

*Maggie Johnston*

# THE ENTRANCE

FIFTH CLASS EDITION.

*Gladley Johnston*

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### Benin Expedition.

The massacre of a British expedition sent on a peaceable mission to Benin city, the capital of the kingdom of Benin, and the recent capture of the city by British troops, have brought this portion of the dark continent into sufficient prominence for us to devote a few lines to it. The kingdom of Benin is situated in West Africa between the lower Niger and the State of Dahomey. Benin was at one time a very powerful country, but it is now broken up into several petty states of little importance. The whole coast line is now in the hands of the British. Benin city, the capital, is situated on Benin River, about seventy-three miles inland. It has a population of about 15,000. Another harbor, Gato, lower down the river, has a large trade in palm oil. The Benin River is two miles wide at its mouth, but there is a mud bar at the mouth of the river which interferes considerably with navigation. Least some of our readers have not read of the massacre referred to above, we would just state that the expedition was sent to Benin to negotiate in the interests of trade. It consisted of 260 unarmed men, seven of whom were Englishmen, the remainder natives. It started from Bonny, on the Niger Coast, West Africa, about the first of January, and proceeded in safety almost to the city of Benin, when the attack occurred. Only two of the expedition escaped with their lives. An avenging force was immediately sent against the King of Benin, and the city was soon in possession of the British and the king a fugitive. The result of the incident will doubtless add considerable territory to the Empire.

### The Corliss Bill.

The Immigration Bill of the United States, referred to in our last issue, carried with it an amendment, which was specially annoying to Canadians. The amendment was moved by Corliss, a member of the House of Representatives for the district in which the city of Detroit is situated. In this proposed legislation Corliss is doubtless trying to catch the labor vote of his city. It is to be hoped that the bill will be dealt with by President McKinley in the same manner as by Mr. Cleveland. As the matter will doubtless come up again in the new Congress, we give below the clauses of the Corliss amendment which are particularly objectionable to Canadians:

Section 4—That it shall hereafter be unlawful for any male alien, who has not in good faith made his declaration before the proper court of his intention to become a citizen of the United States, to be employed on any public works of the United States, or to come regularly or habitually into the United States by land or water for the purpose of engaging in any mechanical trade or manual labor for wages or salary, returning from time to time to a foreign country.

Section 5—That it shall be unlawful for any person, partnership, company, or corporation knowingly to employ any alien coming into the United States in violation of the next preceding section of this act. Provided that the provision of this act shall not apply to the employment of sailors, deck hands or other employees of vessels, or railroad train hands, such as conductors, engineers, brakemen, firemen, or baggagemen, whose duties shall require them to pass over the frontier to reach the termini of their runs, or to boatmen, or guides on the lakes and rivers on the northern border of the United States.

A violation of these sections is made a misdemeanor, punishable by fine up to \$500, or imprisonment up to one year, or both.

### The Cretan Trouble.

In our last issue we stated that the powers had notified Greece to withdraw her troops from Crete. The world awaited with considerable anxiety the answer from the little kingdom. Greece refuses to leave Crete to Mussulman fanaticism, and urges the powers not to insist on the scheme of autonomy (self-government), nominally under Turkish rule. The powers are considering the reply, but at present writing there seems a disposition to use force, if necessary, to have their demands carried out by Greece. If the latter country persists in her refusal to withdraw her troops from Crete the powers will blockade, not only Crete, but also the Piræus, the port of Athens. Such is the present condition of things.

Should war break out between Greece and Turkey it will be interesting to know just what the chances of each are in the struggle. Turkey had, in 1896, a population of about 15,430,000 in Asia, and 5,750,000 in Europe, and of this aggregate of over 21,000,000, nearly 15,000,000 are Mohammedans. The population of Greece is a little less than 2,200,000, about one tenth that of Turkey and not nearly one-half that of Turkey in Europe.

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She is taking heroic chances, therefore, and we can only hope that her magnificent beginning will not result in a disastrous ending. She has otherwise, some advantages. Her navy is better than Turkey's, so it is said, and her finances are in better shape. Moreover, Turkey's possessions in Europe are fully as liable, when hostilities are once fairly begun, to help Greece as to help Turkey, and the Albanians, Slavs, and Greeks, who constitute the larger portion of Turkish subjects in Europe (of the 5,750,000 subjects only 2,360,000 are Mohammedans) are not likely to hesitate long about instituting revolts on their own account. In addition, the royal family of Greece is closely connected with the royal families of England, Russia, and Denmark, and the public sentiment throughout Europe will be a strong factor in her behalf.

