. On this, in a dull light, float on and leave for a moment a piece of smooth paper. Remove, and pin up by the corner to dry, when it will be in colour bright yellow. On this place your plant, and under the paper, black cloth and several thicknesses of brown paper. Put the whole between two pieces of glass and hold them together with two spring letter clips. Expose to a bright sun so that the sun's rays fall as nearly perpendicular as possible. In a few minutes the paper round the plant will begin to turn brown and after 15 minutes or so (according to the light) remove the paper and immerse it in a pan of clean water renewing it every few minutes until it ceases to be coloured and the yellow parts of the print are perfectly white. The result should be an exact replica of the original with every line and mark accurately reproduced.

A writer in an American paper, some years ago, described a method of producing photographs on leaves. Leaves smooth in texture are the most suitable. They should be first soaked in methy-

lated spirits until they turn pale enough to form a pleasing background for the photograph. After draining, the leaves are pinned up until they become flaccid, and are then pressed for half an hour between blotting paper. The upper surface of the leaf is then floated on a salted solution of albumen, or brushed rapidly over with it by means of a broad brush, and the coating is dried as quickly as possible by hanging the leaves on a cord with the albuminised side nearest a stove, in order that all the natural moisture of the same may not be lost, or they will become too brittle for subsequent operations. It may even be advisable to moisten the unalbuminised side of the leaf during the drying. A second pressing is generally necessary at this stage, after which the leaves ought to be immediately sensitised, either by floating them on a solution of nitrate of silver or by brushing them over with it. Dried with the same care as before, the leaves may be pressed with advantage before exposing them under the negative.

### White Embroidery.

It is said that a fashion in dress lasts for three years, being on trial the first season, in full favour the second, and on the decline in the third. Last year white and open work of every description was introduced and approved, so that this present summer is likely to see it almost universally employed. This affects the woman whose hobby is embroidery, inasmuch as she can prepare for herself as much dainty stitchery as her spare time will allow, and be sure that even then there will not be one inch too much.

A *lingerie* gown, where flowers and frills of *Broderie Anglaise* flow over skirt and bodice alike, will absorb many yards of trimming, while vests, belts, the new shape of braces, hats, parasols, underskirts and other accessories offer equally interesting, if smaller, fields for work. This *lingerie* embroidery is quickly executed, so the task need not be so formidable as they look, although the more elaborate the stitchery introduced the more satisfactory will be the results. Perhaps the chief drawback to the decoration of the many yards of frilling is the monotony of the task, but this is less in some patterns than in others.

The question of patterns leads to the practical side of the matter. Linen is to be obtained with the designs ready stamped upon it, and these have merely to be followed with white or other threads according to taste. A wider choice is available by making use of transfer papers, which can be ironed off to the selected background. This latter can then be cotton, linen, silk, or some mixed material just as suits the worker's wishes and a unique gown can thus be contrived as there are practically no limitations but those of skill and taste.

White only and any colours can be used, and a daring touch of black here and there is often pleasing. As to the stitches, the edges of the *à jour*, or cut work spaces, should be buttonholed or heavily oversewn, and, if large, can be enriched with lace wheels and other open fillings, as in Hedebo work. Thicker embroidery should be introduced when possible, the open spaces being surrounded and supplemented with sprays and trails, conventional or geometric in character. These should at once be a necessary part of the design and ornamental in themselves.



## XII.—DIFFERENT FORMS OF HAND-CAMERA.—Continued.

**T**HE shutter of a hand-camera, which is also required for stand work from time to time, must be capable of being used for at least three different classes of movement, viz., “instantaneous” “bulb,” which means that pressing the bulb opens the shutter and releasing the pressure closes it, and “Time,” which means that when the bulb is pressed the shutter opens, and when the pressure is relaxed it remains open until a second pressure closes it. Of course, superior shutters have many different speeds of their own, for instance, the “Bausch and Lomb,” which gives speeds from 1 second up to 100th of a second. Whether it is better to have a shutter which gives up to 300th of a second or less, and omits the slower speeds (1 sec.,  $\frac{1}{2}$ sec., &c.) is a matter for personal opinion. The author inclines to the belief that the higher speeds are rarely required by the ordinary worker, while the slower speeds are often very useful. But the reader must use his own inclinations as a guide to the class of shutter he purchases.

The ideal hand-camera possesses both kinds of release to the shutter—that by means of a releasing lever and also the pneumatic release. The former is convenient when the camera is firmly fixed to a stand, but requires perhaps slightly more skill in making the exposure without moving the camera when the instrument is held in the hand. Finders are, of course, essential to determine the position of the object to be taken at the moment of exposure. They should give an image as nearly as possible the size that it will appear in the resulting picture, as it is unpleasant to find on development that a portion of the desired composition is not included. In the case of a magazine hand-camera some arrangement for registering the number of plates exposed is very desirable, or a mistake may occur, and the same plate get exposed twice. It also shows the number of plates still to be used, and prevents their running short while there are still some subjects to be taken.

The merits of folding *versus* “magazine” cameras is a point that can only be decided by the individual worker himself. Both have their special advantages and their special drawbacks. The former have one particular advantage—they are ready for instant use. When one plate has been exposed in a box-form camera, and the pointer attached to the plate-changer has been shifted, thus allowing another plate to fall into position, the camera is at once ready for the exposure of another plate. On the other hand, with a camera of the folding type it is, of course, necessary to first unfold the camera, and though, in the case of many types now on the market, this only takes

a few seconds, still the box-form camera carries off the palm for rapidity of action, especially if dark-slides or film adapters, &c., are used in the folding camera.

On the other hand, the folding type of camera has the advantage of a considerable reduction in both bulk and weight. No camera made to contain the plates or films within itself could ever go into an ordinary coat pocket, which a folding camera will do with ease. Into the opposite pocket go the slides or film changing apparatus, so the worker is at once completely equipped for all eventualities without any of his apparatus being visible. Many types of folding camera are also made with a reversing back, which is a great gain, but which unfortunately carries with it a certain increase in size and weight. Folding cameras which have not this appliance will, of course, take vertical or horizontal pictures, but have to be turned on one side when affixing to the tripod in the latter case.

Mention of the tripod renders it suitable to explain at this point that there are three qualifications necessary to make this part of the apparatus satisfactory. 1. It must be portable. 2. It must be light. 3. It must be strong and steady when set up. What the material is of which it is composed is a minor consideration, but telescope stands made of aluminium are very largely sold, and are light and portable, as they fold up into an exceedingly small compass, the divisions of the legs slipping inside one another till the total length is about a foot or 15 inches. There are also light tripods made in the form of walking-sticks, which of course are convenient, as, forming part of the usual outdoor equipment, they do not necessitate anything extra being carried in the pocket.

Hand-cameras of either class should be provided with levels, for upright and horizontal pictures. In the case of architectural subjects such an adjunct is essential if the building is to be represented in its true perpendicular elevation. In any case, even when taking snapshots, it is very desirable, because if the camera is held in an inclined position the background may slope to such an extent that it may be impossible to get it straight by any after adjustment of the printing paper, and a background that slopes badly is a very serious detriment to pictorial effect, especially in such cases as the banks of rivers, the sea horizon or any line of light or dark tint in the rear of the picture. Where such lines exist care should always be taken to get the bubble of the level central before exposing the plate.

Of the various appliances which are made to attach to cameras to carry the medium for the exposures two are particularly worthy of notice; these are the systems which employ what are

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commonly known as "roll" films, and the rival system which employs flat films. The worker must again exercise his own judgment in respect to the desirability of employing either method. Both have their advocates and their detractors, both seem about equally popular amongst the camera fraternity. Of all the devices invented by means of which successive exposures can be made in a hand-camera, probably roll-films are the simplest and the least bulky. But they have considerable compensating disadvantages, not the least of which is the fact that all the exposures have to be made before any of them can be developed, and as each may require separate treatment, either some must be sacrificed or the film must be cut up, which is a tedious and very uncertain operation. Flat films, on the other hand, can be treated separately, and one can be developed before the rest are exposed, so that one can judge of one's exposure as they are made. Flat films are also cut the right size, and really keep flat—a thing which "uncurlable" films are by no means certain to do! Add to this the uncertainty of working attendant on the roll film mechanism, and the practical impossibility of adjusting it without retiring to a dark-room if anything goes wrong—and it will be seen that the balance is somewhat in favour of the flat films. However it is, of course, a matter of taste, and must be settled by the individual worker.

If a folding camera is selected care should be taken to choose one with double extension. Many of them now possess a long extension baseboard, and the advantage is considerable, as it enables the back combination of the lens to be used, the effect of which is that the picture on the screen is greatly enlarged. It is especially valuable when taking photographs of distant views, mountain, &c., as with the usual lens, using both combinations, the distant mountains will be completely dwarfed by the too great perspective which it is impossible to avoid in such cases. With the back combination alone the mountains appear in their true proportions with regard to the scene before them. In the next article the practical use of the hand-camera will be considered.

### Camera Notes.

#### ARCHITECTURAL SUBJECTS.

CHURCHES, buildings, and ruins frequently form pleasing subjects for the camera, but very often some difficulty crops up when one comes to focus such a subject; either the building is so high that it cannot all be focussed on the plate at once, or it appears distorted, and so forth. The following points should be borne in mind when dealing with architectural work, and will doubtless prove helpful.

Firstly, the camera back must be vertical, and not on the slant. If the back is not fitted with one of the little brass arrangements now so popular, a key or penknife can be tied to a piece of string and this used as a plumb-line, and held close to the camera back, to see that it is vertical. If a church steeple, or a tower, &c., cannot be got into the picture, do not tilt the camera, but raise the camera front as high as possible, and if this is not enough, slightly tilt it, leaving the back still vertical.

Secondly, as architecture usually presents so much small detail, use a very small lens stop when exposing. A large stop may, of course,

be used for the focussing, but F/64 will give the best results in the exposure. Do not forget that if you would have given a second's exposure with F/8, over a minute will be wanted with F/64, and better still, a minute and a half.

#### SHADOWS IN ARCHITECTURAL SUBJECTS.

Deep shadows are almost always met with in taking churches or castles, &c., if the sun is shining at the time. This will quite spoil the result in the majority of cases, and hence a day without bright sunlight is usually the best. When photographing old stone-work, however, in which it is desired to "bring out," or emphasize, the carving, a certain amount of shadow is very desirable, but care must be taken to give a sufficient exposure to ensure the shaded portions receiving enough.

#### WIDE-ANGLE LENSES.

A wide-angle lens is a most useful accessory in architectural work, but it is not as easy to work with as a rapid rectilinear. It includes a great deal more than an ordinary lens, and the lens and plate are *much nearer together* than is ordinarily the case. Moreover, the lens stop is much smaller than usual, owing to the fact that wide-angle lenses are of *short focus*. The result of all this is that considerable exposures are necessary, and as it is generally in interior work that such a lens is required, the exposure may seem extremely long.

It is, therefore, very desirable to make a few experimental exposures with a wide-angle lens before doing any real work with it, and the ratio of the time necessary to the time which would be wanted with an R.R. lens should be found and remembered.

#### A DEVELOPER FOR ARCHITECTURAL WORK.

If plenty of exposure be given, and a slow plate used, the best negatives can be obtained with hydroquinone and caustic potash; the following is an excellent formula:—

A.	Hydroquinone	..	..	$\frac{1}{2}$	oz.
	Sulphurous acid	..	..	$\frac{1}{4}$	oz.
	Potassium bromide	..	..	60	grains.
	Water	..	..	20	ounces.
B.	Caustic potash	..	..	$\frac{1}{2}$	oz.
	Sodium sulphite	..	..	3	oz.
	Water	..	..	20	ounces.

For use, take equal parts of A and B.

#### Photography.

**SUBJECT FOR JULY:**—Seaside Views, including Shipping; also Boating, River Scenery, Lakes and Waterfalls.

**CLASS I.**—Open to Holders of HOBBIES Certificates of Merit of the SECOND Grade.

**CLASS II.**—Open to all who have not received HOBBIES Certificates.

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

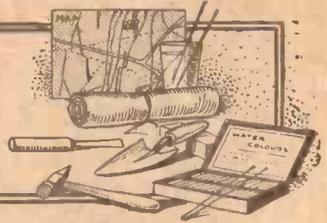
Three Prizes will be awarded in each Class:—**FIRST**, 10s. 6d.; **SECOND**, 7s. 6d.; **THIRD**, Five-Shillings. Certificates may also be awarded.

