

THE
Oldham Hulmeian.



· FIDE · SED · CUI · VIDE ·

"The Oldham Hulmeian."

Vol. III. No. 1.

MARCH, 1899.

Price 6d.

School Notes.

SCHOOL will break up for the Easter Vacation on Thursday, March 30th, and will re-assemble on Tuesday, April 11th, at 2 p.m. The holidays will be shorter by a week compared with previous years, but as compensation, we shall have an extra week at Whitsuntide.

* * *

There are two advantages in connection with the new arrangement. First, the weather at Whitsuntide is usually warmer and more settled than at Easter, and the days are longer. Secondly, the School holiday at Whitsuntide will now include the local holiday in business circles, which has on previous occasions been beginning as the School holiday was ending.

* * *

THE following new boys have been admitted during the past term:—Form IV., Barratt; Form III.-*Beta*, Beswick, Robinson T., Rothwell J.; Form II., Marshall, Roberts, Ryan, Warburton; Form I.-*Alpha*, Horrobin, Hutchinson, Marland, Ockford; Form I.-*Beta*, Birch, Broadbent, Hoyle, Lawton, Meagher, Mellalieu, Newton L., Sparrow, Spencer P., West T., Whitehead H. E., Wilde R., Wood E. H.

* * *

THE Editors acknowledge with thanks the receipt of the following contemporaries:—*Danensis*, *Leodensian*, *Sheffield Royal Grammar School Magazine*, *Giggleswick Chronicle*, *The Hulmeian*, and *The Hulme Victorian*.

* * *

LOST, Stolen, or Strayed, a Debating Society. It was of the usual complexion, and of somewhat retiring disposition. When last heard of it was amusing itself with "Professionalism in Sport."

Science Notes.

Boys should appreciate the new Scientific Apparatus which has been purchased, at so great a cost, by the School. The equipment of the Chemical and Physical Laboratories is now practically complete, though no doubt apparatus for more advanced work will be added from time to time. Two new instruments demand special notice.

The 'Geryk Air Pump and Ice Machine' proves as efficient as it is popular. It gives a vacuum within half a millimetre of the absolute zero without the slightest difficulty, and has already been of great service in performing innumerable experiments, which could not have been made with an inferior instrument. When the absorption chamber is attached, water may be made to boil and freeze in the ice jar at the same time. A considerable quantity of ice can be produced with slight expenditure of labour; no attempt will, however, be made to rival the new Ice Company in the town.

The Standard Barometer, which has been placed in the Balance room, is an instrument of precision. It is a Fortin's Barometer with ivory point adjustment, and carries a vernier which reads to $\frac{1}{500}$ of an inch, or $\frac{1}{10}$ of a millimetre. The Kew Certificate which hangs at its side shows a correction of only .003-in. to be necessary. A table for reducing the readings to zero and sea level, and a chart for recording the variations of the mercury column, are also hung close at hand.

It is interesting to note that we can fix approximately the height of the School above the sea level, by comparing our readings with the published record of the readings at the Owen's College Observatory. The mean of a few such readings gives our height as 635.4-ft. above the sea, whereas the altitude, as deduced from the Ordnance Survey data, is 629.6-ft. at the threshold of the School.

Clerks of the Weather are appointed each week to mark the chart and to regulate our climatic conditions. Their efforts up to the date of writing have been equally successful in both spheres of work.

* * *

THE collections of natural objects made during the summer holidays were so encouraging that we hope boys will be stimulated to further efforts during the present year. Collections should begin early and last all the year round. Collectors would do well to enter in a special note-book the time of the year, and in some cases, the time of day, as well as the locality in which the specimens are secured.

* * *

COLLECTORS of butterflies and moths should not rest content with securing and naming such

specimens as they collect, but should attempt to rear them from their eggs. An offer has come from Darjeeling School, at the foot of the Himalayas, to supply collections of fifty or more Indian butterflies at a very moderate cost. Should any boy care to purchase specimens, full information will be given at the Editor's office.

* * *

OLDHAM is not a particularly good centre either for flora or fauna, but there are many openings for those who care to avail themselves of their opportunities. The ponds and clay-pits round Oldham give first class chances of studying pond life, and we would suggest that those who are on the outlook for a 'hobby' might set up an aquarium, stocking it with pond-weeds, beetles, tritons, larvæ, and animalculæ. There is also a splendid opportunity for the collection of fossils of the coal measures.