#### ANSWERS.

1 and 2. See this issue. 3. By the "franking privilege" is meant the privilege of sending matter through the mails free of postage. Members of Parliament send out much printed matter in this way. 4. By a "public assay office" we mean an office for the chemical analysis or testing of ores, alloys, etc., conducted at the expense of the Government. Rossland is soon to be made a city. 5. These islands belong to Denmark. The United States is desirous of purchasing them. 6. The arbitration treaty between England and the United States is not yet in force, owing to the delay of the Senate of the United States to ratify the treaty. (6) The Strait Settlements of Malayan peninsula exceed all other countries in the production of tin. 7. The territories of Canada are under the direct control of the Dominion Government. 8. The public debt of Canada is \$258,497,000; that of the United States \$1,785,412,640. 9. The chief item of income for the Canadian provinces is the grant from the federal revenue of eighty cents per head of the population of a province. 10. Necker Island is one of the Hawaii Islands. There is a rumor that Great Britain is endeavoring to purchase the island, which, of course, is stirring up the American press. England wishes to make it a cable station for the contemplated Pacific cable. 11. Great Britain, France, Russia, Germany, Italy, and Austria.

#### QUESTIONS.

(1) When were the monarchical governments of Hawaii and Madagascar overthrown? (2) The ex-queen of Madagascar has been exiled to the island of Reunion. Where is this island? (3) Where and what is Massowah? When was it taken by the Italians and what name is given to the Italian colony in Africa? (4) Excepting Queen Victoria, what living ruler has ruled longest? (5) When and why did Cecil Rhodes resign the premiership of Cape Colony? (6) Where is Bechuanaland? (7) What are the proposed routes of the British and American Pacific cables? (8) What is meant by the Exchequer Court of Canada? (9) Explain what is meant by the "concert of Europe," a term so frequently used now-a-days.

## Geography.

### THE SOURCES OF CANADIAN WEALTH.

The sources of Canada's wealth are: (a) Her forests; (b) her farms; (c) her fisheries; (d) her mines.

We intend devoting a column to the discussion of one of these sources of wealth each issue.

#### FORESTS.

1. The forests of Canada are her greatest heritage, and an intelligent study of them is of the utmost importance. It would be well to notice the influence of forests on: (a) Climate; (b) agricultural operations; (c) river fisheries; (d) water communication; (e) the health of the people; (f) trade and industries of the country.

2. Forests on "Crown Lands," that is, on lands owned by the Provincial or Dominion Governments, are leased to lumbermen, who cut the timber, the land still remaining in the possession of the Crown. In Nova Scotia and Prince Edward Island the timber is sold with the land.

3. The number of square miles of woodland in each province is as follows:

Territories, 696,952; British Columbia, 285,554; Quebec, 116,521; Ontario, 102,118; Manitoba, 25,626; New Brunswick, 14,766; Nova Scotia, 6,464; Prince Edward Island, 797.

4. The chief seats of the lumbering industry are:

Quebec, on the tributaries of the St. Lawrence from the north and of the Ottawa.

Ontario, on the tributaries of the Ottawa, and on the rivers flowing into the Georgian Bay and the northern part of Lake Huron.

British Columbia, on the Fraser and its tributaries.

New Brunswick, on the rivers flowing into Bay of Fundy and Gulf of St. Lawrence.

Nova Scotia, on the rivers flowing northward.

5. The total value of forest products exported in 1895 was \$25,672,671.

The market for this was found in United States, \$13,482,200; Great Britain, \$10,549,024; other countries, including France, Germany, British West Indies, Newfoundland, \$1,641,447.

6. The most important of our trees is the white pine of the Ottawa valley; next come the spruces, which extend from the Atlantic to the Pacific; these are followed by our hardwoods (oak, maple), and by our cabinet woods (walnut). British Columbia has its own peculiar trees, the Douglas fir, the giant cedar, the yellow cypress, and the western spruce.

7. In connection with this subject the class should study the location of each of the following places, and be able to state in what way they are connected with the lumber trade:

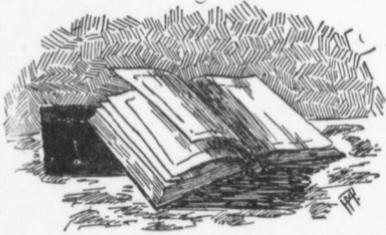
Pembroke, Hull, Arnprior, Deseronto, Spanish River, Pary Sound, Thessalon, French River, Collin's Bay, Rivière du Loup, Three Rivers, Newcastle, St. John, Chatham, Rat Portage, and New Westminster.

