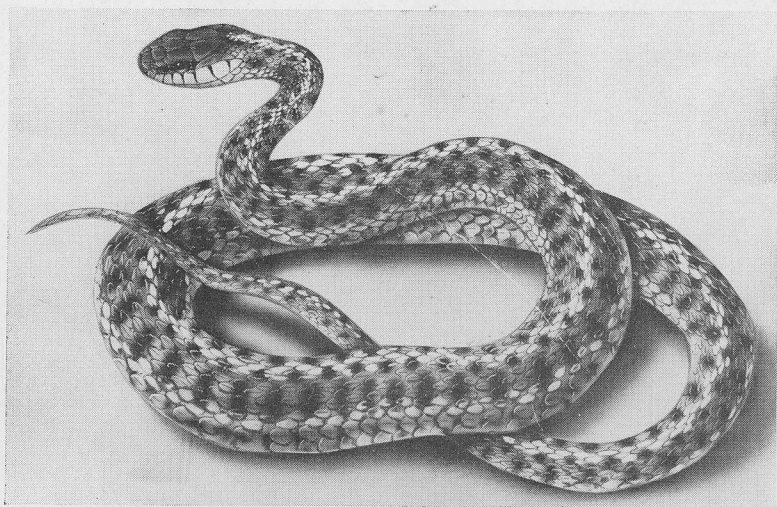


The
**VICTORIA
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WANDERING GARTER SNAKE.
Thamnophis ordinoides vagrans.

THE VICTORIA NATURALIST

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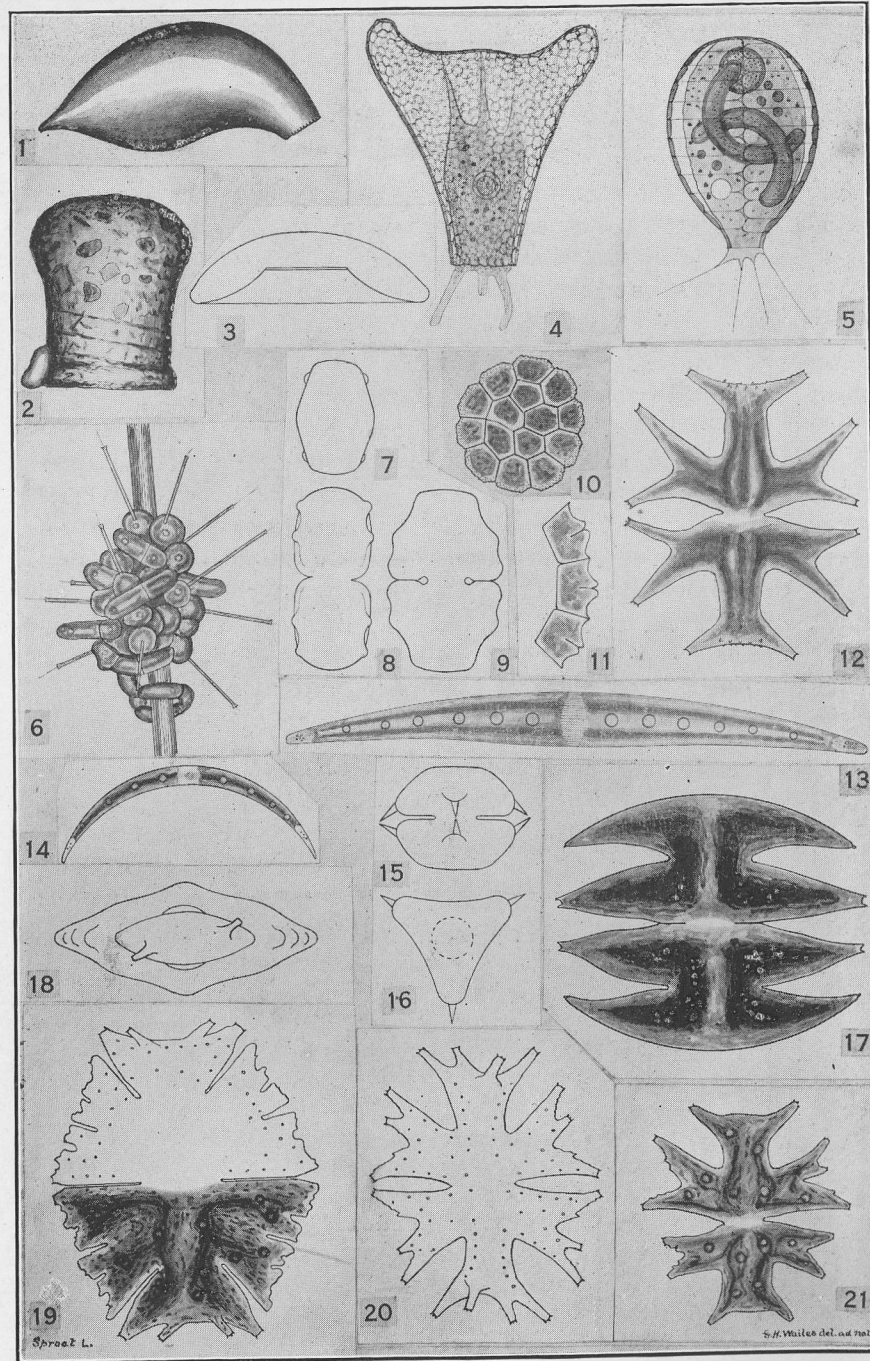
At the monthly meeting held in the Museum on February 20th the motion to include Junior Members in the Society at an annual fee of \$1.00 was passed unanimously. Officers were nominated for the ensuing year and Mr. Lionel E. Taylor gave a very interesting illustrated lecture, a synopsis of which appears in this issue.