Vacation Art Work.

THE prizes awarded by the Head Master for the best work produced during the Christmas vacation, were distributed on Friday, March 9th. The following is the classification of the best work:—W. B. Mills, for the most pleasing scheme of colour, together with good arrangement; J. G. Nadin, for the best application of geometry; J. Wild, for being most successful in constructing a pattern out of the given simple ornamental shapes; H. Whitehead, for the neatest drawing. The following are the names of those whose work received honourable mention: K. Newton, Balmforth, Clough, A. Hibbert, V. Mallalieu, Tweedale, Brewerton, and Cartwright.

It is satisfactory to note the large number of original designs of good quality. To select then, from this number a few of the best drawings, was a task well nigh impossible. However, this difficulty was removed by the Head Master very kindly increasing the number of prizes.

Many of the designs need but slight alterations to improve them; in others, a *definite scheme* is wanting. Again, some of the work shows that the student has not clearly understood what to strive for, whilst several, though understanding, have not quite realised how to obtain it. For further guidance of all I take this opportunity of directing their efforts.

In the first place, you want your designs to be "pleasing to look at," which really means they must contain some of the elements of beauty. Now, where are we to find these elements, and how shall we know what to look for? The first question is easily answered—simply "go to

Nature." As to the second, that is more difficult, and involves teaching and experience, but above all what is termed "feeling," or in other words, "taste." Yet often taste is so restricted and warped by custom, that good taste is a very rare gift. Custom thinks little and swallows anything; calls many things beautiful in mere repetition, and has no true feeling to judge of good or bad.

To learn of Beauty, let us go to Nature's flower garden, gather there of her choicest blooms, and observe carefully, and as fully as we can, what *we feel* to be beautiful in them. We shall all perhaps say at once, "It is colour that is good." Yes, so it is. Absolutely indescribable are Nature's harmonies of colour, yet, after closer study, I think that you will all agree that *form* and *line* play just as important a part in this effect of a flower's beauty. Indeed, to a designer the latter is all-important.

First then, know your flowers by heart. Try to think of them as living beings, of the purest lives and loving personalities. Look at the wondering "meek-eyed daisy," just childlike in its innocence. Listen to the steadfast hope that speaks to you from the daffodils and primroses; but whisper only of the violet, gentle flower, and think of its quiet life of fragrance, though it be spent in the sadness of a deserted garden. You will understand, if you do this, the charming drawings of Walter Crane which brighten our Art Room, and know that Art is purest thought in perfect form.

The flowers in your designs must, too, be correctly drawn. The growth, proportion and graceful strength of their stalks must be remembered. Note the gradual change from the bud to the open flower—from the full life of the flower to its drooping and falling away, falling, though having completed its work, for see now the fruit of its life, the seedpod. This pod requires our very particular attention, for not only is it, as a rule, the most decorative part of the plant, but more important than that, we see Nature here designing a casket for the jewels of other bright lives. See how perfectly it is fitted for its work! Open it, and observe how the nestling forms therein influence the external shape. See how soft they lie in the down-like lining of the strong case; sometimes we see the case armed, as for instance the chestnut pod protected by a fierce array of spikes.

Thus having studied flowers direct from Nature you learn from them her principles of construction. They have been given names, hard and unsympathetic; but the best, perhaps, we can give, such as growth, radiation, stability, fitness, and the like. There will be no need of names though, if you can discern Nature at work. Her

principles will lie unconsciously conscious in your minds, and on these only must you base your designs. An artist, in painting a tree, tries not to paint each leaf. A wallpaper covered with flowers painted direct from nature would be tiresome. We must, in designing, use the great principle of fitness or suitability; make our designs fill its space, ornamenting it, and not attempting to make it a still-life study of a flower. The faithful copying of a flower comes as preparation to the design, and must never be mistaken for the ultimate aim and object of designing. Having the principles at your fingertips, your minds will be occupied in giving expression to your thoughts, and be very sure your thoughts will be revealed in your work; and the weakest endeavour, granted it be honest and conscientious, cannot pass without having its good effect. Every true aspiration breathes a little of the atmosphere of the highest. Work, think, and endeavour, for to do so is the "open sesame" of another of life's infinite byways. The door will be open; another horizon will be before you, and all the valley will glow with sunshine which will fill your hearts and overflow into the lives of others who have not such happiness in the power of their attainment. Study, then, Nature's great principles; adopt them to your designing in the schoolroom; but above all in the life of which, if you will, you may make a design so grand.