A Toronto teacher writes: "Your History Notes are 'just what the doctor ordered.'"

## Drawing.

BY A. C. CASSELMAN (NORMAL SCHOOL, TORONTO).

The drawings in this issue are answers to the paper set in our last, and were done by the pupils of Loretto Abbey Art School of this city. The character of the art course taken up here is of a very high order, and the proficiency of the pupils in all branches of art reflects great credit on the



teachers. No specialty is made of pen and ink drawing, yet our readers can see what can be done by proper attention to shading for the purpose of producing effect. I regret that all the drawings received from this institution can not be reproduced.

1. The book is based on the cube. Answered by Misses Marie Parkes and Helen Pope.
2. The pitcher and tumbler are based on the cylinder. Answered by Miss Maggie George.
3. The flower-pot and plant are based on the cylinder. Answered by Misses Maggie Keighley and Homerine Rioux.

NOTE BY EDITOR.—We regret that lack of space prevents us giving two of the five sketches sent us by Mr. Casselman. They will appear in a future number.



ANNUAL EXAMINATIONS, 1896—FORM I.

(Answered in next issue.)

NOTE.—Read over carefully all the parts of the questions before beginning to draw. Rulers must not be used by the candidates. Represent the objects as they would appear on a horizontal surface below the level of the eye. Add a few lines to each drawing to suggest shade and shadow.

## MODEL DRAWING.

1. Draw the box, wooden pail and tin pan as they appear to you. Your drawing must be not less than about six inches in its greatest dimension.

(NOTE.—The box, which is about 14 in. x 12 in. x 10 in., is to be placed on a chair to the right of each row of candidates; on the box is placed a wooden pail; and against the left front face of the box leans a tin pan with the bottom of it touching the box.)

## MEMORY OR OBJECT DRAWING.

2. Make a drawing of, and define, a sphere, a hemisphere, a right cylinder, half of a right cylinder, a right cone, a cube, a right square pyramid. Place the drawing to the left of the page and the definition to the right of the drawing. Make each drawing  $1\frac{1}{2}$ " in its greatest dimension.



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## P. S. Leaving Literature.

## THE HANGING OF THE CRANE.

In this number we continue the study of Longfellow's poem which was commenced in our last issue.

## EXPLANATORY NOTES—STANZA IV.

Notice in this prelude how the poet again impresses us with the indistinctness of the vision, "boughs that intervene," "sometimes revealed," "again concealed."

The introduction of the two similes does not add anything to the force of the passage; it would have been enough and either would have been better without the other.

"A Princess from the Fairy Isles." The poet afterward calls the "Fairy Isles" the "Isles of Flowers," and "Dreamland." We usually say Fairyland.

"A pattern girl of girls." An example of what girls should be.

"Covered and embowered in curls." How pretty and appropriate "embowered in curls" is! We see the little girl looking out from her "bower" of curls. But what does "covered in curls" add to the passage?

"Sailing with soft, silken sails." Notice the "alliteration" and "onomatopœia" in this line. Read it aloud so as to get the full effect.

"Four azure (azh'-yūr) eyes of deeper hue." "Azure" means sky-blue. The blue of the children's eyes was deeper than the blue of the bows.

"Dreamy with delight." How beautiful; one almost sees the expectant looks of the children. Notice the alliteration.

"Limpid as planets." "Limpid" is clear, transparent.

"Ocean's rounded verge." Refers to the horizon as seen at sea.

"Steadfast they gaze." How natural again! "Horizon of their bows." Edges of their bows. The poet does not mean this absolutely, but wishes to impress on us the total absorption of the children's attention in their meal.

"The days that are to be." The future, which will come regardless of the children's heedlessness of its approach.

Notice how natural and simple this description of the children has been.

## STANZA V.

Notice in this prelude how the "tossing boughs" and "drifting vapors" again add indistinctness to the scene.

The simile in the last two lines seems very "far-fetched." Are there any pleasing points of resemblance between the ever widening ring in the water caused by the pebble and the enlarged family circle? Does this figure add force or beauty to the passage?

"Pallid disk is hidden quite." Pallid means wan, and does not seem a well-chosen word here. The word "quite" is a weakness to the passage.