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. In CLASS I. the number of HOBBIES in which the award was published must also be given. (This appears at the foot of the Certificate). No print will be eligible that has been entered in other HOBBIES competitions. 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 July 31st, addressed:—Photographic Competition: Editor HOBBIES, 12, Paternoster Square, London, E.C.



# GEOLOGICAL MAPPING.



## II.—FIELD-WORK.

**H**AVING selected one of the slips of our map, we proceed to the place that it represents (see illustration, which represents this slip.) Let us suppose that we are at the bottom left-hand corner, on the road there shown. The first thing to do is to go to all the quarries shown on the map, and see what we can find there.

At Quarry No. 3 we find a light-grey stone, in beds of 3 feet thick or so, with thin earthy layers between them. Towards the bottom of the pit the stone becomes harder and darker. We take specimens of the upper layers, lower layers and earthy layers and make notes, which will be given later on.

We then walk on to Quarry No. 2, where we find sand (which we readily recognise) and some stone which looks like *solid* sand. We also find patches of a whiteish, soft substance and some stone which looks like *solid* sand. We also find patches of a whiteish, soft substance and some stone which looks like *solid* sand. We also find patches of a whiteish, soft substance and some stone which looks like *solid* sand. We also find patches of a whiteish, soft substance and some stone which looks like *solid* sand.

At the coal-mine we ask for the manager, and from him get permission to see the "office samples" of all the rocks met with in sinking the shaft, which samples are always kept for reference by mine-owners. Of course, we cannot take specimens of these, but we take, from near the pit-mouth, a specimen of the surface stone. The "office samples" are:

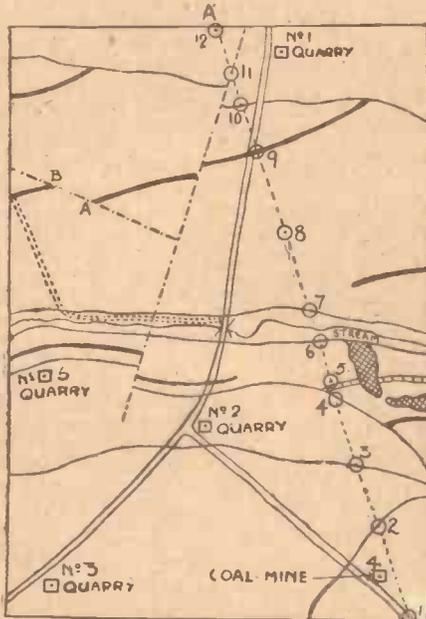
- (1) Surface to 100 feet, a soft sandy stone (as found at pit-mouth).
- (2) Below that a light-grey stone, as found at Quarry No. 3.
- (3) Below that a sandy-stone as found at Quarry No. 2.
- (4) Below that, an earthy, laminated substance, which occurs between all beds to the last. The beds which occur in it are: (5) Coal; (6) Iron-stones (the name given by the manager); (7) a hard, blue-grey stone; (8) coal; (9) fire-clay (name again supplied by the manager); (10) coal.
- (11) Finally, there is a coarse sandy-stone; some or all of these may appear at the surface later on in our work.

Returning to Quarry No. 2, we then cut "across country" to Quarry No. 5. Here we find the same as in No. 2, and nothing else of interest. We, therefore, return to the road and make for Quarry No. 1, at the extreme N. of the map. Here we find a sandy-stone, brownish-red, appearing to be much like that found in Quarry No. 2. Below this is an earthy, reddish substance. We take specimens of these two, so as to make *quite* sure (by tests at home), that the sandy-stone is that found in Quarry No. 2.

Now we wish to find if any other stone appears on the surface between Quarry No. 1, and Quarry No. 2. If one does so appear, we also want the division line between it and the sandy-stone of Quarry No. 1. We walk slowly down the road, keeping a careful watch for any indication of a change of sub-soil, and, before long, we come to some mounds thrown up by moles which look suspiciously dark compared with the colour of the sandy-stone. We dig away the soil from the side of the road with our trowel, and find below it an earthy, dark-grey laminated substance, which we recognise as being the same as No. 4 of the coal-mine "office specimens." We take specimens and proceed to return along the road, digging at intervals, till we find the division line between this new substance and the sandy-stone.

Having found the point where this division line crosses the road, we identify our position on the map, by means of the hedges, &c., near by, and draw a short line across the road at that point, which line is now to be extended to the edges of the slip. In continuing it to the east, we chance upon an outcrop, or bed of coal, which seems to disappear below the sandy-stone, and to be extended for some distance in a E.S.E. direction. We mark the point where it disappears under the sand, on our map, and continue the division line to the E. edge of the slip.

We now return to the road, and, beginning



LINE OF SECTION - - - - -  
 - - - - - FAULT - - - - -  
 QUARRY &C □  
 LEVELLING STATION ○

## Collectors and Collecting.

THE collection of old Wedgwood china is a somewhat expensive hobby, and yet some of the examples in the collection of Mr. Sanderson, which was sold by private treaty a few days ago for many thousands of pounds, cost quite trifling sums when collected. Wedgwood, the great English potter (did his best work from 1770 to 1795, and it is the earliest specimens which collectors should aim at securing. His beautifully wrought blue and white and green and white jasper ware are well worth buying, but care should be exercised in avoiding modern reproductions.

Most of the Roman coins found in this country are of the Imperial series, chiefly those struck in the third century. Now and then, a few of the older consular or family coins in circulation in Rome before the first Roman invasion of this country, turn up in England. One of these little pieces (which may be purchased for 1s. to 2s. 6d. from any good dealer) was dug up at Winch Bottom (Bucks.), a few days ago.

Now and then, the sea gives up its treasures and persistent diving reveals many quaint relics. One of these discoveries is a wrought iron banded naval cannon of the Tudor period just found in Pevensy Bay. There is quite a rage just now for iron curios, especially cast Iron Sussex backs and cast door porters, knockers, and old-fashioned iron and brass fireplace ornaments.

The gold medal given after the Battle of Culloden and similar mementoes are some of the treasures sought for by collectors of war medals. One of these (as mentioned last week) was sold at Sotheby's for £102 recently. This medal was only given to officers who commanded regiments present at the battle. On the medal the Duke of Cumberland, appears as Apollo and the dragon representing the rebellion overthrown. Perhaps some of our readers may have medals on bronze commemorating this event in our national history?

Stones possess curious histories, and if they could speak would reveal stories of peoples and customs long forgotten. The "Pudeus Stone," one of the curiosities in Goodwood Park is to be given to the City of London Guildhall Museum. It is of Roman origin, and its Latin inscription means, "Pudeus, Son of Pudentius giving this ground." The collection of small stones as relics of places visited, when properly labelled, recalls pleasant excursions and does no harm, but the habit of chipping ancient monuments is to be deprecated. A policeman now guards Stonehenge.

What a craze there is just now for snuff boxes! Not necessarily a craze to collect jewelled boxes worth hundreds of pounds, but those of more modest pretensions. The beautifully painted snuff boxes about a century old, which can be purchased for a few shillings each, are well worth securing. They are getting scarce, especially those with miniature paintings on the lids. Horn snuff boxes, too, mounted with silver lids and rims sell well. The Louis XVI. period are much sought after. Fifty-eight of these choice curios were sold at Christies a few days ago, two of them realising £600 each.

at the point already marked on the road, we continue the line westwards. After some distance we suddenly find that the line takes an abrupt turn to the north. This is unusual, so we proceed to identify our position with great care, by taking a bearing on the house to the N.W. and on the quarry; and also by pacing the distance to the nearest hedge, &c. (N.B.—Hedges omitted from diagram, for convenience and simplification of same). After walking some distance in this new northerly direction, we find that the line of division now resumes its old direction. This point is also carefully noted, and the line continued westward. On our way we find the end of another outcrop, which we also mark with a dot on the division line, for the time being.

Now we return from the edge of the sheet back to this last-mentioned outcrop end, and proceed to trace its course, which soon takes it off the edge of the sheet. Then we go right across the road and trace the course of the other outcrop, whose end was marked. This one runs Westward, crossing the road, and then suddenly disappears. Now, it is very unusual for an outcrop to disappear, except under another stone (as the other end of this one did). We proceed, therefore, to "cast around" as dogs do when they lose a scent, and soon find the outcrop again, about 200 yards to the S.S.W. These two points, of disappearance and reappearance, are very carefully noted, and we continue the outcrop for a good distance westwards parallel to its old direction before disappearance. Again we lose it (A on map) and again, after much search, we find it near the edge of the slip (B on map). Frequently it is necessary, when an outcrop is lost, to search in all directions for hours before finding it again.

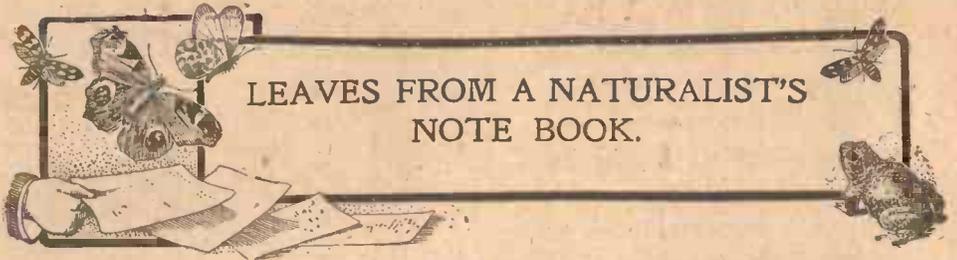
Let us now follow the foot-path which enters the map near our position, and walk down to the little stream to the southward. Of course, we are looking out for changes in the soil, or outcrops, &c., all the time, but find nothing till near the stream. This, like most streams, is surrounded by an earthy deposit, which is called Alluvium, and is simply the river-mud left by the stream when in flood. We soon find the Northern boundary of this, and draw it from edge to edge of the slip, crossing the road as we do so.

Now, the only piece of ground we have not been carefully over on the North of the stream, is that on the East of the road, South of the Outcrop we plotted second. We will, therefore, before leaving the ground on the North of the stream, walk up near the margin of the slip; and we are repaid for doing so, for we find an outcrop of coal, which we trace till it runs off the map. In the other direction, we trace it, and find it is becoming thinner and lower in the ground; until at last it disappears. Now, this disappearance is quite different from the other outcrop, for that ended abruptly as if it had been cut off. So, in fact, it had; and such a "cutting off" is called a *fault*.

The meaning of this will be explained in the next article.

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Don't try to use an incandescent light too long, as it grows old you are using just as much current and getting less light all the time; 800 hours is usually long enough.



## LEAVES FROM A NATURALIST'S NOTE BOOK.

### HOW ANIMALS COMMUNICATE WITH ONE ANOTHER.

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

**A** SUBJECT about which naturalists know very little indeed—and seem to learn nothing further—is that of the means by which animals communicate with one another. That they do so communicate is undeniable. You see a flock of starlings in the air. They rise, and fall, and swerve, and wheel with the most perfect unanimity. They seem to be swayed by some common impulse. But how do they do it? They have a leader, no doubt; but how are his orders given? And how are those orders conveyed, simultaneously and instantaneously, to all his followers? It cannot be by sound, because sound takes time to travel; and the birds at the rear of the flock perform the required manœuvre in absolute unison with those in front, long before any cry or call could reach them. Is there some brain-wave, some mysterious system of telepathy, by means of which the will of the leader acts upon the wills of all the rest—one brain flashing, as it were, its electric message down thousands of motor nerves to thousands of wing and tail muscles?

We have a similar problem to solve—if ever it can be solved—in the case of bees. That these insects communicate with one another there can be no question whatever. If the queen dies, for example, every bee in the hive is acquainted with the fact in a very short time, and you can see the excited insects patting and stroking one another with their antennæ. They are evidently imparting and discussing the sad news. This is intelligible. Conversation, in these insects, appears to be one of the antennal functions. But how does the queen communicate her orders to thousands of bees with whom she is not in contact? I have just been watching a swarm, which settled down on an ornamental arch in my garden. The cluster was something like three feet in depth, and fourteen or fifteen inches in diameter; and the queen, of course, was in the centre. Yet out from the imprisoned sovereign, in some mysterious way, went some mysterious order, and every bee suddenly took to its wings and flew away. It is said, I know, that while the swarm is clustering a number of scouts are sent out to search the neighbourhood, and discover a suitable spot for the foundation of a new colony. But how do they manage, on their return, to convey information to every member of the swarm that they have found it? How is their report transmitted to the queen for her approval? And how does she, in her turn, give the order to set off to the selected site to all her loving subjects? The antennæ are useless in such a case, as this. Again some strange telepathy appears to be at

work. Hive bees seem to be hymenopterous Zancigs, with the power of transmitting thoughts and ideas without sound or visible sign, and irrespective of any conceivable code.

