

THE GATHERER.

A Pleasant Occupation for Ladies.

The art of painting on china is becoming a popular occupation for ladies. Lady-amateurs are very fond



Fig. 1.

of the work, and many are adopting it as an extra source of income. There is nothing prettier for the drawing-room than handsomely painted china panels and plates as decorations for the walls of a room; and our modern civilisation compels the furnishing of our mantelpieces with painted china vases.

Here, then, is a very pleasant work which may be made both useful and remunerative. Many ladies sigh for some new employment; let them, then, if they are gifted naturally with the power of the brush, undertake the decoration of some one particular room of their own house. China ornaments without colour may be easily purchased with little money, and with the special mineral colours (likewise easily obtained) there is sufficient material for a lady of artistic feeling and ability to make a pretty room. On the walls of her boudoir may hang lovely water-vases for natural flowers, in which painted birds may drink, or hide their



Fig. 2.

pretty heads amongst the flowers. Then there are landscapes and portraits in china, as substitutes for the more expensive oil-paintings; china card-trays,

and flagons, and baskets for the table; vases for the mantelpiece, and china tiles for the hearth-place. This is an employment which may be adopted by many ladies wishing to increase their income. Unfortunately there are, at present, very few occupations accessible to ladies, and we hail with delight any new field of labour which is open to them. An exhibition of this form of work, in which amateurs have predominantly participated, has just been held in London, under the patronage of the Crown Princess of Germany (Princess Royal of England). There were 644 "exhibits" and many lady-amateurs obtained prizes. Figs. 1, 2, and 3 are copies of the first three prizes. Fig. 1. is a conventional representation of blackberries, daffodils, and buttercups on plates. The second



Fig. 3.

figure is a beautiful representation of passion-flowers; and the third is an orchard scene.

Hospital wards could be wonderfully brightened by painted china plates sent as presents. And who can estimate the beneficial effects such paintings (whether scriptural or otherwise) might have on the poor patients?

Helping Poor Boys to Help Themselves.

In almost all large towns the question has long engaged the attention of social reformers, What are we to do with our street Arabs? In the natural order of things, these half-savage thievish little rascals develop into dangerous vagabonds and active members of the criminal population. Ragged-schools and reformatories have done much to aid their becoming respectable members of society; but there is another link in the chain of philanthropic effort, of which we would speak. This link is the quite recent institution of Industrial Brigades. The peculiar feature of these is that they help those who try to help themselves. Helpless cases may be dealt with by other charities; but the promoters of the brigades rightly think that the sooner a boy can be made *self-reliant*, the better for his future good conduct, and the greater the chance of saving him from a career of crime.

The Industrial Brigade partakes partly of the character of an industrial school, and partly of that of a night

refuge and poor boys' club, where boys may find a place resembling a comfortable and happy home. It is managed with as little officialism as possible: in consideration of the up-bringing of the inmates, a good deal of liberty, though no licence, is allowed. From this home the boys go out to work for employers of labour throughout the City, returning to their quarters at night. As a rule, no occupation or trade is carried on within the walls of the brigade. Thus, the youths are not brought up in an artificial atmosphere, but working outside on their own account, learn the value of honest industry, and gradually get merged into the general population as respectable working men. In the brigade they are fed, educated, and lodged, till out of their own earnings they can shift for themselves. All are treated alike, whatever the amount they make; those who can do so, pay a certain sum per week towards their expenses. Whatever they can earn above that sum is their own, and is put by for their benefit; the boys have, therefore, a continual stimulus to industry. Mr. David Harris, speaking of the Edinburgh Industrial Brigade, in the formation of which he has taken a deep interest, says: "We give the plainest description of food, as we think it would be wrong to treat the boys better than others of their class usually fare. The cost per head, per day, for food is 5¼d. The clothing we supply is of strong, plain material; the allowance—two suits a year, with boots. Each boy must attend week and Sunday schools, so that the great obstacle to their obtaining work (not being able to read or write) is speedily removed." The economy of the scheme is one of its strong points. "It has been proved," says Mr. Harris, "that from £4 to £8 per head, in addition to the boys' earnings, will pay the entire cost."

The Paris Exhibition of 1878.