"Garlanded with guests." This is a metaphor. You may here see the distinction between a "metaphor" and a "simile." In a simile the comparison is fully stated, while in a metaphor it is only implied. A simile *compares* two things, a metaphor *identifies* two things. This is a very appropriate figure, and suggests, or is suggested by the simile which follows.

"Ariadne's crown." Ariadne was a daughter of Minos, a mythical king of Crete. Deserted by her first husband she was married by Bacchus, who presented her with a wedding-crown of gold, made by Vulcan, which at her death was transferred as a constellation to the skies. One of the constellations is still known as "Ariadne's crown."

## STANZA VI.

The simile in this "prelude" is more appropriate than those in the preceding preludes. The meadow stream and the stream of time have points of resemblance which the mind is pleased in finding. As the mill-stream runs faster and faster until it rushes over the mill-wheel, so time seems to fly faster and faster as we approach the close of life. The weeks and months appear far shorter to an old man than they appear to a school boy.

"Seemeth to stand still." It is so quiet and placid.

"Lingereth in level places." Passes slowly in manhood.

"Gloomy mills of death." We cannot help thinking that this "mills of death" is merely a metaphorical equivalent of the "mill" of the second line.

"And now . . . alone remain." This simile is very weak and far-fetched. It is too studied and elaborate; a simile should add clearness to a passage, not make it more obscure. The allusion seems to be to the belief that magicians were not allowed to use their own peculiar powers for furthering their own ends. If they did so the mystic scroll—the instrument of their power—would pass away. That is, with each selfish wish their power would "shrink" until the last selfish thought would "consume the whole."

"Brighter than the day." Not an effective phrase. It adds nothing to the force of the description.

"Homes and hearts." We see some appropriateness in a jewel shining in a "home," but can see no meaning to the jewel shining in a "heart."

"Cathay." Ka-thā'. An old name for China, given to it by Marco Polo.

"Thousands bleed to lift one hero into fame." How true this line is. What a depth of mournful sarcasm is in it!

The last eleven lines presents to us a touchingly suggestive picture of deep pathos. Pathos is that tender feeling awakened in the human heart when "beauty is tintured with sadness." What a beautiful picture this scene would be if transferred to canvas by a great artist! Linger lovingly over the picture of the mother as she tremblingly and with secret misgivings reads the news of battle and shipwreck, her aching heart breaking with anxiety. This touching and beautiful passage is worthy of Longfellow at his best.

(To be continued.)

## ANSWERS TO QUESTION IN OUR LAST ISSUE.

1. The story of "The Hanging of the Crane," as given below was written by Mabel E. Tate a pupil in one of the Toronto Public Schools.

In a large room, where everything looks new and fresh, although it is in disorder, and bears the traces of a recent festivity, sits a man. His chair is drawn up before the fireplace, whose fitful light fills the room with strange shadows. As he gazes into its glowing depths he sees many visions conjured up by his imagination and suggested by the house-warming, of whose gay throng he alone remains.

The first scene his fancy calls up is laid in the same room. Its occupants are two people who are seated at a tea-table. Over its snowy linen and polished silver glows the shaded light of lamps, which shines softly on the love-lit faces of the young husband and wife. They are perfectly happy and have no desire for company; they are all in all to each other and what need have they of anything in the world outside?

But some one does come, nor is the visitor unwelcome. With them at the table now sits a flaxen haired, rosy-cheeked boy. His will is law, he does not speak, but his every wish is anticipated by his father and mother, who are his abject slaves. Laughing and playing he sits there, seemingly ruling with a right divine, but,

"Now O Monarch absolute  
Thy power is put to proof;"

his nurse comes and in spite of tears and struggles, carries him away to bed.

The scene returns but it has changed. The first guest has given place to a blue-eyed little maiden,

"All covered and embowered in curls."

Before each is a blue-rimmed bowl and they gaze into them with the delightful anticipation of soon tasting their contents. Their innocent prattle brings many a smile to their parents' lips as in their happy carelessness they talk of the joys and sorrows of the present without a thought of the future.

"Again the tossing boughs shut out the scene,

Again the floating vapors intervene."

And when the scene returns, it has undergone a great transformation.

At the table sit the father and mother (now approaching middle age), in the midst of a circle of youths and maidens. The boy that had prattled with his baby sister is now a man with all the fire and confidence of youth, the blue-eyed baby girl is a gentle maiden with all a maiden's restless hopes and fears. As the mother fondly gazes at her boys and girls they seem like a crown of jewels brightening the whole world for her.