The Driver Ants of South America, again, communicate freely with one another. A column of the insect warriors marches out from the nest under the direction of a number of officers. It is perfectly easy to identify the officers. You can recognise them by the fact that they have white heads instead of black ones, and that those heads are a good deal bigger than the heads of the private soldiers. But how do they issue their orders? And how are those orders conveyed to the rank and file? The whole great column, consisting of perhaps a hundred thousand insects, advances, and wheels, and halts, and retreats with the same unanimity as starlings. A flying column is sent out, perhaps, to scour the country at a distance; and after a time it will return, and merge itself in the main body again. Scouts precede the army while on the march, and come back to it at frequent intervals with their reports. A native village, perhaps, is entered by the insects, and scoured in search of vermin; and the ants enter each hut together and leave it together, some definite order to that effect being evidently issued by somebody. But how do the officers arrange with one another what is to be done? And how do they tell their inferiors to do it? Individual ants communicate with one another by means of their antennæ, just as bees do. You may often see them doing it. But in the great armies of the South American Drivers there is no contact at all between the officers and those under their command; and yet the mysterious orders are transmitted. One is really almost forced to the conclusion that ants and bees possess some peculiar powers of thought transference akin to those by which certain specially gifted human beings seem able to influence one another, without the aid of ordinary means of communication.

But we are still entirely in the dark with regard to very much that goes on among these wonderful insects. We do not yet know, for instance, by what means ants are capable of mutual recognition. It is not merely that two ants which have met before will recognise one another when they meet again. In that there would be nothing remarkable. It is that every ant in a large nest knows immediately upon meeting with it that any other ant in the whole of that nest is a friend, and must be treated accordingly. And an ant's nest is not the same thing as an ant's hill. There may be fifty or more hills in a single nest;

for ants colonise when their numbers reach a certain point, just as bees swarm, though they differ from bees in this respect, that the colony still remains in connection with the parent nest. So that in a really large ant's nest there may well be a couple of million insects. Now, if you take an ant from a hill, and place it in another hill belonging to the same nest, you will invariably find that it is received and treated by all the other ants in the hill as a friend. They have never seen it before; yet they accept it without the smallest hesitation as one of themselves. But if you take an ant from a hill, and place it in a hill belonging to a different nest, it will be immediately set upon and killed. In some way or other the ants know that it is an alien and a stranger, and treat it accordingly. But how do they know it? The suggestion has been made that each nest has its own distinctive odour, which all its inhabitants carry about with them wherever they go; so that this mysterious recognition or repudiation of one another is really dependent upon the olfactory organs. But it can hardly be that a couple of hundred nests have a couple of hundred different odours, and that each ant carries a sort of classification of these odours in its head, and so is able unerringly to recognise its own. And Lord Avebury's most careful and painstaking researches have shown conclusively that there can be no question of a "watchword," similar to that employed in human armies; since if a number of cocoons are taken from a nest, and the ants which emerge from them are replaced in that nest several weeks later they are still unhesitatingly accepted as friends. In this case, of course, the insects would have had no opportunity of learning the "watchword." And the same thing takes place even if ants are liberated from their cocoons by nurse-ants belonging to a different nest, and compelled to associate with them for several weeks after they are hatched out. Still, on being returned to their own nest, they meet with a welcome, though in this case, if they had learnt any "watchword" at all, it must have been the wrong one.

The fact must be admitted that in ant life, as well as in bee life and even in bird life, there are mysteries which we are utterly unable to fathom. Science is always extending its frontiers and adding to its discoveries; yet with regard to much that is always going on before our very eyes it is altogether and hopelessly baffled.

## Cycling Notes.

### MORE HINTS ON TOURING.

A CORRESPONDENT has written us asking advice on cycling matters that are of more than individual interest. He writes (1) what would be about the cost of a week's cycle tour? (2) What would be one's equipment, and the best method of carrying it? (3) How many miles should be covered on an average.

The question of cost is a curious one; it would be better to have asked what would be the *lowest* cost consistent with comfort, as, like a good many other pastimes, cycle touring can be made a very expensive hobby. The district selected also makes a great difference in the cost. The Lake District, or the Trossachs are expensive places, hotel charges being frequently fifty per cent.

higher than those of Devonshire, Somerset, Kent, or Yorkshire. When arriving in a strange town, intending to stay the night, it is a good plan to ride round taking careful observation of the quiet, homely and clean-looking restaurants and temperance hotels that are sure to be found within easy reach of the principal thoroughfares. Having decided on a likely place, enter and enquire the price asked for bed and breakfast. This should not amount to more than half-a-crown. A heavy mid-day meal should be dispensed with, while a plain, substantial tea would cost another shilling or less. Talking of teas, quite recently we put up at a little Devonshire town, and were regaled with rolls and fresh butter, clotted cream and stewed gooseberries, with an unlimited supply of tea and milk. Eightpence was the moderate sum asked for this liberal repast.

Supper can be a fairly substantial affair. If taken early in the evening one can have a walk round the town before "turning-in." Probably the last meal will cost another shilling. Thus we have an expenditure of four shillings and sixpence for actual "bed and board" per diem. Sight-seeing may be an expensive item, if one wishes to explore every castle and abbey *en route*, while in some districts, particularly in seacoast counties where the sea makes long inroads into the land, tolls and ferryages add considerably to the outlay.

Taking an average of eighteenpence per day for these sightseeing and road charges, the minimum daily cost of a tour cannot reasonably be expected to come out at less than six shillings. Even then there is an ever-present worry of having to control the exchequer, and experience alone can show how quickly a sovereign will melt when on pleasure bent.

As to one's equipment, the less carried the better. A change of stockings, vests, and under-clothing, a mackintosh cape, hair brush and comb, and a tooth-brush will be sufficient for the average tourist. If a lengthy tour is anticipated, then the parcels post can be relied upon, but in this case one's itinerary becomes somewhat arbitrary. The question of how to carry one's luggage on tour has been fully dealt with in these columns only a few weeks ago, under the heading of "Cycle Carriers," so it is unnecessary to go further into the matter.

The daily mileage depends upon the age and condition of the tourist, the district selected, and the climatic conditions.

Many a tour that might have proved enjoyable has been hopelessly spoiled by an excessive daily mileage, especially at the commencement, when the cyclist is not inured to the bodily exertion. We have before expressed a strong opinion that cycle touring does *not* consist of the mileage covered. Twenty-five to thirty miles a day, with frequent halts to explore places of interest, will be found ample, though if the district near home be well known, a rush of forty or fifty miles a day can be made to reach new pastures.

Planning a tour is in itself an art. The proposed district could be carefully "read up," physical conditions noted, and places of historic or natural interest enumerated; for nothing is more annoying on one's return to be asked "So you went through so-and-so; did you see the historic castle?" and through sheer ignorance you will have to confess that particular "lion" has been overlooked.



## Notes of the Week.

**H**OW frequently one has a feeling of disappointment, in glancing through the albums of amateur photographers, or in examining handsome prints which have found a place on the wall, at the absence of mountain views. Of course, hills are difficult to photograph. Still, while we frankly admit all the difficulties, we think more might be done. The northern walls of Ben Nevis, for example, present gigantic precipices which the ordinary tourist knows nothing whatever about. By leaving the beaten track in Glen Coe, many unknown but grand bits of mountain scenery might be photographed. The Larig Pass, which divides the Cairngorm group, would make a splendid picture. In the Welsh highlands, again, in Ireland, and in the Lake district, magnificent views—quite unknown to ordinary tourists—could, with a little trouble and exercise, be taken. While we are no advocates of breakneck rock-climbing, we are perfectly satisfied that amongst the hills, and in our noble glens, there is scope for the amateur photographer which would well repay the little amount of exercise required of him.

On more than one occasion we have attempted to reply to wood-working readers who have asked for instructions as to how certain articles should be finished in order to give them the appearance of fumed oak. It is difficult for us to give full instructions here, but the following plan may be tried:—Procure a tin biscuit box, and ascertain that, so far as the sides and bottom are concerned, it is air tight. Place a saucer of ammonia in this, and arrange the fretwork article above, so that the fumes will get well round it. There will be no difficulty in this; but it should be seen that no part of the wood is covered up, but that it will all be exposed to the ammonia. The lid should then be placed on the box, and all the joints sealed up by pasting stiff brown paper over them. A hole may be cut in the lid, and a piece of glass be fitted in, care being taken that all the edges are closed up; by this means the process may be watched, and the article removed when the oak is fumigated to the desired shade. Wood so stained should not be French polished or varnished, but should be waxed. The process of waxing is simple. Take some beeswax cut into fine shreds, and place it in a small pot or jar. Pour in a little turpentine, and let the mixture stand for half-a-day, giving it an occasional stir. The wax must be thoroughly melted, and then some more turpentine added till the preparation has the

consistency of a thick cream. It can then be applied with a rag, and afterwards brushed up with a stiff brush.

These hints suggest a few words of advice to a photographic correspondent who is troubled with "light leaks" in his camera. A common source of light leakage, especially in cheap cameras, or cameras which have been much exposed to weather, is the flange plate of the lens. This is usually owing either to warping of the wood, or to the loosening of some of the screws of the flange plate. In the first case, the insertion of a shaped piece of black velvet will probably prevent further trouble, while in the second a general tightening up is all that is required. Another source of leakage is between the camera front and the moving lens board. The insertion of two thin strips of black paper will cause the board to work tightly, and prevent this trouble. A somewhat difficult leak to detect is one between the dark slide and the camera back. The easiest way to find out if any light enters is to put the dark slide in its place, and remove the lens. Then place the eye to the aperture, and holding the camera in bright light carefully examine the interior. A leak between the back and the slide can be best repaired by inserting a strip of black velvet.

In reply to an ardent poker-work correspondent, who asks our opinion as to any possible advantages to be gained by sending articles to industrial exhibitions, we may say at once that by this means amateurs have a very good chance of turning pastimes such as fretwork, pokerwork, carving and metal work into genuine paying hobbies. The difficulty is to make a start, and one of the best ways to begin is to exhibit whenever possible. If the work is good, the worker becomes known, and if he is careful to have several neat specimens of his handicraft by him he will soon find an outlet for these. It cannot be too strongly impressed on an amateur, however, that anything offered for sale must be carefully finished throughout in a workmanlike manner. In short, it must be *worth buying* on its own merits. People, nowadays, do not buy out of charity. They pay for an article because they want it, and because it is worth paying for. The home worker should bear this in mind, and before he tries to sell his work he should be perfectly certain that such work is worth buying.



## TWO USEFUL APRONS.

**T**HE front width of the skirt of an indoor dress is generally the first part to show signs of wear and tear and if it becomes spotted and stained it gives a shabby appearance to the whole costume. There are some English women who appear to have an invincible dislike to the use of an apron. In this they show their inferiority to either German or American ladies. With them a smart apron is an indispensable addition to a morning gown and nobody can fail to admire this when it is prettily and smartly made.

There are so many varieties to be had in aprons that there is no reason why they need be of the same kind as those that are used by our cooks and parlour-maids and yet they may be quite as serviceable. Blue linen of the sort worn by French women is one of the most durable materials that can be had, and with a little ingenuity it may be made exceedingly ornamental. More fanciful linens are also suitable for the purpose, and pale green, pink, or brown-holland colour can be employed with great success and can moreover be prettily made up so as to be really important additions to any costume. For hard wear when cooking, gardening, house-cleaning, or painting, a smart sateen overall is better than any apron, but for ordinary wear there is no need to do more than cover the front of the skirt.

The apron sketched in Fig. 1 possesses many novel features. It may be cut from any of the materials above-mentioned. The trimming con-



FIG. 1.—APRON WITH CROCHET TRIMMING.

sists mainly of small crochet rings. They are constructed, as most workers know, by winding cotton round a foundation, such as a pencil, knitting-needle, penholder, or ruler, as many

times as is necessary to render the core of the required thickness. A great many of these rings and of varying thicknesses are needed for this apron. Those down the sides and on the pocket are quite small. A double line of these run also along the bottom of the skirt and frames a band of material of a contrasting colour to that of the rest of the apron. For these tiny rings it is, perhaps, advisable to make them without a solid core, and to work merely a circle of treble with a border of tiny picots of chain.



FIG. 2.—APRON WITH TWO POCKETS.