I desire here to mention K. Newton's design for a Book Cover, entitled "The Iron Road." It is a fine example of memory drawing and artistic arrangement. It recalls to my mind the following lines by William Morris in his beautiful story "The Roots of the Mountains."

Whiles carried o'er the iron road,
We hurry by some fair abode;
The garden bright amidst the hay,
The yellow wain upon the way.
The dining men, the wind that sweeps
Light locks from off the sun-swept heaps,—
The gable grey, the hoary roof,
Here now—and now so far aloof.
How sorely then we long to stay,
And midst its sweetness wear the day,
And 'neath its changing shadows sit
And feel ourselves a part of it.

B.D.

Football Notes.

OWING to a variety of circumstances, chief amongst which was the frost at the beginning of the term, most of the matches arranged for this half of the season have fallen through. By the results of those played our record is not improved, as will be seen at a glance at the appended table of results. As a further consequence of this

paucity of contests, there is little to add to the criticisms which appeared on the play of the XI. in our last issue. Scope for development and improvement has barely been afforded.

Sickness has interfered with the play of several members of the team; but it may be noted that all the regular players have, considering the disadvantages of our present practice ground, at any rate maintained the standard reached last term. This is about all that can be said.

This is the place to acknowledge Miss Clark's kindness in coming to our rescue when, as regards a ground, we were certainly *in extremis*. Strenuous efforts had been made to hire, or obtain the loan of, some field in the neighbourhood. The savage barkings of watch-dogs had been bravely faced; the risk of immersion in some domestic wash-tub (*en deux sens*) boldly incurred; even the danger of some virago of a farmer's wife attempting to cut off their retreat with (say) a carving-knife had been courageously encountered by the school's representatives in their noble exertions to attain the desired end. Nay, further, it is even whispered that on one occasion a farmer was heroically bearded in his own—cowshed, among the cows' tails and frothy milk-pails. (It drives one into poetry to think of it). But all was in vain. Then came the munificent (*vide* Lat. Dict.) offer of Miss Clark! The boys might use the ground below the tennis-lawn.

Thus we have been able to play our Form Matches after all. True, the ground is not all that could be desired. It is parlous small, and slopes at an angle of 60° from the horizontal at least,—if certain mathematical geniuses of set A are to be believed. But play is quite possible, even though, like runaway automobiles, the players at times cannon into the railings on the lower side; even though the aspirations (and gyrations) of many a gallant football are brought to an untimely end on the obtrusive spikes—*intended* to impale marauding visitors.

The Form Matches have afforded some good games. Only four Forms compete this season, as against five the last season. Hence, by an easy problem in Algebra, there are in all only 12 games instead of 20. The lowest Form, nominally III.-Beta, draws as well from II. and I. The present Vth. is practically identical with the winning Form of last season—the IVth.—and seems (at time of writing) to have some chance of again getting the highest number of points. It was difficult to handicap them sufficiently heavily. The other three Forms are more evenly matched.

Some reference should be made to the progress of the levelling and draining operations that have already transformed our old ground

beyond recognition. It is with intense satisfaction that we have watched the filling up of the valleys and the removal of the mountains, with which our Footer in the past has been so inseparably linked. Does a strain of sadness at the departure of the long-familiar landscape perchance mingle with our evident joy? We fear not. Rather is the exulting glee of the onlookers such as might be felt, upon the overthrow and humiliation of an ancient tyrant, by the poor beings who are at length freed from his irksome yoke. Alas! it is the usual fate of the old and despised.

The progress made has been great; so great that we are distinctly hopeful of getting at any rate some net practice in the ensuing cricket season, though it is hardly likely that we shall be able to play any matches on the new ground this year. It is necessary that the new turf be allowed plenty of time to unite with the under soil before being used, otherwise it is liable to perish. Of course with abundance of that "soft" weather which gardeners love, this union would be greatly accelerated. *Espérons toujours.*

Our sports, this year, will any way reap the benefit of the improvements. A bicycle track of our own right round the field! Level ground to run on! The shades of past champions of the school will hover in envy round the athletes of the present generation.