The scene again changes; this time the circle instead of widening has grown smaller and smaller until at last the two are alone again. Their jewels have been taken from their setting,

"To shine in other homes and hearts."

One wanders in Ceylon, one lives amid the clink of arms and horses' tramp, and another sails the seas.

One more act in this drama of life still remains to be played. The lonely watcher sees a brighter scene. All in the house is now gaiety and life.

All the lights are lit, all the fires burn bright, and happy faces fill the rooms. The ancient bridegroom and bride sit serene and contented in the midst of their re-united family, for it is their golden wedding day. The crown of jewels, now grown wider and brighter, surrounds them with the light of love shining over all, their loneliness is forgotten.

"After a day of wind and rain  
Sometimes the setting sun breaks out again."

2. The subject of the poem is: Scenes in the life of a married couple, from the house-warming to the golden wedding day.

3. The titles of the seven pictures are:

- (a) The house-warming.
- (b) The two alone.
- (c) The first guest.
- (d) The second guest.
- (e) The family circle complete.
- (f) The family circle broken.
- (g) The golden wedding day.

4. The circumstances of time, place, and mood under which the poem has professedly been written are:

(a) The time was at night, after the departure of the guests from the house-warming.

"The guests into the night are gone.

And I alone remain."

(b) The place was before the fireplace in which the crane had been hung.

"But still the fire upon the hearth burns on."

(c) The poet is in a meditative mood.

"And now I sit and muse on what may be."

5. The characteristics of the author's style as shown in the poem are:

(a) *Pathos*. This is due to the subject of the poem, which could scarcely help calling up in our minds

"The consciousness of tender feeling."

The pathetic rises to its greatest height in the description of the mother reading, with bowed head and aching heart, the news of shipwreck and of battle.

(b) *Picturesqueness*. The poem is filled with descriptions which bring up definite scenes in the reader's mind. See prelude to stanza vii.

(c) *Harmony*. The poet often assimilates the sound of the line to the sounds made by the objects described.

"The clink of arms and horses' tramp."

6. The author gives force and beauty to his language by:

(a) His *figurativeness*. See preludes to stanzas vi. and vii.

(b) His *naturalness*. See the description of the child in stanza iii., also of the children in stanza vii.

(c) *Harmony*. See (c) of question 5.

J. A. McFarlane, Dorking, Ont., writes: "Received your 'History Notes,' and am well pleased with them. Shall endeavor to place them in the hands of my Third and Fourth classes."

## Grammar.

The three questions given below will be fully treated in our next issue. They should prove very useful to the classes at this stage of the school year.

1. From the following sentences tell clearly the duty of the several infinitives, and hence infer the uses of the infinitive mood :

- (a) All we want is *to be let* alone.
- (b) He likes *studying* mathematics.
- (c) It is good *to be* here.
- (d) He had no choice but *go*.
- (e) They were about *to depart*.
- (f) They resented *having been insulted*.
- (g) We have come *to hear* you.
- (h) He induced them *to make* the attempt.
- (i) I love you too much *to let* you go.
- (j) Nobody imagined him *to be listening*.

2. State the various uses of the noun clauses, giving one example of each use.

3. From the following sentences select the adverbial clauses, and clearly tell the duty of each ; hence infer the various classes of the adverbial clause.

- (a) Whither I go ye cannot come.
- (b) Come down ere my child die.
- (c) Except ye see signs and wonders ye will not believe.
- (d) He sang till his throat was hoarse.
- (e) He is not so rich as you suppose.
- (f) As you are here, I will go.

## CLASS WORK.

We believe that the teacher now feels the need of an abundance of exercises for class work. Therefore, we submit the following :

## I.

I once had a little brother,  
With eyes that were dark and deep ;  
In the lap of that dim old forest,  
He lieth in peace asleep.  
Light as the down of the thistle,  
Free as the winds that blow,  
We roved there the beautiful summers,  
The summers of long ago.  
But his feet on the hills grew weary,  
And one of the autumn eyes,  
I made for my little brother,  
A bed of the yellow leaves.