The hem of the skirt is trimmed with a lace consisting of groups of rings, and similar circles are sewn along the waist and threaded with coloured ribbon for securing the apron. Workers will do well to notice this arrangement of rings, for it is convenient for such a purpose as well as ornamental, and rings threaded with coloured ribbons may be turned to account in a dozen different ways.

The apron in our second illustration is of a strictly useful character though the two sprays on the pockets intended to be embroidered do much to redeem its plainness. It is made of grass lawn in a soft shade of cream-colour. The skirt is cut much more ample than usual so that it wraps well round the dress. Two large pockets are provided and these render the apron valuable for use when some large piece of needlework is in progress, or when gardening. Also it is handy for a lady's maid, the pockets serving for the brushes and combs and other odds and ends of the toilet.

The embroidery required need not deter any amateur from acquiring this handy apron, for it needs only to be outlined with Peri-Lusta or other threads which, like the apron itself, may be obtained from Mr. Robert Cullen, 182, Tottenham Court Road, London. The star-like flowers should be put in with picot stitches unless the thread is extremely coarse, when a single stroke stitch will most likely be sufficient for each petal. The colours may be mixed, so that if our worker happens to have some stray needlefuls she may find a use for them here. The flowers may be pink, blue, and heliotrope, the stems green, but of several shades. Quite a different colour should be employed for the twists round the stems of the flowers and for the scrolls at the base of each spray, dark red, golden-brown and dark blue suggesting themselves as possible for the purpose. Any form of outline stitch may be employed for this fine work, back, rope, chain and coral stitches being only a few with which the worker is probably acquainted.



## LEFT-HAND BOWLING.

BY ALBERT TROTT.

**I**T seems that left-hand bowlers deliver the ball as they do because they have always used the left hand, and I think if they were going to do anything else in life they would use it the same way. A left-hand bowler appears difficult to a right-handed batsman, and it wants a lot of practice to play one successfully. Now if the trundler be a man of resource, there will be many opportunities to worry any batsman, no matter what his pace is. F. A. Tarrant, the most successful bowler of the year, is a capital example. His style is medium or slow, and the length of run he takes is ten yards and, whatever the distance is, it must be carefully adhered to, so that every time the run may be the same. The object of the run is to get some power of propulsion, but the fast bowlers who take a long run of 25 yards soon knock themselves up completely, so that their career in first-class cricket is very short indeed. Avoid being erratic in the matter, as this will cause uncertain delivery, and such a habit is very difficult to shake off. If you are going to bowl left-hand, lay a good foundation, even though it should take you two or three seasons to do so. In order to get his break, Tarrant has the first finger of the left hand round the ball, and the second one round the side, and has the ball in the hollow of his hand, while it rests on the third finger closed up. He lets it go with his three fingers, and in that way gets the leg-break. Like other bowlers, he has a fast ball that comes down once in an over, and he varies the order of delivery as much as possible. I have known many bowlers who have done this. But the batsman could always tell what sort of a ball was coming, and its advent could be anticipated because, having played through several overs, he knew that there was no change in the method. Mix them up and, although every ball of the over may be of a different pace and style, the actual delivery must not be altered.

### THE BEST DELIVERY

that I know of for a left-hand medium pace bowler is a slow ball that comes down with a kind of swinging action. The manner in which you get it is by holding back the arm as it is coming over to bowl the ball and coming down heavily on your right foot, and there is none which puzzles the batsman like this, because he is always mistaken into thinking that a faster ball is coming and plays forward at it, over-reaches himself and misses it, the result being that he is bowled or stumped. But if you send this down very often the batsman will soon know how to deal with it. All this, however, depends on brain power, and the better one's education the abler one ought to bowl. To bowl merely straight counts for little nowadays, but the more you know the more successful you will be.

### WILFRID RHODES

is the most successful among bowlers of his class, and this year he is in grand form. He bowls slow to medium, and his pace is different from that of other bowlers of his style. He has the power of bringing his arm over in a way that makes the batsman think a faster ball is coming. Rhodes mixes up the balls in a very clever manner, and catches the batsman in what is known as two minds. A study of his work on the sticky wickets of the present season will show how effective he is. Colin Blythe, who has done so well for Kent, is a bowler of much about the same pace as Rhodes. On a good wicket he may be expensive, but he is not afraid of being hit, a thing which everyone must expect some time or another. If you play against him, notice he takes his run and starts to swing with his arm behind his back, while on sticky pitches there is a slight kick in his bowling which adds to the difficulty caused by his break. But let the wicket be difficult, and he rises promptly to the occasion, and takes the fullest advantage of the opportunity. Hallows, of Lancashire, is another good man. George Dennett, of Gloucestershire, is slow, and has lots of finger work on the ball. He pitches it well up, and it is difficult to keep the ball down, and there is a great temptation to miss-hit.

### HINTS TO LEFT-HAND BOWLERS.

To the left-hand bowler, I would say learn then to bowl and to make especial use of any gifts that nature has bestowed upon you. If tall, and a high action is possible, cultivate it. Then try to understand the kind of break you get on the ball. Before you try to make the ball spin in any direction, get the break question thoroughly settled. Know what you do, and how to do it. During the last Australian tour we frequently read that "Armstrong stuck up the batsmen." Why? Because he knew what he could do on a certain kind of wicket. It was his opportunity; the reward that comes to those who do not expect to learn everything in one season. He had spent many days in experimenting with one delivery, and resolved to make himself master of it. It was not a question of how to do it, but when to employ that knowledge. "Rome was not built in a day," and a left-hand bowler of any style is not made in a season. I am sure that the wisest thing to do if you belong to a club is to get up early during July and August and, taking a couple of chums with you, to go down to the ground and practise steadily, both with and without a batsman. If you have the latter, then let one be wicket-keeper and the other act as long-stop. But they must be as keen as you are, or else it will all be useless. If you feel a bit slack, stop at once: it is regular practice that will do you good. On the whole, do not, if

you can get some good fellows to help you, resort to nets though, if you are by yourself, of course, there is no alternative. But a reader says: "How far shall I copy my favourite bowler?" Well, suppose you take Blythe as your model. Go to the ground before a match starts and watch the bowler at the nets. His style and methods, but not his mannerisms. George Hirst has a peculiar jump; I don't think anyone could do it but himself. Blythe puts his arm at his back, but it would be futile to try and copy this.

Left-hand bowlers, like all others, have their day, and the present season has shown how they glory in a sticky wicket for a time when the batsman must play forward and will get out. But remember that you must bowl at the batsman with a leg-break on the bad wickets, and then if you have a good length the prize will be a heavy one. A captain should place a high value upon his left-hand bowlers. These who are proved are few and far between, and in ordinary club cricket I have not come across many.

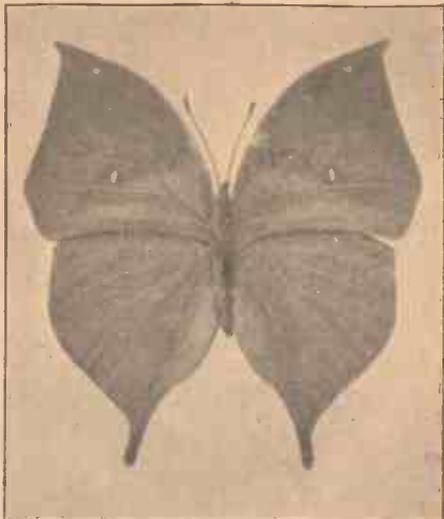
#### BOWLING TO LEFT-HAND BATSMEN.

If you have one in your club team, use him very sparingly, or you will find that he will be ruined by over-bowling. Even in matches, do not keep on a young fellow in his teens for more than a dozen overs, and directly he seems to tire take him off. There would be fewer matches drawn if we had more left-handed bowlers who could be relied upon when the game was going against their side. Some bowlers experience great difficulty in bowling to left-handed batsmen. The necessity of alteration in their style seems to worry them, and interfere with their accuracy of pitch. If a slow bowler tries to get a left-handed batsman caught on the off side, he places some of his men on this side and bowls the off-break (or, as it would be to a left-handed batsman the leg-break) with the object of getting the batsmen to play inside the ball, and thus make an upstroke. In short, the men are placed as a left-handed bowler places them when bowling to a right-handed batsman. Left-handed batsmen are notoriously strong and powerful in their off-hit, and, consequently, the bait must be laid in this direction. As a rule, left-handed batsmen are inclined to be a trifle erratic and unable to restrain their keenness to hit, and, consequently, they pay the usual penalty of attempting to hit wildly off balls going away from them, and anyone who watches Clement Hill, the great South Australian batsman, or my friend, Joe Darling, will have noticed this, but occasionally a bowler meets with a left-handed batsman who is too good a player to throw away his chance of scoring, and then different tactics must be employed. There have been wonderfully few really good left-handed batsmen in England. Kinneir, of Warwickshire, and Bobby Peel, of Yorkshire, are about the best I know. Lastly, when a really good left-handed batsman comes in, one who is not likely to get himself out on the off-side by careless hitting, an attack should be made on his leg stump.

**LUCKY NUMBER GETS RENT FREE.**—A Paris flat owner has hit upon an idea which is popular with his tenants. On the door of every apartment is a number, and on the first of each month the landlord draws a lottery, and the occupant of the flat the number of which proves to be the winning one pays no rent that month.

#### The Indian Leaf Butterfly.

NOTHING perhaps is more curious than the way in which Nature helps defenceless creatures in their efforts towards self preservation. The various disguises insects assume during their



THE BUTTERFLY WITH WINGS OUTSPREAD.

transformation are a study in themselves. The two photos reproduced, taken from life, are striking examples. The first photo shows the Indian Leaf Butterfly with its wings outspread and the second with the wings closed. The wonderful resemblance it bears to a dead leaf in the second photo is very striking; few, if any, would at the



THE BUTTERFLY AT REST.

first glance think it a butterfly at all—they would say it was a leaf growing on the twig. Note also that the butterfly draws its antennæ between its wings, which prevents them betraying its identity



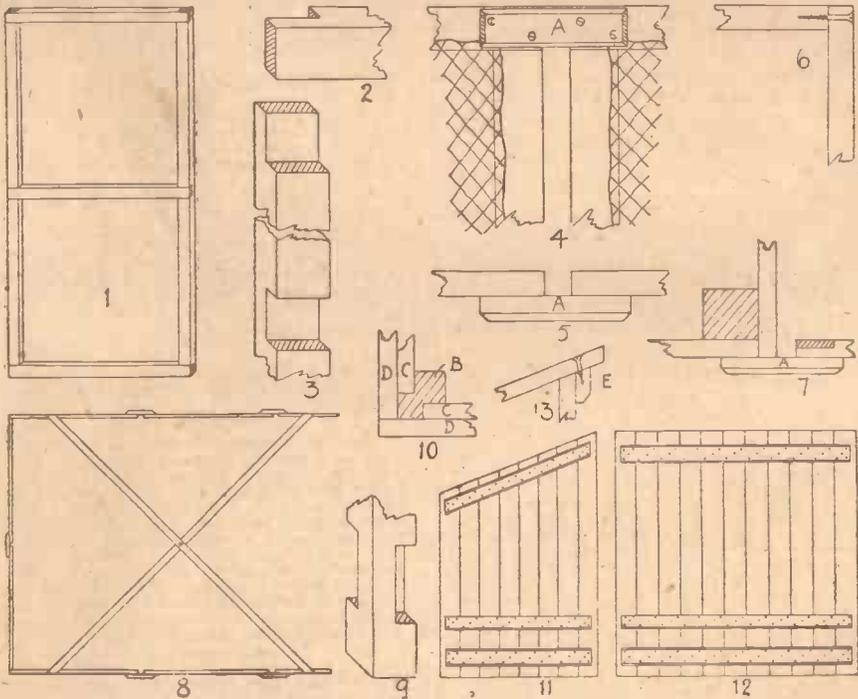
# FARMHOUSE CARPENTRY.



## HOW TO MAKE A FOWL-HOUSE AND RUN.—Contd.

**I**N the last article we finished the fowl-house, and we will now show how to form the run in the easiest possible manner, and at the same time so that it may be enlarged or reduced in size, or may be removed quickly, without excessive labour, or waste of wire netting. To enable us to do this, we must make a number of frames, as Fig. 1, each six feet high, by three feet three inches wide. They are made

For a run twenty feet long by six feet wide, we shall require fourteen of these frames, each to be covered with wire netting, as shown in Fig. 4, where it will be noticed that the edge of the netting comes only about half-an-inch on to the wood, this netting three feet wide, covers a frame three inches wider, or in a run the size we are making, we gain two feet in length by making the frames the extra size.



