



Amusing and Instructive.

HOW FARMER BOYS MAY BECOME ENTOMOLOGISTS.

SOME difficulties beset the way of the young entomologist which are apt, at the very beginning, to lead to discouragement, if not to despair. First, there is the seeming necessity of an elaborate cabinet for his collection. Secondly, a very great deal of time and labor must be taken in the preparation of specimens, and results are very often unsatisfactory. Thirdly, museum pests make "eternal vigilance the price" of a collection. And fourthly, it is impossible to identify material as one finds it; and there is no satisfaction in the possession of any insect without a name that can be relied upon. In view of these difficulties, which are very serious, what shall the young entomologist do?

First, an elaborate cabinet is at the beginning, if not always, an unimportant matter; at any rate, no one should purchase or make an elaborate cabinet until after he has seen a number of different kinds of boxes, and has decided upon some specialty in his collecting. Pasteboard or plain wood boxes, with plain overlapping and closely fitting covers, with pith, turf, or cork lining neatly covered with white paper, are cheap, and are as good as the best for any collection. Cigar boxes neatly papered will answer every purpose for a long time. The collection, and not what it contains, is the all-important thing.

Secondly, it is true the labor of preparing specimens for the collection cannot be avoided; but in entomology, perhaps more than elsewhere, he saves more than half his time who does all his work well. It is always waste to do anything with poor specimens, except as they are unique. It is a waste, except for special purposes, to rear or prepare a mass of common material. In collecting, no imperfect specimens, save as the species is new to the collection, should be preserved. Much temptation to a waste of time and labor will thus be avoided. After the specimen is prepared, the same rule should be followed. No imperfect specimen, save it is unique to the collection, should be preserved. One will thus be forced to exercise patience and extreme care, which are, after all, the great requisites. The same care should be taken in the arrangement of the specimens. A collection of perfect specimens, well set, uniform in pins, height upon the pins, and in labels, is always a satisfaction. The all-important rule is, do all work well and for permanency.

Thirdly, museum pests are very easily controlled with a little care. Have your collection by preference in a room without carpet or rugs. Have the covers of the boxes as closely fitting as possible. Keep them in a cabinet or wardrobe with closely fitting doors. But wherever the boxes may be, if pests are found in the collection they must be destroyed at all hazards; baking the specimens is the best way, though care must be taken not to expose to a temperature much above the boiling point. Two or three good applications, two or three weeks apart, of chloroform or bisulphide of carbon will kill all living things in the boxes. Once clear of pests it is easy to keep clear. Naphthalene in cones or pinned in a paper in one corner of the box, will prevent any danger. Personally, I have found the

oil of sassafras to be as good as any, and much pleasanter in some respects than other preventives. Have a piece of sponge on a pin in a corner of the box and drop a little of the oil on it. All preventives ought to be renewed several times each year. But as long as the odor exists the insects are safe.

Fourthly, the difficulty connected with the identifying of species is no small one; but there is no satisfaction in a mass of material unarranged and unmanageable. Let the beginner determine that whatever difficulties present themselves, he is going to have his collection systematically arranged, and is going to understand why it is so arranged. Every insect must have if possible, one label, with date and place of capture; another with its scientific name, and it must be in its proper place in the cabinet.

The young entomologist should determine that he will know why insects are arranged as they are by entomologists. If he is to be anything, he must be more of a student than a collector. At the beginning collectors and students are pretty sure to be too ambitious. The insect world is much larger than most people realize. Any one who collects butterflies is supposed to know not only about all of these, but as well about beetles, and every other insect, not only in his own country, but the world over. Insects, in species, probably far surpass all the rest of the animal kingdom, and perhaps equal in number all other created things on earth. Even a genius would have to be spread very thin if he tried to cover a knowledge of all the rest of the animal as well as the vegetable and mineral, kingdoms. The young entomologist must, if he is to be anything, limit his studying and collecting to a specialty—to one sub-order at least; and if he means to do well, to one family or group, or perhaps one genus. The aim must be to have in that specialty all the knowledge possible, and a collection representing as perfectly as possible every species. One must have his "hobby" and sacrifice freely in other groups for the sake of perfection in the requirements of his specialty.

For study, get all the literature bearing upon the subject. Read, as far as possible, the current journals of your own country; note all matters of interest and by publishing or otherwise, let others have the benefit of what you learn. Make the acquaintance, by correspondence and personally, of veterans as you may have opportunity and as you have something real to ask or tell. Form a society, if none exist near you, and join any within your reach.

In getting the names of insects, one must make use of the time and brains of others. This cannot be avoided in the present state of the science. So, while you are about it, have your material determined by the best authorities, that is to say, by specialists; thus you can be able, as far as possible, to rely on what you have, though of course specialists are not infallible. You can find who the specialists in any family are from the State entomologist or from any entomological journal. Write and find their terms for the use of their time and knowledge. It is however, always understood that a specialist has a right to retain any of the material sent him if he desires it. Never forget to pay expressage or postage both ways if you wish insects returned.

