

Europe. During these years, and in somewhat diverse forms, he met and studied many of the difficulties and problems which confront educationists in this country. In order to have the mass of facts thus accumulated put into organized form, he visited Germany, spending the autumn and winter of 1898-9 in Berlin University, and the next six months at Heidelberg studying Teutonic philology and German pedagogy. He then spent three months at the Sorbonne and College of France comparing different systems and verifying results.

Mr. Soloan has written a good deal for the press, mainly very interesting newspaper letters while abroad, and a valuable and most exhaustive article on "Rural Schools." His training at college, his practical knowledge, obtained in the best schools of the province, and his study of the educational systems of Germany and France, should all be an admirable preparation for the responsible duties devolving upon him as principal of the most important educational institution of the province.

In 1897 Principal Soloan was married to Miss Elizabeth Moody, one of the chief ornaments of the best society of Yarmouth. She accompanied her husband in all his European travels, which were considerable, taking a most intelligent interest in all she saw, and making a careful study of the customs and fine arts of the towns and villages of Western Europe.

For the REVIEW.]

Botany Examination, 1900, Nova Scotia.

[By Professor John Waddell, Ph. D., School of Mines, Kingston; late of the Royal Military College of Canada; Associate Examiner in Science, High Schools, Nova Scotia.]

The first requisite in the pursuit of an experimental science is accuracy of observation. Without it skill in comparison (the second requisite) is impossible; with it, comparison is easy.

In that form of botanical instruction most suitable to a school course, a training in accuracy of observation and in readiness of comparison is specially prominent, and thus botany is one of the very best subjects with which to begin a scientific course. Moreover it is probably the one from which the greatest pleasure can be gained in after life by the every day worker in the home, in the shop and in the store; and to the farmer it lends an interest in his labor otherwise unattainable.

Botany appeals to the ordinary experience; and while giving a very excellent training in the first essentials of a scientific education does not call for powers beyond those of the average pupil in the schools.

The subject has somewhat recently been added to the syllabus for the provincial examination in Nova Scotia and has most wisely been prescribed for the D (or lowest) grade. It is not to be expected that on the first introduction of the subject into the curriculum of schools perfect success in teaching it should be attained, and it

is in the hope of affording a little help to those preparing themselves or others for the examination that I offer a few suggestions. I have had access as examiner to the papers written by candidates at the recent July examination, and I think that I cannot do better than discuss the questions in order.

I consider the examination paper almost ideal for its purpose. A candidate is allowed a wide choice in the selection of plants to study, but he is expected to study those which he does select thoroughly. The only question in which the examinee is strictly limited is the first, and the plants in it are of the most common occurrence. Nearly the whole ground of morphological botany is covered by the paper; and though it might be difficult to make full marks, it should not be hard to make fifty per cent., provided the candidate's knowledge is accurate and is not that general knowledge which has been well designated as definite and dense ignorance.

Question 1—Compare each of the parts of the flower and fruit of the Buttercup with those of the Strawberry, illustrating by outline drawings of the parts when convenient.¹

It is to be noted that a general description of the plants is not asked for. Many candidates overlooked this point and gave descriptions of root, and stem, and leaves, which were entirely beside the mark and not only gave the examiner much useless matter to look over (a thing to be avoided in the candidate's own interest), but consumed valuable time which might have been profitably spent upon another question. The comparison is to be drawn between the parts of the flower and fruit of the buttercup and of the strawberry. A comparison implies a placing side by side so that similarities and differences may be easily seen. It is not a comparison between the two flowers to say that the buttercup has five petals, many stamens and pistils, and that the strawberry has a persistent calyx, white petals, and blooms in late May or early June, because the points mentioned about the strawberry have not been mentioned about the buttercup. It would be a comparison to say that the buttercup has five petals, many stamens and pistils, and that the corolla is yellow, while the strawberry has five petals, many stamens and pistils, the corolla being white. The comparison is very imperfect, however, and more suitable for a kindergarten than for boys and girls thirteen or fourteen years old.

The two flowers may be described separately, but the description of the parts should be in the same order, and the points brought out should be important and relevant. It might be better to compare the flowers point by point, first the calyx, then the corolla, and so on, but an examiner would probably be very well content if the description were written so that the candidate showed evidently that he was fully cognizant of the points of similarity and difference.

I am afraid that if one had to depend upon the comparison drawn by many of the candidates in order to decide whether one had the flower of a strawberry or a buttercup in one's hand, difficulty would be experienced, unless indeed the color chanced to be given. The following example will illustrate: "The petals of

¹ I may mention that one candidate at the end of his description remarked, "I do not find it convenient to illustrate by drawings." His naivete was more than equalled by another candidate who stated that he never studied flowers.