FRAME AND DETAILS OF FOWL-RUN.

out of what are technically called "slate battens," and which may be purchased at any builder's yard very cheaply. These are usually stocked in two sizes, two inches wide by one inch thick, and the same width by three-quarter inch thick. The former should be chosen for preference. These frames are fixed together with halved joints, details of which are shown in Figs. 2 and 3, the former showing the rail or cross piece, and the latter the stile, or upright piece.

After all the frames are made and the netting put on, they are fixed together (leaving a space of an inch and a-half between each pair, as shown, by screwing fillets to them at top and bottom. (See A, Figs. 4 and 5.)

At the corners of the run the stiles of the frames are simply screwed together at right angles, as in Fig. 6, and where the run joins the house, the frame is fixed, as shown in Fig. 7, by two fillets similar to those at other parts of the run.

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An entrance to the run is provided by leaving one of the frames loose, and hinging it to the next one, using a simple turn bottom, harp and staple, or padlock to fasten it.

If it is thought necessary to cover the run in at the top, similar frames can be made and screwed on, and these will act as supports to the otherwise somewhat flimsy structure, but as a rule, it is not thought advisable to cover in a run of this height, very few fowls attempting to fly over, and thus it becomes necessary to adopt other means of making the frames more stable. The simplest method of doing this is shown in Fig. 8; it consists of fixing battens (similar to those used in making the frames) diagonally across the runs, screwing them to the frames, and also screwing them together where they intersect. If the frames forming the run are kept straight while the braces are being fixed, these latter will keep them so, and the structure will be comparatively firm and strong, that is, as much so as there is any need for it to be.

Before leaving the run, we may say that it is a good plan to paint the frames, this adding very considerably to their lasting properties, and if done before the wire netting is put on, it neither costs much or takes long to do.

Having arranged a portable run, it seems somewhat absurd to make a house which is not portable. We therefore propose now to show how the same house shown in the previous article, can be made so as to take in pieces for removal.

This is done by dispensing with all framing except the corner posts, and making each portion of the house, that is, the ends, the front and back, and the roof complete in itself, so that by screwing them to the corner posts they form the house at once.

The posts require notching out at certain places to take the ledges which hold the parts together, or the home would be very weak. Thus Fig. 9

shows the bottom end of one post, cut away to suit the ledges of end and back, and Fig. 10 shows a section at one corner, in which B is the post, C the ledges, and D the boards forming back and end of house.

Figs. 11 and 12 show the end and back respectively of the house, the middle ledge being placed at the right height to suit the floor, and in putting in the latter, there need be only about one board in four fixed at all, but these should be fixed with one screw only at each end, into the ledges.

The roof is made in the same way, all in one piece, and fillets must be fixed all round close to the side boarding, as E, Fig. 13, by screwing through the roof boards into them, and then a screw or two through these fillets into the side and end boards, will effectually fix the roof on, and at the same time it can be lifted off bodily, without disturbing the felt or other waterproofing with which it is covered.

It is advisable to grease all screws used in fixing the house together, as well as in erecting the run, as this will entirely obviate any difficulty in withdrawing them at any time, this being often a matter which causes some considerable annoyance if the above precaution is not taken.

In our next article we will show how to make a wheelbarrow suitable for farm and garden use.

### EXPLANATION OF DRAWINGS.

Fig.

1. Frame for run complete.
2. Cross rail, halved ready for fixing to stile.
3. Stile, halved ready for fixing to rail.
4. Method of fixing frames together to form run.
5. Plan of Fig. 4.
6. Method of joining frames at corner of run.
7. Method of fixing frames to house.
8. Method of bracing run to give stability.
9. Corner post, notched to take ledges.
10. Corner of house, sectional detail.
11. End of house, ledged together.
12. Back of house, ledged together.
13. Method of fixing on roof to portable house.

## Correspondence.

### CHINA.

T. C. (Warwickshire).—Your china bowl was made at Stoke about the year 1843, during the partnership of Copeland and Garret. It appears to have been made to order and decorated with the coat of arms of the owner. Being broken, the bowl is not of any special value. The exact value depends upon the beauty and richness of the decoration. We cannot form any idea of its worth because you do not give the size, a material factor in the value of a bowl.

### COINS.

HARRY HOLDEN.—We have looked through your list of coins but you only appear to have sent rubbings of one side of the coins—in some instances that is not sufficient. However, we recognise them all and may say that none are of any particular value. No. 4 is the best; it is a lion sixpence of George IV. and is worth about 4s. No. 7 (if gold) is a half-guinea of George III., being holed it is not worth more than 12s. 6d.

F. SPRAY.—The coin you send a rubbing of is one of the very common tokens put into circulation during the close of the eighteenth century. The inscription upon it is purely commemorative. It is a half penny token. Such pieces only sell for a few pence even in the best state of preservation.

E. B.—The coins you mention are of current value only. A jubilee sixpence, 1887, of the first issue, is worth about 2s.

F. E. S. JONES.—The wax impression of coin does not represent a half farthing of George III. Your piece is evidently, if copper, a "bad half-sovereign." It is of no value, such forgeries are common.

J. S. HOWSON.—Sorry your farthing of Queen Victoria, dated 1850, is of no value; neither are the other coins mentioned.

### MISCELLANEOUS.

J. W. MALLETT (Bradford).—Take a basin half full of water and sprinkle plaster of Paris into it until it reaches the surface of the water, and fill up the wooden hollows with the mixture. It will set hard in about a quarter of an hour. Good plaster of Paris, which smells sweet, must be used, the inferior kind, which has a sulphurous odour, sometimes refusing to set.

T. DEAN.—We regret we are not personally acquainted with the salubrious properties, or otherwise, of the soil and air at Melton Constable. Why not drop a line to the Clerk of the Council who will probably be only too pleased to give you the information which you desire?

J. L. (Kinsale).—Consult your local printer.

**HAVE BENT IRON WORKERS** read our handbook on this favourite hobby? It has a hundred and thirty illustrations, and is at once the cheapest and most serviceable handbook on Venetian Bent Ironwork published. Full particulars as to the necessary tools and materials are given; also clear instructions as to the formation of curves and scrolls, the methods of fixing, soldering, riveting, framing, &c., and the making of various articles. A chapter is devoted to working in brass and copper, and several pages of working drawings are included. The price of the handbook is one shilling, or post free 1s. 1d., from Hobbies Ltd., 12, Paternoster Square, London, E.C.



## The "Arms" Stamps of Luxemburg.

**T**HE first stamps of the Grand Duchy of Luxemburg, bearing the head of King William of the Netherlands, have been touched upon in a recent HOBBIES article, *apropos* of the discovery of reprints produced on official paper. Let us now glance at the following issues—the stamps bearing the arms of Luxemburg—which are perhaps the most interesting of all. The issues we refer to as the "Arms" stamps of Luxemburg are those of the



period 1859 to 1882, and do not include the "Peace and Commerce" series which began to make their appearance in December, 1882.

The "Arms" stamps abound in varieties of perforation, or, to speak more exactly, in varieties of "means of separation," since there was no ordinary perforating until 1874. Perhaps a few notes on the various emissions of the "Arms" series, taking them in chronological order would be the best way of dealing with the subject.

**ISSUE OF 1859-63:** The stamps of the type now under notice began to appear in 1859, and by 1863 the set was complete up to 40 centimes, as follows:—

1 centime	.. ..	pale brown
2 centimes	.. ..	black
4 "	.. ..	yellow
10 "	.. ..	blue
12½ "	.. ..	rose
25 "	.. ..	brown
30 "	.. ..	mauve
37½ "	.. ..	green
40 "	.. ..	orange

These are imperforate. Shades of colour are to be found in the 4c. yellow and 10c. blue.

**THE FIRST ROULETTES:** Rouletting, as a means of readily separating the stamps, was first employed in 1865. Between that year and 1871 the 1c., 2c., and 4c. stamps were supplied with plain rouletting. The 1c. in this series is a slightly different colour, being now a distinct red-brown. Also the 4 centimes was, in 1871, pro-

duced in an entirely new tint—green. The varieties here are the 1c. and the 4c. (yellow and orange-yellow) in unused condition.

**ROULETTING IN COLOUR:** Concurrently with the issue of the plain-rouletted stamps already described all the values up to 40 centimes—with the sole exceptions of the 2c. and 4c. stamps—were issued with coloured rouletting. As it is important to know the particular varieties issued in this way we give an exact list of the values and colours:—

1 centime	..	orange, brown-orange and red-brown.
10 centimes	..	red lilac, and light and dark lilacs.
12½ "	..	carmine, rose, dull rose
20 "	..	grey brown, yellowish brown, chestnut.
25 "	..	blue, ultramarine
30 "	..	mauve
37½ "	..	bistre
40 "	..	orange-red

It will be seen that the list includes one new value—the 20 centimes. Several of the varieties are becoming increasingly scarce, especially the 25 centimes in the ultramarine shade, unused, and the two highest values, the 37½c. (used or unused) and the 40 centimes unused.

**THE FIRST PROVISIONAL:** In 1872, a higher denomination being required for registered packages, &c., the 37½c. stamp was surcharged "Un Franc" in black block lettering. The quantity of 37½c. used up in this way goes far to account for the rarity of this value in unsurcharged condition.

**THE PERFORATED SERIES:** All the stamps so far listed, except the 20c., but with a new value added, the 5 centimes yellow, were issued with a machine perforation gauging 13 in the year 1874. At this point a new element of some importance has to be touched upon—i.e., varieties of printing. Later stamps of this series with almost identical perforation were printed in Holland, whereas all those of the 1874-1880 series were of local production. Apart from small differences of perforation there is one infallible means of distinguishing between the stamps printed in Luxemburg and those printed in Holland, the former having far smaller margins (through being set closer together on the printing sheet) and thus the whole stamp is slightly smaller in the case of the home-printed article. Three of the values of the 1874-80 period are known imperforate—namely, the 4c. green, 5c. yellow, and 10c. lilac.

**THE SECOND PROVISIONAL:** There was a second edition of the "un franc" provisional in 1879, the 37½c. value again being selected for

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overprinting. A curious error crept into this little surcharging job, one (or more) of the stamps in the sheet being over printed "Franc" instead of "Franc!" The first and second provisionals of 1 franc on 37½ centimes are, of course, distinguishable at a glance by the fact that the first is rouletted while the second is "perf. 13," but there is also a difference in the type used for the overprinting, the first surcharge being all in capitals, while the second is in capitals and "lower case."

**THE STAMPS PRINTED IN HOLLAND:** The Dutch-printed stamps of the "Arms" type appeared between 1880 and the end of 1882. They consisted of the values 1c. up to 30c., and one finds them in three different gauges of perforation—namely, 13½, a compound of 12½ with 12, and a compound of 11½ with 12. Many, especially in the last-named variety of perforation, are extremely scarce.

### THE PARIS PHILATELIC EXHIBITION.

The semi-official Paris Philatelic Exhibition, held in the Rue Ménars from the 6th to the 12th June, appears to have been an all-round success. A few notes on the chief exhibits will suffice to show what an extraordinary assemblage of French rarities visitors to the show were privileged to view.

The two collections shown by Mons. de l'Argentiere were the stars of the Exhibition. One collection consisted of sheets, pairs and blocks of unused French stamps of all issues. This embraced no less than 125 large cards of stamps, included thereon being all the great philatelic varieties of France. The second collection shown by this gentleman was devoted entirely to stamps of the Empire and the "Bordeaux" issue of 1870. Especially remarkable were the Bordeaux stamps, represented by no less than 2,200 stamps, all used specimens, and including many pairs and blocks.

The Comte Durrieu, another eminent French philatelist, displayed only a portion of his remarkable collection, but this portion alone would, we suppose, be worth almost a prince's ransom, for it included the only known complete sheet of the 20 centimes, blue, of 1849 (showing the three *te-te-beche* specimens) and also a complete sheet of the 10 centimes bistre on rose, 1871, showing the error "15 centimes," which, of course, was caused by dropping a cliché of the 15c. value into the made up printing plate for the 10 centimes.

The exhibit of Mons. Henri Kastler consisted entirely of French stamps of the "Peace and Commerce" type in unused sheets, showing all the marginal dates known, and also without dates.

Probably, however, many of the visitors to the Exhibition were chiefly interested in the official exhibits by the postal authorities and the administrators of the Paris Mint. The official display of unperforated sheets of past and present postal issues must have been worth a long walk to see, and especially the sheets illustrating the various successive re-touches of the stamps of the "Semeuse" issue. The exhibition as a whole must have been a rare treat to those who were fortunate enough to attend, but it is a matter for regret that the enterprise was rushed through so rapidly that it was "a thing of the past" before many philatelists had so much as heard of it!