National spirit, national vanity—shown at its best—prompted the French Government, in the very thick of its foreign and home troubles, with the Prussian ransom unpaid, and Communist blood yet reddening the paving-stones of Paris, to announce the great Parisian Exhibition of 1878. The pledge, greeted in France and abroad with sneers or with sad and serious incredulity, has been loyally redeemed by the extraordinary vigour with which the works have been pushed on. Contractors, architects, masons, and State functionaries have vied with one another in feverish zeal for the credit of their reviving country, and it is now well understood that the buildings will be completed several weeks in advance of the official time of opening—in May next. The outward aspect of the growing pile does not, at a casual glance, warrant these confident anticipations. But those who know best assure us that most of the preparations are made, as it were, behind the scenes, that the foundations are unusually solid, and that already stones are squared, and beams sawn, and ornamental cornices and gilded plinths got ready, so that the whole vast construction can be put together as deftly as a child's toy-map.

Not the Paris, but the Trocadero Exhibition, is the

name commonly applied by the French themselves to the rapidly rising Industrial Palace. The hill on which it stands—not then known by the Spanish appellation which commemorates an easy victory of the restored Bourbons—was chosen by the First Napoleon as the site of a palace of another sort, the future dwelling of the infant King of Rome. It will be capped by a gigantic central pavilion, flanked by two lesser pavilions and by two long galleries. These galleries will indeed be the pith and kernel of the Exhibition, since within their walls will be shown the products of all countries, from the flint arrowheads and hatchets of the Stone Age to the delicate porcelain of Sèvres and the gold mosaic of Venice. The great central pavilion—which provides seats for 8,000 spectators—is designed for fêtes, concerts, and distributions of prizes. The galleries and pavilions will be of Moorish architecture, and will glow with bright colours and variegated enamel, while to right and left the electric light will flash from the summit of beacon towers 220 feet high.

This Exhibition, unlike its predecessors, will rely very much on an attractive outside. A principal feature is the grand cascade in front of it. Powerful engines will force up water from the Seine, so as to obtain an imposing fall of nineteen feet, after which the foaming flood, leaping from rock to rock of a Titanic stair, will gush into an ornamental basin. The hillside, carefully turfed, will be dappled with conservatory, chalet, and kiosk, while in a special garden full of flowers, fish-ponds, and grottoes, will tower aloft a colossal observatory, so called. This observatory, eighteen storeys or 315 feet high, will command a bird's-eye view of Paris, and will be scaled without fatigue by the help of hydraulic lifts. Its immense interior will comprise a circular railway, a skating-rink of artificial ice, a restaurant, a gymnasium, and of course a café.

The Effect of Light upon Diamonds.

It has long been known that certain minerals are peculiarly affected by the action of sunlight. Ancient writers note that certain coloured precious stones grew pale in the light of the sun, and mention as one thus acted upon the beautiful green chrysoprase, the colour of which however they asserted, and it is said truly, could be restored by wrapping it in a cloth previously soaked in wine, and excluding it from light in a cellar. There are many known cases in which the beauty of emeralds has been destroyed by leaving them exposed to strong sunlight. An American writer mentions a dark green emerald which he had worn seven years as losing its colour and value from this cause. Dr. Schnauss has recently re-directed attention to the subject, and has pointed out that coloured diamonds under the influence of extreme heat lose their colour, and in most cases permanently, although in others the colours return after exposure to sunlight. According to Dr. Fright, under certain circumstances the coloured diamond is as sensitive to light as the photographer's chloride of silver is. A diamond merchant named Martin exposed a diamond to a very high temperature, in order to destroy its brownish colour, but the stone

became of a permanent rose-red! Coster treated another diamond in the same way, and that too turned rose-red; but the most remarkable part was that this colour was only permanent in the dark, and disappeared in four or five minutes if exposed to the sun's light, the stone acquiring a weak brown colour. This change also took place in a room where the light was by no means bright. Another diamond, of a dirty yellow colour, was ignited in a current of hydrogen in a porcelain tube, and allowed to cool there. The colour disappeared, but not the lustre. If this specimen were exposed to diffused light for six or seven minutes, its original yellow colour returned. Dr. Schnauss attributes such phenomena to phosphorescence.

Shakespearian Acrostic.

A maid bound down to have no voice
In what's 'fore all a maiden's choice;
And yet withal of wit so great
As to adjudge affairs of state.

I.

A follower of a worthy knight
Whose valour lay in size, not might.

II.