A group meeting held on February 13th was of special interest to the members when the Honorary President Major Allan Brooks addressed the Ornithology Group. Speaking principally on the present methods of conservation adopted in our sanctuaries and parks, he pointed out that under these principals it is generally assumed that if a given species is protected from human depredations its future is assured, whereas in actual fact, where a sanctuary is proclaimed, and human interference eliminated, it is the predatory species that flourish at the expense of the smaller, harmless animals, and these latter forms are actually diminishing in number.

Major Brooks gave a number of instances in which measures adopted for the protection of fast disappearing birds have actually hastened their complete elimination.

In contrast to this policy, the speaker advocated one of specialized sanctuaries, devoted to the preservation of a given species, in which all predatory creatures which harm that species should be rigidly controlled.

An article by Dr. Clifford Carl on the snakes of Vancouver Island, of which the illustration on the front cover is one, will appear in the April issue.



The flora of South Africa is extremely rich in species and due to great diversity of climate very wide variation in types occur from sub-alpine to tropical. Growth and flowering are largely effected by periodicity of rainfall, which is very marked in South Africa. Over the whole area there are quite distinct dry and wet seasons coinciding with Winter and Summer. It is only during the rainy season that the majority of the plants flower although in heavy rainfall areas quite a large number of plants do flower in the dry season, these are mostly bulbs and plants with succulent leaves or with large water storing roots. In addition there are a number of trees which flower in the dry season when they are leafless.

The Winter rainfall area is restricted to a narrow belt along the South West coast with its centre at the Cape Peninsular, extending about 300 miles along the Indian Ocean and a similar distance along the Atlantic Ocean to Namaqualand Desert. In places the belt is only a few miles wide between mountains and sea and at its widest point does not exceed 40 miles. During the Summer there are occasional rain storms making about 25% of the annual rainfall.

Near Port Elizabeth, where the Winter and Summer rainfall areas meet, there is a small more or less uniform all year rainfall zone.

The whole of the rest of South Africa has a very definite Summer rainfall varying from almost zero to 75 inches. The Winter nights are cold owing to its elevation and the days warm with cloudless skies. Severe droughts occur frequently in some areas causing havoc to the vegetation and consequent heavy loss to livestock and in extreme cases even to succulent plants in spite of their wonderful protective devices against desiccation.

Space will only permit of a short account of the flora of the Winter rainfall area and this is the most interesting one to gardeners in Canada who may grow South African annuals out of doors and succulent plants in houses.

The Cape peninsular with an average rainfall of from 25 inches at Cape Town to 100 inches on top of Table Mountain has the largest flora for a restricted area (about 100 square miles) of any place in the world with over 2200 species. The most outstanding plants are Heaths and Proteas clothing the mountain sides, the white Arum in wet meadows, the magnificent terrestrial orchid *Disa grandiflora* on wet rocky crags with the scarlet *Crassula* and *Nerines* on dried ledges together with immense quantities of bulbs such as *Amaryllis*, *Watsonia*, *Gladiolus*, *Ixia*, *Moraea*, *Babiana*, *Tritonia* etc. The Silver Tree (*Leucadendron argenteum*) famed for centuries on account of its beautiful foliage grows only in restricted areas and has been sadly decimated by bush fires.