1. Give the grammatical value and relation of the phrases, "in the lap" and "on the hills."
2. Give the grammatical value and relation of *asleep, summers, long ago, weary, one*.
3. Select all the words that show inflection.
4. Give all the other inflected forms of the words *had and lieth*.
5. Classify the verbs : (1) as strong and weak, (2) as transitive and intransitive.
6. Form adjectives from *brother, peace, down, autumn, yellow*.
7. Form nouns from *brother, deep, dim, forest, long, hill*.
8. Write out in full the clause of which "as the winds" forms part, and tell the kind and relation.

## II.

Classify sentences according to (1) Form, (2) Composition, giving an example of each kind.

2. Write compound sentences to illustrate the different kinds of co-ordination, naming each kind and explaining the names.

3. Write sentences to illustrate the different functions an infinitive phrase may perform in the detailed analysis of a simple sentence, describing the function in each case.

4. Exemplify the different kinds of clauses that may begin with *that, as, and where*, respectively.

5. Exemplify the different relations in which a noun in the nominative may be, and show in how many of these a noun clause may stand.

6. Do the same with the objective case.

7. Give examples to show that the same infinitive phrase may be used with three different grammatical values.

8. Give examples of words in *ing* used as prepositions, and show, if you can, that this use has originated from their participial use.

9. What effect has the loss of inflections in English had on (1) the *functional interchange* of words, (2) the placing of words in a sentence ? Explain why in each case.

10. Fill the blanks in the following with *who* or *whom*, giving your reason in each case.

- did you say he gave it to ?  
— did you say he took it to be ?  
— did you say it was that gave it to you ?

## EXERCISES.

Classify, and give the relation of each of the *that* clauses in the following :

- (1) Would that he were here.
- (2) He came the very day that you left.
- (3) That he might have no excuse I gave him another chance.
- (4) The idea that he might have taken it never occurred to me.
- (5) He was so sleepy that he could not keep awake any longer.
- (6) I know it to be a fact that he wrote the letter.
- (7) Where were your eyes that you did not see it ?
- (8) It is time that we were starting.
- (9) Alas that he should have been so foolish.
- (10) It was from her that I got it.
- (11) Am I a child that you talk to me in that way ?
- (12) Bear witness that I have done my duty.
- (13) Now that you are home again, what are you going to do ?
- (14) He has not been here that I know of.
- (15) I never see him that he does not ask about you.
- (16) I'll betide the fatal yew that e'er it left the string.
- (17) What were you thinking of that you didn't stop him ?
- (18) I took every precaution that none should escape.
- (19) I believe the fact to be that he is afraid.
- (20) It was near here that I lost it.

## CORRECTION OF ERRORS.

Criticize and improve the following sentences :

1. He wasn't a man whom any one would have thought would have done such a thing.
2. I don't know as I will be able to finish it before dark.
3. Neither you nor no other boy can prove that it was ~~me~~ that ~~done~~ it.
4. He carried it all the way without hardly spilling a drop.
5. He asked leave to set up a mark like they used to shoot at.
6. After having done this, and not wishing to be known, he disappeared from the ground.
7. He told the night about his adventures on his return who was very much surprised, etc.
8. He looked kind of surprised when I told him that there was over twenty applications for it.
9. Locksley told Hubert he could have hit the prize just as easy as he did if he had tried.
10. In this paper I shall only attempt to deal with the first of these cases.

## Arithmetic.

## PAPER I.

Below we give arithmetic the first of which is a continuation of the treatment of boxes as found in our last issue.

1. Find to the nearest gallon the capacity of an open quadrate tank measuring 7' 6" by 6' 4" by 5' 8" externally ; the material of which the tank is made being  $1\frac{1}{4}$  inches in thickness.
2. The external dimensions of a rectangular chest are 2' 3", 1' 8", 1' 2 $\frac{1}{2}$ ", and the sides, lid and bottom are one inch thick. Of how many cubic inches of iron is it formed.
3. A box is without a lid ; if the external length is 3 ft., width 2 ft., depth 1 ft. 6 in., and the thickness of the material is 1 inch ; find the number of cubic inches of the material.
4. The weight of iron is found to be about 7.7 times as heavy as that of an equal volume of water. Find the weight of a rectangular box, without a lid, full of water, if the outer dimensions are 4, 5, 6 feet, respectively, and the iron is one inch in thickness.