A heart right noble—fairest face
Proclaims not always truest grace.

III.

A lover loving much against his fate,
"Too early seen unknown, and known too late."

IV.

A friend who ne'er forsook a friend in need,
And yet, himself in want, lacked friends indeed.

V.

"More fell than anguish, hunger, or the sea,"
He brought about the direst tragedy.

VI.

A spirit made for summer hours,
To company with bees and flowers;
And yet, where flashed the white sea-foam,
In storm and tempest quite at home.

W.

Answer to Acrostic on p. 573.

CASTOR—POLLUX.

C oo P.
A rg O.
S ea L.
T el L.
O rmol U.
R e X.

The Ironclads of Europe.

Never was the general interest felt in the navy greater than at the present moment, when every morning at the breakfast-table reading the details of distant war, we almost seem to hear the boom of the guns. It is reassuring to know that in the English

navy there are now fifty-nine ironclads, or armoured ships, with a total tonnage of 317,000 tons, including two or three now completing. Each of these has been built with a view to remedying a deficiency believed to exist in the preceding vessel, so that if they were all placed in a row they would exhibit a graduated scale of improvement. The most powerful in thickness of plating and size of cannon is the *Inflexible*, now nearly finished, and designed to carry the famous 81-ton guns. Besides these, there are unarmoured cruising ships, vessels for coast defence, gun-boats, and so on, making a grand total of 400. Fifteen torpedo vessels for coast defence are now building. In eight years six millions of money were spent on ironclads. This year the estimates for the navy, including men, maintenance and all, amounted to £10,885,892. Though there are one or two exceptional ships belonging to foreign Powers, yet in aggregate of size, tonnage, and armament, England is far ahead, and in mere number possesses one-fourth of all the European ironclads in existence, while in tonnage she has nearly double that of the French navy, which is second in numbers. It should not be forgotten that the Prince of Wales is an honorary captain in the navy, and two of his sons are training on board the *Britannia*.

Just at present, the navy next in interest is the Turkish, in which there are twenty-four ironclads, in all 65,000 tons; while Russia has twenty-nine ironclads, of 89,000 tons, besides which she has 196 other vessels. These carry together 521 cannon, and there are 24,500 men, either on board or in the dockyards. The most powerful ship is the *Peter the Great*, with armour fourteen inches thick, and four 40-ton guns; but the latest reports of her say that her frame is weak, and that she does not come up to expectation. The Russian navy is remarkable for the circular ironclads called *Popoffkas*, from the admiral who introduced them.

France has fifty-three ironclads, tonnage 184,000, but there is no sea-going turret-ship; neither have they armoured ships like our *Devastation* or *Thunderer*, which are without masts, and depend wholly on steam. Their ships are more uniform in character than ours, being built in classes, but for that reason they have not adopted so many improvements. Next to the English, the French fleet is the most powerful, considered as a fleet—for it is not a little singular that Italy, almost the newest of states, will speedily have two ironclads, the *Duilo* and *Dandolo*, which will each carry four 100-ton guns, the largest cannon yet made. Their armour is, however, not so thick as the *Inflexible's* by two inches. Recently the Italians have designed two ironclads to carry armour-plates a metre thick—that is over a yard! They possess sixteen armoured vessels, with a tonnage of 55,000. The lesser navies are those of Germany, with 13 ironclads; Holland, 17, but of the low tonnage of only 23,000; Austria, 14; Sweden and Norway, 8; Spain, 7; Denmark, 6; Greece, 2; and Portugal, only one. Brazil has 17; Peru, 6; Chili, 2; Argentine Confederation, 2; Japan, 2; and China, 6 modern vessels, not heavily armoured, but 2 of which carry 38-ton

guns. Almost all Powers (except France and the United States) come to England to build them ships, or furnish them with cannon or machinery. The huge hydraulic crane just made by Sir W. Armstrong for the Italian dockyard at Spezia will be remembered. In all, there are now 249 armoured ships belonging to European navies.

