

ARTS : PASS—MEDICINE : HONOURS.
CHEMISTRY.

Examiner—FRANK THOMAS SHUTT, B.A.

Candidates in Arts will take questions 1, 2, 3, 4, 5. Candidates in medicine will take full paper.

1. Write a short account of the chemistry of Hydrogen, giving two methods for its preparation.

2. How is Ammonia prepared? What are its properties?

3. Give equations shewing the decomposition of the following substances by heat: (a) Potassium Chlorate, (b) Ammonium Nitrate, (c) Ammonium Nitrite, (d) Calcium Carbonate, (e) Manganese dioxide.

4. Define the following terms: Molecule, Atom, Equivalent, Radicle, Acid, Base, Salt.

5. State the law of Multiple Proportions, and illustrate it by the compounds of Nitrogen and Oxygen.

6. Discuss the chemical relations which exist between Chlorine, Iodine, Bromine, and Fluorine.

7. What volume (0°C and 760^{mm}) and weight of Oxygen will be produced on heating 122.5 grammes of Potassium Chlorate?

Calculate what the volume will be at 15°C and 740^{mm}

K=39; Cl=35.5. O=16.

8. What is understood by the term Quantivalence? Use the elements Carbon, Nitrogen, oxygen and Chlorine to illustrate your answer.

Correspondence.

DR. McLELLAN'S "ELEMENTS OF ALGEBRA."

To the Editor of the EDUCATIONAL WEEKLY.

SIR,—The remarks in the EDUCATIONAL WEEKLY of September 2nd regarding Dr. McLellan's new algebra are in the main correct, and show that the writer has some knowledge of what the book contains. I wish, however, to take exception to the statement that "it would enhance the value of the book if answers were appended."

Now, my opinion—and I have arrived at that opinion after a very careful examination of the work, and after using it in my classes for a number of months—is that it is the best elementary algebra ever published, and I wish to give some of the reasons why I think so.

1st. Because answers are not given in the book. It might be an advantage to some *teachers* to have answers appended, but I do not see why.

It seems to me that a teacher should be certain that he understands the principles on which the solution of any question that he intends to bring before the class, depends, and understanding thoroughly the principles he ought to be able to test his work: if he cannot, he had better leave such questions alone.

It will be understood from what I say that I would have the teacher attempt to teach nothing but what he is thoroughly familiar with. In my

opinion there has been too much working from the answer to the question on the part of both teacher and pupil. For my part I would like to see the answers left out or torn out of all our text books on arithmetic as well. I repeat that if I am not able to solve a question for my class and know positively that the solution is right, I have no business to bring it before them.

Perhaps some will ask, What are we to do if pupils come to a question which we do not understand sufficiently to enable us to know that we have obtained the correct answer. Well, I would say that if you can explain the question you *can* know when you get the correct result, and if you cannot explain it properly you had better not meddle with it; you are only wasting and worse than wasting the time of the class.

Don't try to make your pupils believe you can solve a problem because you can obtain the answer given in the book, if you cannot give a reason for every step in your solution.

2nd. The examples in the different exercises are graded better than in other algebras.

This is a very important matter, as upon it the progress of the pupil to a great extent depends.

3rd. The method of treatment of special forms of multiplication and division, G. C. M., L. C. M. and factoring are in many respects an improvement on those of other books.

4th. It contains the best chapters on factoring, fractions, equations and problems that I have seen.

MILES FERGUSON.

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