And then the prospects for next football season! An absolutely level ground at last—and well-drained! When we remember the quagmires of old, the latter is no light consideration. What possibility of perfection in passing and in combination, of accuracy in shooting! Surely if there *are* any of our present members who entertain the fancy that it is time for them to leave school, the thoughts of next season's bright prospects will drive the foolish idea from their heads. To leave just when things are beginning to "march"—what an absurdity! Let us, in conclusion, avow our intention not to forget, on the first important occasion when the new ground is used, heartily to invite our benefactress, Miss Dorothy Lees, to grace the event with her presence.

Q.C.

FIRST XI. MATCHES.

FEB. 11.—HEYWOOD OLYMPIC (Heywood); lost, 3—7.—Our experiences in this match were not as pleasant as we could have wished. From the dressing room to the ground was a long distance, while the ground was heavy and partly under water, and the ball rather flabby. Add to this that the spectators were not particular in their choice of language, nor were all of the players. Heywood put into the field a heavier

team than that which visited us, and we were much out-weighted. Playing down-hill, first half, our opponents scored most of their goals, and the School secured two. In the second half we managed better, but the School forwards were too light, or their shooting too erratic, to recover the lost ground, so that Heywood maintained their lead, winning easily.

MAR. 4. WARRINGTON GRAMMAR SCHOOL (Warrington); lost, 1—4.—On this occasion three of our regular players were absent, and we took only ten men, Warrington kindly finding us a substitute. In the first half our opponents had matters all their own way, and scored three goals. The Warrington backs were strong, and their right wing forwards played prettily together; but the bulk of the work was done by their left-outside. Both in individual speed and skill for passing, the latter was too much for the School defence, while his shots were very powerful. In the second half our boys worked better, and did their share of the pressing, scoring one goal in a scrum resulting from a corner kick. But Warrington maintained and improved their lead, winning as above, though if our backs' opinion can be trusted, they really made five goals.

A Chat about our Railways.

PERHAPS as good a way as any to begin our chat will be to give a brief sketch of the distinctive colours of some of the British railway companies' locomotives. It is perhaps rather strange that the leading company, the London and North-Western, should choose black for their colour; but as all the passenger, and most of the goods locomotives are picked out with thin white, blue and vermillion stripes, they have a much better appearance than might be expected.

The Midland engines are painted a dark red, picked out with yellow and black lines, giving a very smart appearance to these fine-looking engines.

Green is the colour chosen by the Great Northern Railway Company for their locomotives. They are picked out with black, white, and vermillion lines; a band of darker green is painted round the edge of the tender, on which the letters G.N.R. appear in gold, relieved with vermillion.

The Great Western locomotives are painted a dark green, picked out with yellow and black lines. They have bright brass domes, which give them a very handsome appearance. The frames and splashers are painted a deep crimson lake.

We will now look at the Caledonian engines, which are painted a deep blue, panelled and picked out with white and black lines. The outside frames and the bearings of the tenders are brown, edged with fine white lines. These and the Great Eastern engines are, I think, the only ones painted blue. Red is also uncommon, only two or three British railways having engines that colour, whilst green is most commonly used.

The Great Central (M. S. & L.) Co. have dark green engines, picked out with yellow and black, the tender and cab having a wide black border. The bearings and frames are brown, edged with yellow. The wheels have white rims.

We will now notice the colour of the carriages.

To begin with, the North-Western carriages are painted deep crimson on the lower panels, and pure white on the upper ones, being picked out with fine yellow lines.

The Midland carriages are painted deep red all over, very much the shade of the locomotives. They have square panels.

The Lancashire and Yorkshire Railway coaches are the same colour as the North-Western on the lower panels, but brown on the upper ones.

The Great Central are at present varnished, but they are to be changed to French grey on the upper, and crimson or brown on the lower panels. The North-Eastern coaches are a deep crimson all over, darker than the Midland in shade.

The Great Western carriages are brown on the lower panels and cream on the upper ones.

We will now turn back to locomotives, and consider the latest types just out on the various railways.