Very little fighting has yet taken place between ironclads. The Austrian and Italian fleets came into collision at Lissa, but that was in the infancy of armoured ships. Some of the United States monitors were engaged in the great civil war. The Turkish ironclads seem to have, up to the present, the worst of it in the Danube, some being sunk, others environed with torpedoes, and one or two aground—but these were injured in fighting shore batteries chiefly. Recently a Peruvian rebel ironclad (built in England), the *Huascar*, with armour $4\frac{1}{2}$ inches thick, and 300-pounder Armstrong guns, was attacked by two British ships, not ironclads, whose guns hit the monitor seventy or eighty times, swept her decks clear, and sent one 9-inch shell through the plating. This was at the long ranges of one mile, and one mile and a half. But it is curious that since the introduction of ironclads, nineteen years since, nothing like a great naval battle has been fought, and the problem has yet to be solved.

The French built the first true ironclad, the *Gloire*, in 1858, and we followed with the *Warrior* next year. In the Crimean war floating iron-plated batteries were used. In 1842 an iron-plated ship was begun in New York, and in 1812 the idea was started there. But the earliest vessel defended with metal plates was one belonging to the Knights of St. John, in 1530, and was covered with *lead*, which withstood all the cannon of that period. The idea was, perhaps, suggested by the practice of the soldiers on board ancient ships, of placing their shields by the side of and projecting above the edge of the gunwale, as may be seen even in the ships of William the Conqueror. To first fix the shield temporarily to the bulwark, and afterwards to fasten metal plates, or shields, permanently outside the wooden planks, seems a natural transition of thought.

"Death to the Colorado Beetle!"

All agriculturists are wisely preparing to attack the Colorado Beetle should it approach our land. In order to make our readers acquainted with its appearance, we published its photograph in these pages more than two years ago, in Part VI. of this Magazine. Now that this dreaded beetle has again come to the front, the following extract from a valuable paper by Dr. Robert Brown, F.S.L., which is published in the *Live-Stock Journal* of July 20th, showing the beetle's habits, breeding, &c., will be read with interest. "The United States Agricultural Department recommends Paris green to be mixed with ashes or flour, in the proportion of one part to twelve or fifteen. It should be dusted over the plants in the morning when the dew is on the foliage, and should be repeated after

rains. A convenient way of dusting the vines evenly is to prepare a dredge on a large scale, from an old tin pitcher, fruit can, or preserved meat tin, by punching the bottom full of small holes, and securing to the side a piece of broom-handle about two feet in length. This, when filled, the operator can carry in one hand as he walks down the rows, gently tapping the handle with a smaller stick, held with one hand, being careful always to keep to windward. The amount can be regulated by the speed of the operator. Three pounds of Paris green to about forty pounds of flour, or ashes, or air-slaked lime will answer for an acre of potatoes. We have seen the Paris green applied, mixed with water and sprinkled over the plants at the rate of one pound to about forty-eight gallons; this is also a good plan, as the dust cannot then be hurtful to the operator."

The *Live-Stock Journal* also calls attention to the existence of an insect whose special object in life seems to be to destroy the Colorado Beetle. It is a little reddish-brown parasite, belonging to the family of *Acarida*, and known as the *Uropoda Americana*. This *Uropoda* is about the size of a pin's head, and oval in shape; it is provided with a thread-like filament issuing from the hinder part of the body, and terminating with a flattened disc or sucker, with which it attaches itself to its victim. The parasite fixes itself on the beetle externally, and pierces its shelly covering by means of a pair of extensile limbs, each terminating in

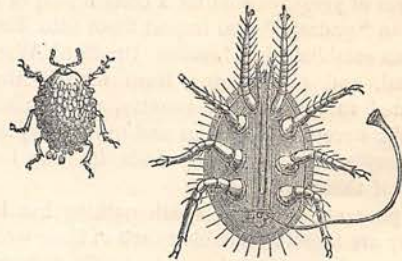


Fig. 1.

Fig. 2.

a claw. In our illustrations, Fig. 1 shows the Colorado Beetle infested by the *Uropoda*, and Fig. 2 gives a view of the *Uropoda*, greatly magnified, and showing its long piercing tools at rest, drawn up between its fore-legs.

New Post Office Orders.