### SOME BRITISH STAMPS AT AUCTION.

During the sale of the well-known "Cox" collection at various auctions held by Messrs. Plumridge & Co., at the Arbitration Rooms, Chancery Lane, W.C., some most interesting British and Colonial "lots" have changed hands at prices which prove that the interest in these sections of Philately remains unabated. As we have already given many recent realisations for notable varieties of Great Britain, it will not be out of place to add the following examples from the Cox collection:—

	£	s.	d.
1840, 1d. black, worn plate, unused	1	2	0
1870, 1d. rose red, O.P.P.C. error	2	8	0
1865, Emblems, 6d., plate 6, mint	3	5	0
1867, Spray, 6d., plate 8, imperforate, used on piece, lettered Q.C.	3	12	6
2s. deep blue, mint	2	12	6
2s. pale blue, mint	2	12	6
2s. brown	2	12	0
1867-83, 5s. rose, plate I., mint	1	15	0
" wmk. Cross, 10s. grey-green	1	7	0
" " £1 brown-lilac	1	14	0
" Anchor on white, 5s. rose, plate 4, a pair	3	3	0
" Anchor on blue, 10s. grey-green	1	9	0
" " £1 brown-lilac	5	12	6
" " white, £5 orange, mint	5	12	6
" " bluish, £5 orange	2	0	0
1884, Crowns, £1 brown, mint	5	10	0

At another recent sale held in Messrs. Puttick & Simpson's well-known rooms, the following remarkable prices for official and telegraph stamps were recorded:—

	£	s.	d.
I.R. Official, 1885, 10s. blue, a pair	9	10	0
" " 1902-4, 1s. green and scarlet, mint	5	0	0
" " 5s. carmine	15	0	0
Army Official, 1903, 6d. purple, the 2nd type, mint	5	0	0
Telegraphs, 1876, 3s. grey, wmk. Crown, imperf., mint	2	2	0

"FLYING MACHINES: Past, Present and Future," is the title of an interesting little book issued by Messrs. Percival Marshall & Co., of Poppins Court, Fleet Street, E.C. It gives a popular account of flying machines, dirigible balloons and areoplanes, and is profusely illustrated. Whatever form the final evolution of the flying machine takes, we hope sincerely that the noise of its propulsion through the air will never render it a public nuisance.

OVER 50,000,000 gals. of water are pumped out of the anthracite coal mines of Pennsylvania every day in the year. The exact average for 1905 was 633,000,000 gal. per day. Nearly 1,000 powerful engines, delivering from mine bottom to surface 500,000 gal. of water per minute, are required. Mines may be shut down and coal production suspended, but the water flows on for ever. The cost of removing it is one of the important items of expense that make up the price of anthracite.

**CASE AND INDEX FOR VOL. XXIII.**—A handsome Red Cloth Binding Case for Vol. XXIII. of HOBBIES, with Index and Title-page, may now be had for 1s. 3d., post free. The Index with Title-page alone may be had for 2d., or post free for 3d. Indices for previous volumes (except for Vols. IV. and V.) may also be had. Bound Volumes of HOBBIES, XIII., XIV., XVIII., XIX., XX., XXI., XXII., and XXIII. may be had, price 3s. 6d. each, post free. (The other volumes are out of print.) HOBBIES LIMITED, 12, Paternoster Square, London, E.C.

# POPULAR MECHANICS.



## SOME USEFUL APPLICATIONS OF ELECTRO-TYPING.

**S**OME fifty years ago, every dabbler in electricity, taking advantage of the facility which the then recent introduction of the "Daniell" cell placed in his hands, took up, as a hobby, the reproduction of medals, coins, plaster casts, and other more or less artistic objects, in copper; and this occupation, besides fulfilling the legitimate object of a hobby, culminated in the perfecting of the electro-type process. But there is one application to which the electro-type process lends itself very readily, but to which, strange to say, few amateurs have directed their attention, and that is, the actual production of stamps or other embossing plates or discs, which in the ordinary mode of production require the aid of a skilled graver. We refer more especially to the production of seals, signets, embossing stamps, or similar. Yet these not only can be executed with the greatest precision from existing patterns, but call for the exercise of but little skill and small expense. We think, therefore, that the reader will find much interesting occupation in the production of such, and we will give a few examples of the manner of producing such embossed stamps.

The apparatus required is of the simplest nature. The first essential is a good Daniell cell, and, in view of the fact that we need not limit ourselves to the size of a small medallion but may even undertake the production of a printing block 4 in. square, it will be well to make up a cell of considerable size; and to effect our decomposition, or, to speak more correctly, our deposition, in a vat or other containing vessel entirely separate from the battery itself. The Daniell cell itself should be of half-gallon size, and consist of a well glazed stone-ware jar about 6 in. in diameter and 10 in. in height. The inside of this should be lined with sheet copper about 1.32 in. in thickness, and having a lug extending about 1 in. beyond the level of the jar, this lug being 1 in. wide. This lining can easily be made by cutting a sheet of copper about 13 in. long and 10 in. in width and rolling it into a cylindrical form round the outside of the jar, and then inserting it into the jar in which it will fit by virtue of its springiness. In order to produce the lug, which is to overlap at one side, a strip of similar copper about 2 in. in length and 1 in. in width, is soldered at a depth of about  $\frac{1}{2}$  in. from the top to the joining edges of the cylinder, and then bent at right angles to overlap the top edge of the stone-ware jar. At about  $\frac{1}{2}$  in. from the outer extremity of this lug or strap is drilled a small hole into which is to be inserted the shank of a small binding screw

that may be fastened to the lug either by means of a brass nut from underneath, or by means of a little solder.

The next step is to procure a porous pot, the external diameter of which should not be less than 3 in., while its height should exceed that of the stone-ware containing vessel by at least 1 in. This porous pot should be dipped at its upper or open extremity for a depth of about 1 in. in hot melted paraffin wax. The object of this is to prevent "creeping" of the sulphate of zinc which forms during the action of the cell. Directly the cell has imbibed sufficient of the paraffin wax to ensure this result, it should be poised, mouth downwards, on an upright stick, to allow the paraffin to set without trickling down the pot. To the mouth of this porous pot it would be well to fit a little wooden lid or cover which enters for about  $\frac{1}{2}$  in. in its mouth.

In the centre of this lid is drilled a small aperture through which is passed the copper wire proceeding from the top end of a cylindrical zinc rod. This may be purchased ready-made and is similar to the cylindrical zinc which are sent out with the larger Leclanche cells; or may be cast from good scrap zinc if the operator has convenient appliances for casting such rods. In either cases, but more especially in the latter, this zinc must be well amalgamated; an operation which is easily performed by standing the zinc upright in a saucer containing a little dilute sulphuric acid (1 part acid to 12 parts of water), there being placed also in the saucer a few globules of mercury, which are rubbed over the surface of the zinc with a plectet of tow or with an old tooth brush until the whole surface of the zinc has acquired a mirror-like brilliancy. It then should be rinsed in plenty of water, and set aside to dry. The wire, projecting through the cover above-mentioned, may be twisted round or otherwise securely attached, metallicly to the shank of a second binding screw. To charge this battery, the first step is to fill the porous cell to within an inch of the top with clean water, and to allow it to stand until it has become permeated. The water is then emptied out and the porous pot filled to the same height with dilute sulphuric acid of the strength of 1 part of oil of vitriol to 20 parts of water by measure; care being taken in all cases in which these two fluids have to be mixed to pour the oil of vitriol in a fine stream, with constant stirring, into the water, and not *vice-versa*, for fear of the acid being splashed out on the operator, owing to the sudden extrication of heat during the mixture. The porous pot should then be stood in the earthen jar, and a little canvas bag (pre-

## HOBBIES.

ferably made of cheese cloth) fitted in the space between the porous pot and the copper sheathing. This bag should reach very nearly to the bottom of the stone-ware jar, to which it may be attached by means of a copper wire hook passing over the rim. This bag should be filled with crushed crystals of sulphate of copper (blue stone) and the remainder of the space between the copper sheathing and the porous pot filled in to within 1 in. of the top with a saturated solution of sulphate of copper in water, to which about 1-20th of its bulk of oil of vitriol has been added. The addition of this latter is not absolutely necessary, but, as it conduces to the free passage of the electricity through the solution, it permits of a larger volume of current (in ampères) being drawn from the cell.

Our battery is now complete and ready for action, and only requires, to keep it in working order, that the bag containing the sulphate of copper crystals should be replenished in proportion as the crystals are dissolved.

Another precaution that must be observed when working with this battery is *never* to allow the two wires that proceed from the two terminals to come into contact with one another, as this would inevitably run down the battery, consuming the zinc to no purpose. If the operator has any difficulty in procuring cylindrical rods of zinc, strips of the same metal, cut from stout rolled sheet zinc of such dimensions as to fit easily into the porous pot, will answer quite as well, provided they be well amalgamated and project a little beyond the mouth of the porous pot. In this case, the lid need not be employed, but the binding screw put transversely on the top of the zinc plate.

We must next turn our attention to the construction of the depositing vat, the size of which

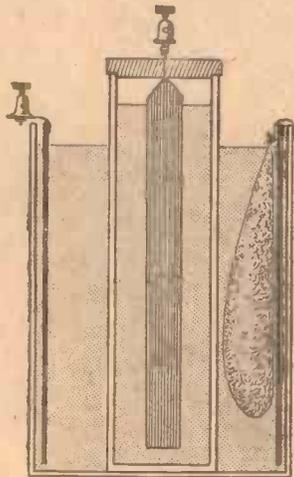


FIG. 1.—SECTION OF DANIELL CELL.

will depend largely on the size and nature of the work which it is proposed to undertake. For all small work, not exceeding, say 3 in. square or in diameter, and not exceeding in thickness half-an-inch, an ordinary 2 lb. jam pot of well glazed stone-ware will be found very suitable.

For larger work, such as printer's blocks, square dishes either wide and shallow or deep and narrow, may be employed; these may be procured at any of the potteries, such as Stiff and Son, or Doulton's.

On the top edges of such vats are arranged, separate from one another and capable of being moved to greater or lesser distances apart, two stout copper rods, known as "slinging rods,"

and from one of these is hung a copper sheet dipping nearly to the bottom of the vat. This is known as the "anode." To the other rod are suspended the objects on which the copper is to be deposited, and this rod is known as the

"cathode." The vat itself is then filled to the required height, with a saturated solution of copper sulphate in water, acidulated with about 1-20th of its bulk of sulphuric acid, as previously recommended when speaking of the Daniell cell.

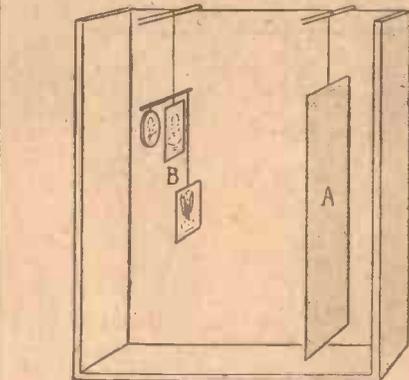


FIG. 2.—SECTION OF DEPOSITING VAT.

(A. The Copper Anode. B. The Cathode where the Copper is Deposited).

Our next section will treat of the manner of using the apparatus for the reproduction of seals, stamps, and other incised work. Figs. 1 and 2 are sectional views of the Daniell and the depositing cell respectively.

(To be continued).

MICA is much used in electrical machinery, as an insulator between the segments of commutators. For this purpose the mica must be soft. Large sheets of mica are in demand for lamp chimneys, and other novelties. Scrap mica is ground fine for fire-proofing material, as a lubricant, and for wall papers.

### 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.



## The Treatment of Cut Flowers.

**W**HEN flowers are cut and used for decorative purposes, we usually wish them to last in a good condition as long a time as possible. The length of time the flowers last when cut and placed in water depends more on the person who attends to them than on the flowers themselves, and, therefore, a few notes on the subject of cut flowers may be of service at this season, when almost everyone has flowers about the house.

The bloom should always be taken from the plant in the early morning, as it is then in its fullest vigour. In the middle of the day the sun and dryness of the surrounding air has usually extracted much of the moisture from the petals and they are consequently limp. Late in the evening is also a good time for cutting flowers, as the petals have then had time to regain the moisture lost during the day. Another thing to be remembered is that unless the stems are placed in water immediately after they have been cut they form a callus over the cut surface, and thus the moisture is hindered from passing into them. If they cannot be put into water directly after they have been cut, the bottoms of the stems should be cut again before placing them in the vases.