About the latest production on the Great Northern Railway is No. 990, turned out from Doncaster in 1898. She is a ten-wheeled engine with a leading bogie. She has coupled wheels 6ft. 6in. in diameter; the connecting rod acts on the hinder pair of wheels; the rear portion is supported by a pair of trailing wheels with outside bearings. The London and North-Western have just turned out 50 eight-coupled goods engines, which are now at work. The Lancashire and Yorkshire are making at Horwich a new type of engine, with coupled wheels 7ft. 8in. in diameter. This is a great size for coupled wheels, and these engines will be the most powerful in the kingdom. It may be interesting to know that the Midland Company have only one engine with a name, which is the "Beatrice," all the other Midland engines being known by numbers only.

The London and North-Western passenger engines, however, have all names, excepting the passenger tank engines. The Great Western passenger engines are also known by names as

well as numbers. The London and North-Western Railway Company have the greatest number of locomotives, having 2,851 now at work. The Midland come next with 2,360. The North-Eastern next, with 1,945. The Great Western have 1,837; the Lancashire and Yorkshire 1,311, taking the fifth place in order. The Great Northern have 1,098, the others are all below a thousand. These were the numbers possessed by the different companies at the end of 1898.

The longest tunnel is the Severn, 4 miles 624 yards. The longest run without a stop is from Paddington to Exeter (G.W.R.), 194 miles in 3 hours 43 minutes, or 52.2 miles an hour. The fastest run is from Forfar to Perth, 32½ miles in 33 minutes, on the Caledonian Railway. The biggest station is the Waverley, at Edinburgh (N.B.R.), 111½ acres covered; this compares with 8½ acres covered by the Victoria Station in Manchester (L.Y.R.).

K.N.

The Football Supper.

THE evening of December 22nd, 1898, will long be remembered by those connected with the School Football Club. Some time had elapsed since the last club supper, and it was generally felt that the time had come for a similar gathering. Consequently, satisfaction was general when it became known that so interesting and enjoyable an event was to mark the termination of the labours of the year. It was desirable to meet together to celebrate our uniform success and to generally congratulate each other, but for other reasons it was recognized as necessary to make use of the opportunities afforded by the ending of the term. With regard to football itself we pride ourselves that in the main we play the game as it ought to be played, and for this Mr. Cross is largely responsible. Everyone knew that Mr. Cross was leaving us for Australia. Hence the desire on the part of the members of the football club to express to him publicly on the eve of his regretted departure not only good wishes for the future, but the appreciation which was so generally felt of his untiring and successful efforts in the past to promote the welfare of the club. About 40 of the boys and nearly all the masters were able to spend the evening together, and the result was evidently highly satisfactory to all concerned. From the enthusiasm displayed it was obvious that everyone was enjoying himself, and was glad to realise that everyone else was equally happy.

At the outset, of course, the requisite material foundations for a satisfactory evening were well and truly laid. The material itself was sufficient and suitable for the purpose in view. One huge bird at least received an interment befitting his dignity.

Our football club has a record of which it may well be proud. (This fact cheered us during the first course.) Throughout the season so far, although circumstances have been adverse, we have every reason to be satisfied. This year sees us in a worse plight than ever as regards a football ground, but as we are looking forward to having a ground as good as any school in the county, we are by no means gloomy on that account. (This was a source of satisfaction to us as we passed round the bananas.)

After the repast we assembled in the music room and before long the air was full of melody—to the point of saturation—never before has that room held so much harmony to the cubic inch. Of eloquence, wit, and humour, the supply was infinite. No complete list of the items of the programme can be given, but we do remember the storm of applause that greeted Mr. Pardoe's "Midshipmite," and the choir's singing of "King Wenceslas" (with solos by Mr. Pardoe and Gorbutt), and "Who will o'er the downs so free?" Nor shall we soon forget Mr. Pimm's capital rendering of "Father O'Flynn," or of the encore which followed it. Rowbotham sang "The Admiral's Broom" with spirit and wonderful vigour. H. E. Tetlow's banjo elicited much applause, and Whitmore aroused our sympathies by relating his "Misadventures at Margate."

In the course of the evening, as a mark of esteem, a small cabinet was presented to Mr. Cross on behalf of the Junior Football Club. No verbatim report was taken of Mr. Cross's remarks, in the course of which, however, he declared that at Oldham he had always known that he was welcome to take part in the school games, and it had consequently been a pleasure to him to do so. As a result of his remarks, those present realised that his connection with the club would remain a pleasant memory both to them and to him.