## EXERCISE II.

1. A speculator bought D. & H.R.R. stock a 125, kept it a year, during which time a 5% dividend was paid, and then sold the stock at 128 $\frac{3}{4}$ . Find the per cent. of gain per annum on his investment.
2. The discount of a bill of goods at 25% and 10% off is \$71.50. Find the net cost of goods.
3. A commission merchant writes his principal that he has purchased 40,000 bushels of oats at 21 cents a bushel, that the money advanced to him amounts to \$7,850, and requests the principal to send him a draft to balance the account. If his commission be 3% for buying, what should be the amount of the draft ?
4. The discount on a note discounted at bank in New York for 1 month, 27 days, at 6% per annum was \$42.75. Find the proceeds.

5. If a locomotive driving-wheel, 4 ft. 7 in. in diameter, turns 4,032 times in running a certain distance, how many times must one 5 ft. 6 in. in diameter turn in running 7 $\frac{1}{2}$  times as far ?

6. If a farmer is to shingle a barn roof 56 ft. long and 22 $\frac{1}{2}$  ft. wide on each side, with shingles (4 in. wide) laid 5 in. to the weather, how many (bunches  $\frac{1}{2}$  M. each) must he buy ?

7. The exact interest on a certain principal for 33 days at 5% per annum is \$3.30. Find the principal.

## EXERCISE III.

1. A person buys a crock of butter weighing 18 lbs. which includes the weight of the crock which was  $\frac{1}{3}$  that of the butter. Find the value of the butter at 20 cts. per lb.
2. A grocer sells a customer a dollar's worth of sugar at 8 cts. per lb., but uses a pound weight  $1\frac{1}{2}$  oz. too light. By what amount is the customer cheated ?
3. A piece of cloth lacks 7 in. of containing sufficient to make 6 coats each containing 1 $\frac{3}{8}$  yds. 2 $\frac{1}{2}$  in., and 8 pairs of trousers each containing 1 $\frac{1}{4}$  yds. 6 $\frac{1}{2}$  in. Find the quantity of cloth in the piece.
4. The population of a town after increasing by  $\frac{1}{12}$  of itself each year for three years is 606 less than 5000. Find the increase the second year.

## EXERCISE IV.

1. How much water must be added to a cask of brandy containing 63 gals., worth \$4.50 per gal., in order to reduce the price per gal. by  $\frac{1}{10}$  ?
2. A dealer buys articles at the rate 12 for 10 cts., and sells them at the rate of 9 for 15 cts. What part of his outlay does he gain ?
3. A man has \$45 made up of equal sums represented by each of our Canadian silver coins. How many coins had he ?
4. If the regular passenger fare on a railway be 3 cts. per mile, but return tickets good for 30 days be sold at a reduction of  $\frac{1}{3}$  on the full fare, find the distance between two places if the return fare be \$2.75.

## Algebra.

## EXERCISE I.

Before you attempt to factor the sum or the difference of two cubes be sure you thoroughly understand the following theorems :

1.  $x^n - y^n$  is divisible by  $x - y$  always, and all the signs in the quotient are plus.
2.  $x^n - y^n$  is divisible by  $x + y$  when  $n$  is even and the signs in the quotient will be plus and minus alternately.
3.  $x^n + y^n$  is divisible by  $x + y$  when  $n$  is odd and the signs in the quotient will be plus and minus alternately.
4.  $x^n + y^n$  is divisible by  $x - y$  never.

From this you will see that  $x + y$  is a divisor of  $x^3 + y^3$  and that the quotient is  $x^2 - xy + y^2$ . Or that the factor of  $x^3 + y^3 = (x + y)(x^2 - xy + y^2)$

## EXERCISE I.

1.  $a^3 - b^3$ .
2.  $a^3 + b^3c^3$ .
3.  $a^3b^3 - c^3$ .
4.  $125 + a^3$ .
5.  $8x^3 + 27y^3$ .
6.  $216 - a^3$ .
7.  $1 - 343x^3$ .
8.  $1000y^3 - 1$ .
9.  $64 + y^3$ .
10.  $a^3b^3 + 512$ .
11.  $343x^3 + 1000y^3$ .
12.  $729a^3 - 64b^3$ .
13.  $a^{3n} - b^{3n}$ .
14.  $a^6 + b^6$ .

## EXERCISE II.

1. (a) How long will it take a man to build  $m$  yards of wall if he builds  $n$  feet a day? (b) What is the interest on  $d$  dollars, for  $y$  years, at  $p$  per cent. a year?