In the specialty, at least, seek to have the insects in all stages of their history—from the egg to the imago.

To sum up, let the ground you attempt to cover be rather too little than too large. Demand perfection of yourself. Have no end of patience and carefulness. Do all your work well. And seek in study and collecting to have everything thorough, reliable and complete.



A Summary of News for the Past Month.

1st.—Hon. F.R. Masson, Mr. C.A. Dansereau, and Mr. Phil. Landry, called to the Dominion Senate to represent districts in Quebec.

2nd.—Destructive fire in Boston, Mass., loss \$200,000; six people burned to death.

3rd.—The London Times settles the libel suit brought against it by Mr. Parnell who receives £5000 as a solatium. Residence of Secretary Tracey, at Washington, destroyed by fire; his wife, daughter and a servant girl burned to death. C.P.R. sheds at Ottawa and five passenger coaches destroyed by fire, loss \$75,000. W.T. Jennings C.E. of the C.P.R. appointed city engineer of Toronto.

4th.—Death of Senator John Macdonald, Toronto.

5th.—Three young ladies and four gentlemen while holding a religious meeting in Hull, Ont., attacked by a mob and badly beaten and bruised.

6th.—About two hundred lives lost by an explosion in a colliery at Abesychan, Monmouthshire, England. Andrew Carnegie offers to spend one million dollars for a central free library and branches for Pittsburgh, Pa. Immense destruction of property by floods in Oregon.

7th.—Paris excited over the arrest of the Duc d'Orleans, eldest son of the Count de Paris, for violation of the law banishing members of previously reigning families from France.

8th.—Death of Cardinal Pecci, the Pope's brother. John Morton and his wife, Miami Station, Man. shot dead by Morton's father, because of a trifling quarrel between them.

10th.—The Orange Incorporation Bill passes its second reading in the Dominion House of Commons by a vote of 35 to 63. Corner stone of Rev. Dr. Talmage's new tabernacle in Brooklyn, N.Y. laid.

11th.—Manitoba Legislature pass a resolution abolishing the official use of the French language. Opening of the Imperial Parliament. Another disgraceful riot in Hull, Ont.; Protestant evangelists terribly beaten.

12th.—Duc d'Orleans sentenced to two years imprisonment. Thomas Kane, hanged in Toronto for the murder of his paramour. Fire in St Lambert, near Montreal, loss \$12,000.

13th.—Parnell Commission report laid before the Imperial Parliament.

14th.—Australian Colonial Conference unanimously adopts a motion in favor of colonial federation. Toronto University buildings and contents almost wholly destroyed by fire, loss about \$400,000.

15th.—Mr. Peter McLaren, the wealthy Perth lumberman, called to the Dominion Senate. Horrible treatment of Russian political prisoners reported in Siberia; one lady flogged to death, and three others commit suicide in consequence.

17th.—Opening of the Dominion Dairy Association Convention at Ottawa.

18th.—Death of Count Andrassy, the well-known Hungarian statesman. United States Senate ratifies the British Extradition Treaty. Henry Smith of London, Ont., arrested for murdering his wife.

19th.—Death of Joseph G. Biggar, M.P. the well-known Home Ruler.

20th.—Four children of John Liston, Kingston, Ont., burned to death. Dr. Montague, elected M.P. for Haldimand beating Mr. Colter by 239 votes. Opening of the Nova Scotia Legislature.

21st.—After a long and able debate in the House of Commons Sir John Thompson's amendment to Mr. McCarthy's Bill for the abolition of the official use of the French Language in the North West Territories, leaving the decision of the matter to the North West Assembly, carried by a vote of 149 to 50.

22nd.—Over sixty lives lost and great destruction of property at Prescott, Arizona, by a large storage dam giving way. Death of John Jacob Astor, of New York; wealth estimated at \$150,000,000.

23rd.—Rodolph Dubois, St. Alban, Que., arrested for murdering his wife, mother-in-law, and two young children.

24th.—United States House of Representatives select Chicago for the World's Fair of 1892. Motion to place seeds and grain used for the production of ensilage on the free list defeated in the Dominion House of Commons.

25th.—Resolution in favor of shortening the hours of labor defeated in the Imperial House of Commons.

26th.—Toronto Board of Trade resolves to urge upon the Government the establishment of a two-cent postage to and from any place within the empire.

27th.—Robert A. Smith, merchant, Newmarket, Ont., murdered in his store by some unknown person. Sir John Macdonald presented by his friends and admirers with a portrait of himself. Mr. Adam Brown's bill to prevent the shooting of pigeons from traps, read a second time in the Dominion House of Commons.

28th.—Mr. Labouchere, M.P., suspended by the Imperial House of Commons for asserting that Lord Salisbury told untruths. Mr. W. R. Brook, Toronto, called to the Dominion Senate. Sir Morell Mackenzie awarded £1500 damages against the St. James' Gazette, London, for publishing disparaging articles in connection with his treatment of the late Emperor Frederick of Germany.