At a recent inquiry into the present system of money-orders, in connection with the Post Office, the committee appointed to conduct it records its opinion that the form of the order now in use requires revision, in order to make it of greater use to the business public. A report has been published proposing alterations in the form of the order, and the payment of it at the post offices. In connection with the first proposed alteration, the committee states that "the docu-

ment is altogether too much crowded with elaborate instructions, which tend to confuse the public," and suggests simplification. There is no doubt as to the above-named complications; and we hope in a few years to see the present method itself altogether abolished, and a system of cheques, ranging from one shilling upwards, substituted, which may be issued and cashed by every post office in the United Kingdom, without the present unnecessary forms, questionings, and signatures. With the system now in vogue, the payment by money-order of a bill to the amount of ten shillings inflicts quite a shilling's-worth of trouble, and he is an unusually clever tradesman who can walk to the local post office and receive his money without having to make a second journey. Either the advice has not yet been received from the issuing office, or the recipient has inserted his autograph on the wrong line; or he has probably neglected to arm himself with the correct initials and name of the sender; or he is annoyed with other necessary, and sometimes unnecessary, questions asked by the officials. What is wanted for the business man is the simple method already suggested, of cheques which may be sent by post throughout the country in the same manner as bankers' cheques.

Nineteenth-Century Slavery in England.

England is the centre of a vile and barbarous trade in slaves, and Italians are the traders. The slaves are poor Neapolitan children of tender age, lent out to hire for a term of years, or sold for a certain sum of money to Italian "padroni," who import them into England, to depôts established in London, Bradford, Worthing, Liverpool, and other towns, from whence they are distributed throughout the country, and exhibited in the public streets of our cities and towns, to plead for the money which eventually finds its way into the pockets of their employers.



The poor children can speak nothing but Italian, and they are therefore unable to tell of their wretchedness but to the padroni themselves. Their homes are the lowest, where the only companionship is that of thieves, and of course they grow up without education. They are made to walk from Italy to England, through France, earning their bread by dancing and singing. Several deaths from exhaustion and fatigue have lately been discovered.

The Charity Organisation Society have been appointed to inquire into this nefarious system of trade; and the report states that there has been a great increase in the importation of little Italian girls during the past few years. The children are taught to play on musical instruments, and to ply for alms at street-corners. The picturesque costumes and piteous faces of the little girls who play tambourines, &c., almost compel people, who at other times are generally averse to indiscriminate charity, to supply them with money, of which, by their gestures and appearance, they seem to be in great need. If these kind-hearted people knew the result of their mistaken generosity, there would be a rapid decline in this barbarous trade.

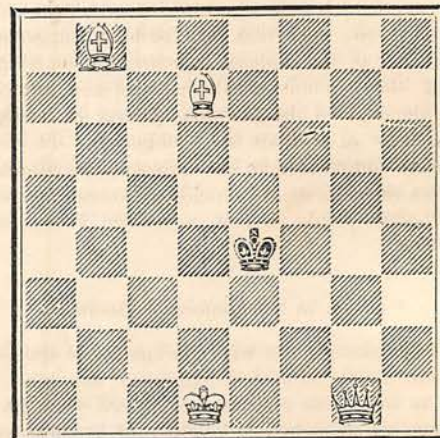
Solitary Chess.

In books or papers devoted to this subject may always be seen an engraving which cannot have been put there for its artistic merits, as it is simply a representation of a chess-board, with some of the pieces scattered over it in apparent confusion.

This mysterious diagram is called a chess problem, and we now purpose trying to explain what a chess problem is. It may be defined as a position which might occur in actual play, and in which White having to move can win—that is, give checkmate—in a specified number of moves, whatever defence Black may adopt. Under the diagram will be found the number of moves White is allowed, and of course Black has to make his reply to each of White's moves, excepting to the last, just as in a game; and he not only may but *must* do so. It is important to notice this, for in some problems it is only because Black *must* reply to White's move that he gets checkmated. Take as an instance the one annexed, where whatever move he makes, in reply to the key move from White, must necessarily allow checkmate to be given on the next move. Were Black allowed to abstain from moving, he could not be mated in the stipulated number of moves.

With regard to the pieces as represented on the diagram, one word only is necessary in explanation. The piece which is printed as a crown or coronet with *five points* is the Queen, the distinguishing mark of the King being a Maltese cross on the top of a crown.  is the Queen, and  is the King.

PROBLEM.
BLACK.



WHITE.

White to play and mate in two moves, whatever defence Black adopts

- WHITE.**
1. B Q R 7
2. Q Q 4 mate

- Or
1. B Q R 7
2. Q K Kt 4

- Or
1. B Q R 7
2. Q K 3 mate

- BLACK.**
1. K Q 4
or to K 4
or to Q 6

- Or
1. K K B 6

- Or
1. K K B 5