There are many flowers that keep longer in a mixture of charcoal and wet sand than in clear water. Charcoal should always be used in flower vases unless they are transparent, as it prevents the water from becoming putrid by absorbing the obnoxious gases. Flowers that have begun to flag may often be revived by placing their fresh cut stems in tepid water. Most flowers last the longest when gathered before they are fully expanded.

### Lupinus.

To ensure success with Lupinus, both in herbaceous and shrubby varieties, the soil should be light and sandy, but quite rich. An ideal position is a rocky slope, or in a sunny well-drained border. Wherever they are grown it should be where the roots will have a free run, and will not be disturbed, as they are extremely sensitive, and if roughly treated even when dormant are often so much injured that they are a complete failure next season. The annuals should be sown directly in the positions in which they are intended to bloom, so as to obviate the disturbance of transplanting. The ground should be thoroughly mulched every winter with good manure, in order to secure a good display of bloom every year. April is the best time for planting, but so long as the roots are protected from undue

exposure they may be planted at any time during the resting season. If the flowers are not allowed to produce seed the plants will throw up new spikes, and so considerably prolong the blooming period.

The best of the shrubby varieties is undoubtedly Snow Queen. It is pure white, very floriferous, and the flowers are much larger than those of most varieties. It is a rapid grower, and a small plant quickly develops into a large bush, if given favourable conditions. Being usually propagated in pots, it may be planted at any season of the year, so long as the work is done carefully.

### Cucumbers.

DURING the sunny days we have lately been experiencing, Cucumbers will have grown away with rapidity and will therefore require much time and attention in regard to tying and thinning. By thinning we mean that all lateral growths should be cut away from the main or central growth. The leaders should also be periodically stopped, as this materially assists the vines to properly set their fruits. Whether the plants are growing in a greenhouse or frame they should be kept as close as is consistent without scorching. At least three times each day the house and frame should be "damped down." When tiny white rootlets are seen protruding from the surface of the soil, it is certain that the plants are growing away with vigour, and want to be further nourished with some form of top dressing. Good loam is the foundation for the mixture, but a small quantity of Hobbies Plant Food should be incorporated with the loam.

### Seasonable Hints.

THIS is the best time in the whole year for the successful budding of Roses. Stocks are a bit backward this year owing to the cold nature of the Spring and early summer time. Success depends greatly upon the condition of the buds: that one selects for use. If immature wood is taken failure is certain, therefore take care that all buds are properly matured. One can easily ascertain the maturity of the wood by bending a portion down, if it bends too easily and appears full of sap it is immature.

It will be necessary this year to exercise care in watching for the swelling of the Rose stocks, for after the very heavy rains during the late Spring months, Rose stocks will swell to an abnormal extent, and if the stocks swell too large they will overgrow the buds. It sometimes happens that raffia tied in early July will by the end of August become so tight around the stem of

## HOBBIES:

the tree that it will almost sever the stem in two.

Growers of Dahlias for exhibition purposes should now cut out the central growths in each plant, and allow but three lateral growths to grow on each plant. On these growths there should not be more than one bloom bud at any given time.

Prepare for layering Carnations which have been grown in pots by placing the pot plants out of doors. This course of procedure is adopted to thoroughly mature the shoots which it is intended to layer, and further to thoroughly cleanse the plants from any pest which may have become prevalent through house culture.

This is the best time to take cuttings of Phlox, Pentstemons, and such-like hardy herbaceous plants. They may be inserted about 3 inches apart in cold frames and covered to prevent the sun from shining upon them for at least a fortnight after inserting.

Hoeing is an important feature in every garden at this season of the year, and when the weather is dry one is easily able to rid one's garden from weeds.

If it is undesirable to cut up the paths and drives around the dwelling house it is recommended that weeds be got rid of by dressing them with the Elphin Weed Killer. This weed-killer is guaranteed to be non-poisonous to all animal life. It requires care in handling, and should be put upon the ground with gloves, as in the event of any small cut on one's hands, injury results.

We do not recommend Lawns to be watered before the middle of July, but if the weather is at all dry, and Lawns are showing the want of water, then give a copious supply from the hose during the evening.

Lose no time now in completing the stock of young Strawberry plants for potting and planting.

If insects are now giving trouble on Plum trees they should be treated with a wash made from soft soap and paraffin oil. Dissolve the soap in water first, and then add the oil and keep it agitated while using it.

Forget-me-nots should now be sown for spring blooming, also intermediate Stocks for the same purpose.

Stake Chrysanthemums to prevent winds breaking the branches and spoiling the plants.

Autumn sown Onions should be pulled up, and layed out thinly to complete the ripening.

Syringe the leaves of Hollyhocks with a weak solution of Gishurst compound as an antidote for the fungus. Assistance may also be given by mulching, and liquid manure.

The last lot of Leeks should now be planted in trenches, 18 inches apart and 6 inches deep, with a good layer of manure worked into the bottom.

Give water to Apricot and Peach trees growing against a south wall. It would be difficult to overwater such trees now, if the drainage of the garden is right.

Cucumbers in houses and frames which have been in bearing some time will need a free but careful use of the knife to keep up a continual influx of new growth. Once a week the plants should be gone over, if not oftener, and an old shoot removed here and there to make room for the young wood. Cut a few of the old leaves away to let the light in to the young growth. Top-dressings of rich soil and plenty of water, both at the roots and also in the atmosphere is an absolute necessity now. The less air Cucumber

houses have the better it is for them, for when the ventilators are open, the dry air from outside rushes in and drinks up the moisture, and this causes red spider and other pests.

Lift early Potatoes now, if the growth is finished, and the skins set.

Now is the time to sow Turnips, winter Spinach, or some other useful crop on the land. A great help to the next crop would be found in a sprinkling of soot or some other artificial manure lightly forked or hoed in.

Late Peas may have their roots flooded with water, and a mulch of some kind placed over the watered surface immediately after.

Now is a good time for layering Carnations, as the young shoots are now in a good condition. The soil in which the shoots are pegged should be gritty. A mixture of leaf soil and loam, with some road-grit or sand, will do very well. The layer must be kept moist till the roots are formed.

Dahlias require now frequent attention in tying and thinning, the latter attention being given to the robust growers where fine blooms are required. For the same purpose thin the buds of weakly growers to concentrate strength.

Stocks and Asters may be mulched with liquid manure to give size and brilliance to the blooms.

We have noticed during the past few weeks that American blight on fruit trees has been making some headway, and we advise all to keep a careful watch for such a pest, for it does a deal of harm in a very short space of time. One need not be troubled with it long, for it is an easy pest to be rid of. One has only to mix a preparation of stiff clay in a basin to which has been thoroughly incorporated as much paraffin as the clay will hold. If a stiff paint brush is used to dab upon the infested portions some of the mixture the pest will soon die. The brush must be stiff, and if one has not a suitable one, buy a new one, and cut half of it away, and use but the stiff bristles for the operation.

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### Our Weekly Special Bargain.

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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.

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#### Special Offer for This Week.

*6 Packets Hardy Perennial Seeds. Each packet distinctly named, and bearing the direction how to sow the seed. Our Catalogue price for each packet is 3d., but for one week only we are offering the six for 1/- post free.*

**This offer will close July 13th.**

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

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NOTES ON SPECIAL OFFER.—July is known to be among gardeners the best month of the whole year for sowing Hardy Perennial seed, as the young seedlings have a better opportunity to establish themselves and get well hardened before the cold weather sets in. Therefore we present this offer to our readers in order that they may reap the same benefit with their seedling plants. Our seeds are all up-to-date, such as Delphiniums, Foxglove, Aquillia, Antirrhiniums, &c.

# HOBBIES:

## Chess.

JULY 6, 1907.

### TO CORRESPONDENTS.

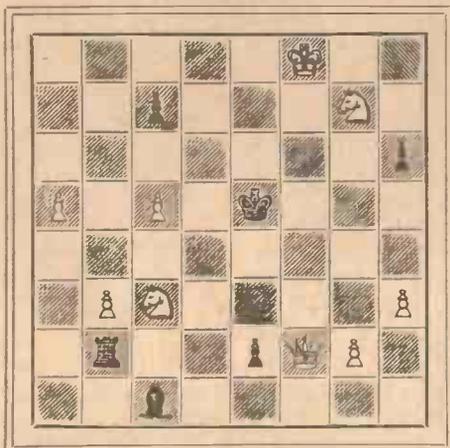
All communications will be answered in HOBBIES. Readers desiring replies through the post should enclose stamped envelopes.

H. A. TATE.—K-K6 will not solve No. 271. Try again; postcards are sufficient.

### PROBLEM.

No. 275.—By G. W. CHANDLER.

Black.—Six pieces.



White.—Nine pieces.

White mates in three moves.

Solutions should be received by Wednesday following issue.

### SOLUTIONS.

No. 271.—By W. GEARY.

1 Q-Q3.

If 1 P×Kt 2 Q-B3 ch K-R5 3 Q-B4 mte.

If 1 Kt-Q7 2 Q-Q4 ch K×Kt 3 P-Kt4 mt.  
Kt-K5 3 Q×Kt mte.

If 1 P×P 2 Q-K4 ch K-R6 3 Q-R4 mte.

One dual by Q-K4 or Q-B3 mate.

Three points.

Solvers' list:—H. Ayre 8, G. C. Baxter 75, H. W. Baker 11, C. A. Blackwell 42, A. Bernstein 95, L. C. Brown 63, H. W. Bick 91, G. W. Chandler 93, H. G. Driver 79, W. H. Dawson 79, H. Elvin 13, E. Eginton 93, S. D. Fresco 96, H. Greenwood 5, J. Goode 45, H. Goodwin 82, H. P. Hoggood 10, Fred. Holmes 27, A. J. Head 34, W. J. Heath 42, J. Howell 36, H. Horsley 36, T. Heath 30, R. Hurst 26, F. Ibbs 32, F. Knowles 52, H. Lawton 90, G. Moore 50, E. Perrin 72, E. Rooome 62, J. Rust 68, A. Sanders 90, R. Thompson 74, W. E. Tucker 2, J. D. Tucker 73, E. Wasserman 42, H. Zaak 90.

### OSTEND CHAMPIONSHIP TOURNEY.

Some very fine play occurred in the Champion-

338

ship Tourney, at Ostend, which was played in four rounds, and resulted as follows:—1st, Dr. Tarrasch, 12½; 2nd, C. Schlechter, 12; 3rd, D. Janowski, 11½, and F. J. Marshall, 11½; 4th, Amos Burn, 8; 5th, M. Tchigorin, 4½.

Dr. Tarrasch, the German master, who takes the first prize, it will be remembered, is the challenger of Dr. Lasker for the World's Championship some time ago, and though the contest did not take place, yet the result of the present Tourney shows that he would be a formidable opponent.

### FOUR KNIGHTS GAME.

A beautiful win by the French Master in the Tourney:—

White. Janowski.	Black. Burn.	White. Janowski.	Black. Burn.
1 P-K4	P-K4	12 P×P	Kt×P
2 Kt-KB3	Kt-QB3	13 P-B3	B-B4
3 Kt-B3	Kt-B3	14 B-B2	B×Kt
4 B-Kt5	B-Kt5	15 Q×B	Kt-B5
5 Castles	Castles	16 R-Q1	Q-B2
6 P-Q3	P-Q3	17 R-K1	B-Q2
7 Kt-K2	Kt-K2	18 B×Kt	Kt×B
8 Kt-K3	P-B3	19 R-K7	QR-Q1
9 B-QR4	Kt-Kt3	20 QR-Q1	KR-K1
10 P-Q4	P×P	21 Q×B!!	Resigns.
11 Kt×P	P-Q4		

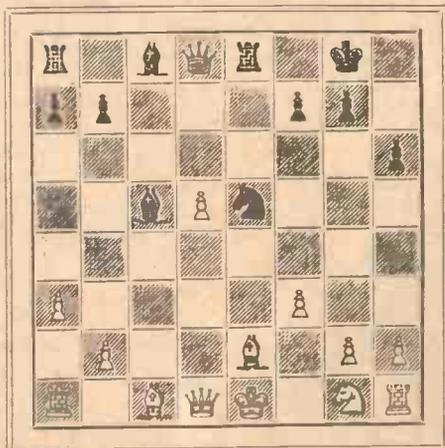
### QUEEN'S PAWN COUNTER GAMBIT.