Towards the end of the evening H. Whitehead sang "The best of friends must part," and he had to sing it again. Everyone joined in the chorus "I can no longer stay with you" and—well, everyone looked in the same direction that is all an outsider would have noticed. Then we realised that the hours had fled, and that it was time for "Auld Lang Syne," so "Auld Lang Syne" was sung in true orthodox style, and the proceedings terminated in a manner perhaps more easily imagined than described, amid cheers, good-byes and farewells. *K. H. H.*

Presentation to Mr. Cross.

MR. CROSS'S departure for Geelong School was considered a suitable opportunity for making him three presentations; one from his own form, the fourth, one from the School, and one from the Junior Football Team, in which Mr. Cross interested himself so much. Not much is known about the fourth form presentation, as it was kept strictly private, not even reporters being admitted, which was a great insult to that noble body, as they are generally allowed entrance everywhere, although I do not think that there has since been a great mortality amongst them from being denied that privilege, or from disappointment.

The School presentation was made by C. J. Lees at the Breaking-up. We had not the privilege of hearing Lees's oratory because of the tremendous uproar that was being made by the boys, which was quite natural, as the holidays began the next day. At this function (the Breaking-up), Mr. Cross looked much affected at the thought of leaving us. It was the last time he appeared to the school as a whole. He gave us some very good advice about maintaining the tone of the School, and keeping the games up to their proper pitch. The Junior Football Team made the Football Supper the occasion for presenting Mr. Cross with a Smoker's Companion: a very useful present,—for him. During the entertainment after supper, some songs of a farewell character were sung, intermingled with humorous and other kinds of songs, as well as a recitation by Whitmore.

After the company had dispersed from the inside of the school, they assembled outside the buildings on the top of a mound of sods that had been put there by the workmen engaged in relaying the playing fields. When the masters came out they were cheered tremendously, but Mr. Cross was cheered above all others, and "For he's a jolly good fellow" was shouted by the boys at the top of their voices until they must have been very hoarse. That concluded the third of the presentations, and Mr. Cross well deserved all the honour that was paid to him on those three occasions. He threw himself, heart and soul, into all the sports. The Junior Division of the games especially has good reason to be thankful to Mr. Cross for bringing it to such a pitch of excellence as it has now attained. Mr. Cross also took great interest in the School Debating Society. It was mainly owing to his exertions that it was started. Mr. Cross carried with him most hearty wishes from the whole school for success and prosperity in the new sphere of work to which he has gone.

G. H. M. R.

Trees and Flowers.

THE plants which adorn the globe more or less in all countries must have attracted the attention of man from the earliest times. The science of botany dates back to the days of Solomon, for he speaks of the trees, from the cedar of Lebanon to the hyssop on the wall. Notwithstanding its disorderly appearance, the root of a tree is none the less organically identical with the regular boughs supported by the trunk. Large branches, creeping along the surface of the earth with their lower half buried, while the other half is exposed to the air, are sometimes seen in forests. The buried half sends out rootlets which sink into the ground, and the other half sends out leaves. The same organ therefore is at once trunk and root. To prove this fact willows have been inverted, their boughs being placed in the ground and their roots in the open air. In a short time the roots were covered with leaves and the boughs were like roots. The stem or trunk of a tree consists of a cone. In a section of it there are three parts, the bark, the wood, and the pith. The bark consists of numerous layers. The inner layers are sometimes formed of sheets sufficiently close and compact to constitute a kind of paper. It was from these that the Egyptians made their papyrus rolls on which they wrote. Leaves are lungs of plants. It is seldom that they are without them, yet such is the case with some Euphorbiæ, the stem of which entirely replaces them, and bears very insignificant rudiments of them.