2. Simplify  $5a - 7(b - c) - [6a - (3b + 2c) + 4c - \{2a - (b + c - a)\}]$ .

3. Divide  $x^6 - 6x + 5$  by  $x^2 + 1 - 2x$ .

4. Find the prime factors of (a)  $y^2 - 2y - 15$ ; (b)  $3a^3 - 12a^2b + 12ab^2$ ; (c)  $5am^2 + 10bmn + 15cm^2$ .

5. What is the greatest common factor of  $a^4 - 16$ ,  $a^2 - a - 6$ , and  $(a^2 - 4)^2$ ?

6.  $\frac{x+4}{5} - \frac{4-x}{7} = \frac{x+1}{3}$  Solve for the value for  $x$ .

7. Simplify the complex fraction  $\frac{\frac{a}{b}}{\frac{b}{a}}$

8. The length of a room is double its width. If the length were 3 feet less and the width were 3 feet more, the area would be increased 27 square feet. Find the dimensions of the room. (Give algebraic statement and solution.)

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## Bookkeeping.

Below we give the paper set at the Commercial Examination, July, 1895. It will be fully answered in our next issue.

Toronto, June 17th, 1895. John Smith opens a grocery store at 1010 King street west, Toronto, agreeing to pay rent for the place of business quarterly in advance, at the rate of \$600 per year. He invests as follows:

An account against W. P. Patterson of \$85.75.

A stock of goods as per inventory, \$2,561.00.

A note in favor of John Smith, made by Wm. Holmes, on Dec. 17th, 1894, for \$800, payable in one year, and bearing interest at 10 per cent. per annum, \$840.

One lot in Parkdale valued at \$800.

Cash, \$513.25.

June 18th. He opens an account at the Bank of Montreal, depositing to his credit all available funds, amounting to \$513.25. He pays first quarter's rent by issuing a check for the amount. He buys of Jones, Gowan & Co., wholesale grocers, an invoice of groceries amounting to \$1,465.00, and gives his note payable in 90 days for the same. Cash sales for the day \$375.

June 19th. He sells the Parkdale lot for \$1000.00, receiving cash, \$500, purchaser's check on Molson's Bank for \$400 and 50 cwt. of best pastry flour at \$2.00 per cwt. He buys of Jones,

Gowan & Co. an invoice of goods amounting to \$536.00 on 60 days credit. Cash sales for the day \$284.00.

June 20th. He deposited to his credit in the bank \$1,400. He sells J. P. Wilson, on account, 1 ton of flour at \$1.00 per cwt. He receives from W. P. Patterson, to be placed at its full value, to the credit of Patterson's account, a note for \$50.00, made by J. K. Anderson favor of W. L. Tompkins or order, on June 1st, to run 60 days. Cash sales \$251.

June 21st. He deposits to his credit in the bank \$200. He pays cash for 2,000 circulars, \$5, and for water rates \$10. Messrs. Jones, Gowan & Co. offer a discount of \$50 for immediate payment of note drawn in their favor on the 18th inst. The offer is accepted and a check is issued to retire the note. Cash sales for the day \$500.00.

June 22nd. J. P. Wilson has made an assignment. The estate pays 25%, or \$8 as payment in full of account.

## Inventory:

Mdse. on hand, ..... \$2,500 00

Interest accrued since Dec. 17th

on John Smith's note, ..... 41 10

Rent paid in advance, ..... 141 85

Make a complete record of these transactions in single entry.

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## Euclid.

The following paper will be found useful for drill in your class:

1. Distinguish between "Theorem" and "Problem"; between "Direct" and "Indirect" demonstration. Classify the first twenty-six propositions as problems or theorems. Name the propositions in the first twenty-six that are proved indirectly.

2. Name the different kinds of triangles, according to their sides, according to angles.

3. Define Axiom and Postulate and give one instance of the use of each in the proof of a proposition.

4. What are the characteristics of: a line, a point, a rhombus, a rhomboid, a rectangle, and parallel straight lines.

5. "Superposition is the imaginary placing of one figure upon another so as to determine their equality or inequality."

Enunciate any theorem of Euclid where this method is employed.

6. Define hypothesis, conclusion, data, quæsitæ.

7. If lines being produced ever so far do not meet, can they be otherwise than parallel? If so, under what circumstances?

8. Define adjacent angles, opposite angles, vertical angles, alternate angles, exterior angles, and interior angles.

15,000 of our "Entrance Canadian History Notes" have been placed in the schools of Canada during the past eight months, while 6,000 copies of our "Entrance British History Notes" have been disposed of since January 15th of this year. The demand continues.