An off-hand skirmish:—

White.	Black.	White.	Black.
1 P-Q4	P-Q4	15 Q-Q3?	Kt-K4
2 P-QB4	P-K4	16 Q-B2	P-B3
3 P-K3	KP×P	17 Q-Q1	P×P
4 Q×P	Kt-KB3	18 h×P	Kt×Kt
5 Q-K5 ch	B-K2	19 P×Kt	Q-B5 ch
6 QKt-B3	Kt-B3		See diagram.
7 Q-B4	B-Q3	20 P-Kt3	Kt×P ch!
8 Q-Kt5	Castles	21 Kt×Kt	Q-K6
9 P×P	Kt-K2	22 K-B1	B-R6 ch
10 P-K4	P-KR3?	23 K-K1	Q×Kt
11 Q-Q2	B-QKt5	24 K-Q2	Q-K6 ch
12 P-B3	R-K1	25 K-B2	Q×B ch
13 B-K2	Kt-Kt3	Resigns.	
14 R-QR3	B-QB4		

Position after White's 19th move—P×Kt.

Black.



White.

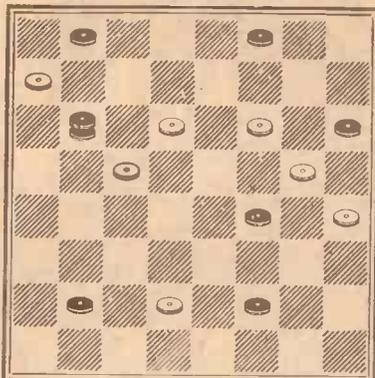
# HOBBIES.

## Draughts.

### PROBLEMS.

No. 929.—By A. HAMPSHIRE, Great Stanmore, Middlesex.

BLACK.

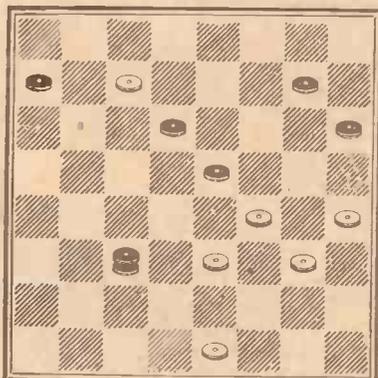


WHITE.

White to play and win.

No. 930.—By A. J. MOORE, London.

BLACK.



WHITE.

White to play and win.

### SOLUTIONS.

No. 927.—By J. SUNDERLAND.

Black : 2, 4, 10, 12, 16, 20. Kings : 17, 25.  
White : 11, 19, 23, 24, 27, 31. Kings : 3, 5.

11	8	16-32	7	16	2-9
4-11	3	7	12-19	5	30
23	18	20-27	31	6	W.wins

No. 928.—By D. ROBERTSON.

Black : 5, 9, 10, 11, 12, 13,  
White : 18, 19, 20, 21, 23, 31.

31	26	26	22	22	18	12	8	4	8
12-16	9-14	15-22	26-31	4	8	W.wins			
19	12	18	9	23	19	8	4		
10-15	5-14	22-26	31-27						

## GAMES.

The two games following were played in the Fourth Round of HOBBIES Correspondence Tourney, between Messrs. T. Worthington, Manchester, and J. W. Atkinson, Wakefield:—

OPENING.—“EDINBURGH” (9-13, 23-18).

Black : WORTHINGTON.

White : ATKINSON.

9-13	30	26	10-19	31	24	14-23
A-23	18	16-20	24	15	10-19	16
5-9	28	24	13-17	24	15	23-26
26	23	7-10	22	13	12-16	22
10-14	32	28	7-10	26	22	26-31
B-24	19	2-7	C-27	24	16-19	25
11-16	19	15	20-27	23	16	D-31-27

Drawn

A.—The balloted opening.

B.—In the Jordan-Freedman match the former played 22-17 here, while the latter adopted 18-15. “Draughts Praxis” recommends the text as the strongest line for White.

C.—An interesting variation from the play in “Draughts Praxis,” page 40, Note D, where 15-11 is given, resulting in a draw.

D.—Left here as drawn. A probable continuation would be as follows:—

29	25	23-14	15	8	1-10	17	13
27-23	17	10	6-15	21	17	Drawn	
22	17	8-11	13	6	4-11		

OPENING.—“EDINBURGH” (9-12, 23-18).

Black : ATKINSON.

White : WORTHINGTON.

9-13	21	14	8-12	26	22	10-14
23	18	6-9	G-25	21	7-10	F-19
A-12-16	27	24	5-9	24	19	14-23
24	20	9-18	23	24	2-7	16
B-10-19	22	15	D-3-8	8	31	27
18	14	11-18	29	25	E-18-23	20
10-17	24	15	1-6	27	18	W.wins

A.—Varies from the preceding game, and is a stronger line for Black.

B.—“Robertson’s Guide” gives 8-12 here, followed by 27-24, 3-8, and Black gets a good game.

C.—The game looks very even here—counterpart positions.

D.—Is this the losing move? 4-8 seems preferable.

E.—If 9-14, 32-28, 7-11, 28-24, &c., White wins.

F.—Very neatly forcing the win. If Black replies with 12-19, then 15-10, &c., wins.

### OUR PROBLEM COMPETITION.

Two Prizes, value 2s. 6d. each, are presented every month for the best “stroke” and the best “end-game” published in HOBBIES. Problems contributed in competition must be original, and hitherto unpublished. The prizes for May are awarded as follows:—“Stroke” (No. 914), P. O’Donoghue, Cork; “End-game” (No. 917), J. George, Cardiff. Highly commended:—“Strokes,” Nos. 912 (J. George) and 916 (J. Jefferson).

### TO CORRESPONDENTS.

J. GEORGE.—Our thanks for the interesting games played with Mr. E. T. Ward, of Birmingham, which shall appear next week.

Problems in competition for the monthly prizes received from J. George (Cardiff), D. Robertson (Bowes Park), A. W. Manaton (Barry), E. Harber (London), and A. Hampshire (Great Stanmore).

Contributions, &c., must be addressed:—“Draughts Editor, HOBBIES, 12, Paternoster Square, London, E.C.4.” Replies cannot appear under three weeks—July 6th, 1907.

A GOOD imitation amber may be made of the following ingredients, melted carefully together: Pine rosin, 1 part; shellac, 2 parts; colophony 15 parts.

## Puzzles.

### 196.—JUMBLED VERSE PUZZLE.

Juts a slime! tey it stac a helps,  
 Vero het kys chihw dah nebe os yerg;  
 Het arin adem sucim revhewer ti llef,  
 Eht dwin nags het gons fo a ragiarem lebl,  
 Dan a rathe saw thligh nad yag.

Each of the above sets of letters, when re-arranged in their proper order, will spell a word, and the words, in the order given, will produce a rhyme. What is it?

### 197.—SINGLE ACROSTIC.

My initials, read downwards, will name a well-known climbing plant.

#### CROSS WORDS.

1. The bark of a certain tree.
2. To glance at obliquely.
3. Always.
4. To excite into action.
5. A body of soldiers.
6. A snare.
7. A metal.
8. Violent with pain.

## Answers to Last Week's Puzzles.

### 194.—BURIED QUOTATION PUZZLE.

32	33	34	63	60	59	56	55
31	30	35	62	61	58	47	54
28	29	36	37	38	41	42	53
27	26	25	24	39	40	43	52
18	19	20	23	*	1	44	51
17	16	21	22	3	2	45	50
14	15	10	9	4	5	46	49
13	12	11	8	7	6	47	48

"Brevity is the soul of wit,  
 And tediousness the limbs and outward  
 flourishes."

"Hamlet, ii., 2."

SHAKESPEARE.

### 195.—DIAMONDS.

T  
 P E N  
 P A L M Y  
 S T R E T O H  
 T E L E G R A P H  
 F U R R I E R  
 G R A N D  
 O P E  
 H

**GOLF BALL MARKER.**—Players of the popular game will appreciate a new device which looks like a lemon squeezer and when the ball is inserted and the handles pressed imprints the name of the owner on the ball. This prevents the caddy from selling lost balls to their original owners.

## Home Pets Monthly Competition.

We offer a prize of 5s. to the reader of **HOBBIES** who sends us the most interesting and practical original paragraph during July 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 communications to the Secretary, Home Pets Monthly Competition, c/o The Editor of **HOBBIES**, 12, Paternoster Square, London, E.C.

**GOLD-FISH** make very nice pets, but require very careful attention. They are generally kept in a glass globe, in the bottom of which a little shingle is placed, and one or two fresh water snails to purify the water and to keep away disease. Bread is unsuitable for food, as it produces injurious effects. Dried beef cut up into very small worm-like pieces should be given with a little millet occasionally for a change and a few blood-worms. They are also fond of water weeds and ants' eggs. Gold-fish must be kept out of the sun. If aquatic plants are allowed to grow in the globe, the necessity for often changing the water will not exist. If these plants are not kept in the globe, the water soon becomes foul, and needs to be changed occasionally. In very hot weather, it is advisable to change the water every two days; during spring and autumn, once every month, and once or twice in the winter will be found sufficient. In changing the water, draw off as much as is considered necessary, and put in a like quantity of fresh water of a similar temperature.—(E. A. R.)

The prize offered in June is awarded to Mr. G. Cresswell, Front Street, Hetton-le-Hole.

**TYPEWRITER IMPROVEMENT.**—An 18-year-old boy, has invented a mechanism which is expected to greatly simplify typewriting machines using it. The device is a paper carriage, which is returned automatically when the end of the writing line is reached, or from any desired point of the writing line, and simultaneously spaces the lines by the operator touching a key on the keyboard.

## Notices.

**Addresses.**—All communications should be addressed—**HOBBIES LIMITED**, 12, Paternoster Square London, E.C.

The **HOBBIES Presentation Designs** are not given away with back numbers. Additional copies may be had from the Publishers, price **THREEPENCE** each.

**Publishing.**—Communications respecting orders for copies, remittances, and all general business letters should be addressed, "**HOBBIES, LIMITED**, 12, Paternoster Square, London, E.C."

**Contributions.**—While every effort will be made to return unsuitable contributions if stamps for that purpose are sent with them, the Editor does not accept any responsibility for their loss. MSS. and drawings should be sent **FLAT**, not rolled.

**Subscriptions.**—**HOBBIES**, price One Penny weekly; by post, 2d. Twelve months, 8s. 8d.; Six months, 4s. 4d.; Three months, 2s. 2d. prepaid—to any part of the world. Binding Cases, with indexes, 1s. 3d., post free; separate index, 3d., post free.

NO. 3.

# Touring Topics

## The rest by the way

Is always more enjoyable when it is taken voluntarily, and not forced upon the rider by over fatigue.

### THE EADIE TWO-SPEED COASTER

ensures the former condition.

With this device fitted to

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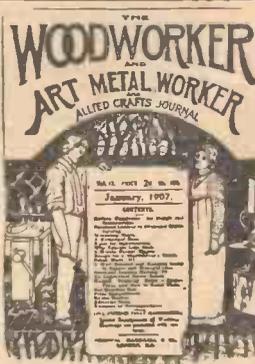
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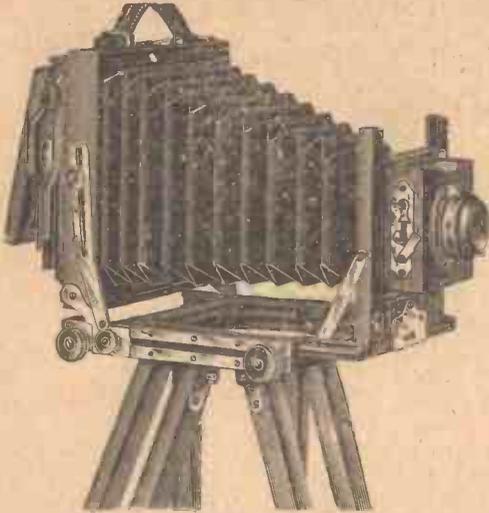
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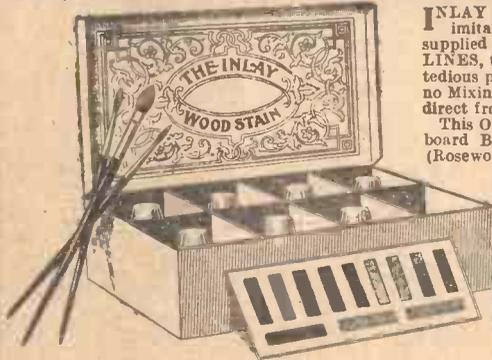
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