When we brush a flower with our fingers and its colour attracts our attention, it seems as if we knew all about it. But we do not. Nothing is more difficult than to conceive an exact idea of what a flower is. Famous botanists have given it up. The honour of describing it well was reserved for the philosopher of Geneva, who admits having found so much happiness in the study of botany. However beautiful a flower may be, each part of it is only a changed form of a humble leaf. We are, therefore, right in saying we are stripping the roses of their leaves when tearing off their coloured lobes, for each of these is only a transformed leaf. These leaves are transformed into two kinds of organs. Some become the perianth, the most brilliant part of the flower, a true organ of protection, forming soft swathes for the delicate apparatus which it encloses, and, like a glowing mirror, reflecting light and heat upon them. The others, still further changed, are raised to the dignity of a reproductive apparatus. Most frequently the perianth is double. Its external envelope, or

calyx, is formed from the first whorl of transformed leaves. The internal envelope, or corolla, although more brilliant than the other, is also formed from a whorl of leaves—the second. Each of these leaves is called a petal. The stamens, which represent the male apparatus of a plant, result from the changed form of the third whorl of leaves. Finally, the pistils are derived from the fourth, or innermost whorl of leaves. The old naturalists thought that plants, like animals, had two sexes, but they had only very confused ideas about them. It was only in the seventeenth century that a physician of Tubingen hit upon the truth. Some of the most common flowers are as follows:—The daisy (*bellis perennis*), great plantain (*plantago major*), rib-wort plantain (*plantago lanceolata*), thistle (*carlina vulgaris*), yarrow (*achillea millefolia*), ox eyed daisy (*chrysanthemum leucanthemum*), stinging nettle (*urtica dioica*), cornfield violet (*viola tricolour*) birdfoot trefoil (*lotus corniculatus*) wood beteny (*stachys betonica*), creeping tormentil (*tormentilla repens*), scentless may weed (*matricaria inodora*).

(Compiled from “The Universe” by V. M.)

Mathematical Curiosities.

To the question in our last issue in respect to the square on the hypotenuse, correct solutions have been received from Garfitt and Balmforth.

Their solution is practically as follows:—

Let ABC be a right angled triangle, AB being the longest and BC the shortest side.

From F (the corner of the square on AB which is opposite to A) draw FG parallel to BC , meeting AB in G . Through L —the remaining corner—draw LT parallel to AC , meeting FG in T , and through B parallel to CA draw BK , meeting FG in K . Produce LA and FB to meet the sides of the smaller squares in X and Y respectively. Through X draw XZ parallel to AB to meet BC produced in Z . From F B cut off FQ equal to XZ . Draw QR parallel to AC and meeting FG in R . Call the angular points of the square on AC which lie opposite to A and C — N and M respectively. Call the angular points of the square on BC which are opposite to B and C — J and G respectively. Then it will be found that NXA , XMZ , $AXZC$, YCB , and $YJGB$ will coincide respectively with TFL , FRQ , $LAGT$, GKB , and $QRKB$.

* * *

A man starts the year $\pounds 140$ to the bad. He improves his position by $\pounds 2$ each month, but

always gets £16 deeper into debt at Christmas. How long will it take him to become solvent?

At the end of 15 years he will have paid off £8 fifteen times, and therefore the debt remaining will be £20. By the end of the following October this £20 will also have been paid off, and therefore after 15 years and 10 months he will be solvent.

And yet, from 20 subscribers the Editor has received a solution according to which 17½ years are required. The following question is for them, although no solution of it will appear in these columns.

* * *

If a frog at the bottom of a well 30 feet deep climbs up 6 feet each day but falls down 5 feet each night, how long will it take to reach the top?

* * *

THE Editor also finds that a number of readers are convinced that a weekly increase in wages of a penny a week is not as much as a yearly increase of £10 a year.

* * *

Q.P. sends the following question :

Two men and two boys wish to cross a river. There is a boat which will hold 14 stone. Each man weighs 14 stone and each boy 7 stone. In what order will they cross?

* * *

ACCORDING to a clock which, however, gains one minute in the course of an hour, a watch is

observed to gain one minute per hour. It is, however, noticed that an alarm clock loses two minutes an hour according to the watch. How long will it take the alarm to lose five minutes?

* * *

It is mid-day when the sun is due south. If you are asked where the south lies, you, of course, answer that it is in the direction of the sun at mid-day. Suppose, however, that you neither know where the south lies nor when it is mid-day. How will you determine both?

N.B.—No mariners' compass allowed! You are not allowed out after dark, but you may assume for the purpose of this question that the sun shines all through the middle of the day!!!

Obituary.

YOUNG. On Wednesday, March 1st, of nephritis, Herbert Goolden Young, Form IV., aged 16 years.

HIBBERT. On Wednesday, Mar. 15th, of anæmia, Arnold Hibbert, Form III.—Beta, aged 12 years.