In the Eastern part of the Winter rainfall area, known as the Knysna District, there are several thousand acres of what was once magnificent forest now depleted of most of the large timber and which owing to its slow growth will take centuries to recover. The forests contain the only large remaining stands of South Africa's only notable conifer *Podocarpus*, 'Yellow-wood'. In the early days of the Dutch settlement, planks of this timber were brought with almost unbelievable difficulty over the mountain passes to the Cape for the building of the beautiful early Dutch houses. In addition there are many very valuable hardwoods used for furniture making, wagon construction, etc. notably *Ocotea bullata*, 'Stinkwood'.

The Western part of the Winter rainfall area runs very soon into desert country along the West coast culminating in the Namaqualand Desert where at its North extremity South of the Orange River rain may only occur at intervals of years. The climate is one of extremes. In Winter the nights are bitterly cold with frost, the days very hot with temperatures up to 110 degrees and the air excessively dry. In summer temperatures are intolerable running to over 130 degrees. Conditions are very similar to those of Death Valley in California with possibly less rainfall but more abundant flora.

One area visited had lately experienced the largest rainfall recorded of ninety-two hundredths of an inch after a drought of nine years yet some sixteen species of plants had managed to survive. There is no sub-soil

moisture whatever and the plants have to subsist on what moisture they can store in their fleshy leaves and roots. Within 24 hours of rain falling the flaccid leaves begin to swell, in a few days flowers appear and in three weeks the seeds are ripe and the plants again dormant. The life cycle of annuals is of the same duration after which the plants become scorched up and blown away.

The desert succulents are amongst the most interesting of all plants especially to botanists on account of the wonderful provisions made for their survival under the most impossible conditions of heat, drought and intense sunlight. Only a few of these can be mentioned. Most interesting of all are the so-called 'window plants' (Lithops and other genera); most of the plants' growth is subterranean with tiny window-like growth on level with the ground. The windows are transparent water tissue generally devoid of chlorophyll (green colouring matter) the latter being deep down under ground where the stomata (breathing organs) are also situated. It is supposed that the light passing through this window tissue is broken up and reaches the breathing cells in reduced intensity thus minimizing its drying action.

Another remarkable piece of mechanism is found in the fruit of the Mesembrianthemums. The fig-like capsule is closed tightly with valves which are hydroscopic and spring open as soon as a drop of water touches them releasing the seeds.

Other succulents like small buttons form a silvery tissue over their green growth when they go dormant and this acts as an impermeable covering to prevent desiccation. In some species the roots die off entirely, new ones being formed as soon as growth commences.

A great many of the tiny succulents sold in florist shops come from this desert country and a few hints on growing them may be of interest. In the first place although they are very tiny when sold many of them are grown from leaves of plants which make big bushes and in some cases small trees: Secondly it must be remembered that they are desert plants accustomed to conditions described above and they must be given very little

water and a definite resting period. If watered too frequently they are very liable to rot off and those which survive will make rank growth and lose their dwarf individuality. They thrive best when kept dormant without water for six months from the 1st October to the 31st March. After that they only need a soaking once a month until the hot weather starts when they may need watering once a week. They should be kept cool in the Winter with plenty of air and a little frost will not harm them provided they are not overgrown. The soil should be very poor about one third sand, gravel and loam. On no account should any fertilizer be used. With this treatment the writer has lost very few plants brought from South Africa seven years ago and most of them were out of the ground wrapped up in newspaper for fifteen months before planted and this included a sea voyage of three months through the Indian and Pacific Oceans. They are still growing in the same gravel and sand they were planted in at first and most of them flower every year and make a large increase.

It should be added that all succulents do not come from deserts, in fact there are some in the Transvaal growing where the annual rainfall is 75 inches. A grower will have no difficulty in finding out which plants require more water as they will begin to wilt and it will then be time enough to give them some water.

In addition to the succulents, the Namaqualand Desert after a rain is clothed with annuals, notably daisies and these are now largely grown in gardens; familiar names are *Arctotis*, *Ursinia*, *Dimorphotheca*, *Venidium*, *Gazania*. These all grow in very dry sandy soil and should not be overwatered. The *Barberton Daisy* (*Gerbera Jamesonii*) comes from an entirely different area in the Transvaal with a rainfall of over 40 inches and is a perennial which thrives best when the crown is planted well above the soil.

One word may be added in conclusion. It may seem strange to rest the desert succulents in the Winter which is their natural growing period but in practice they are very accommodating and most of them will grow and flower under our conditions in the Summer. They seem to mistake our Summer for Winter.

YOUR KEENER EYE

by E.A. Bosward

When a person who is neither a teacher nor a student ventures to write an article on such an important subject as the microscope, it is reasonable to ask why, and I can only say that Dr. Carl's invitation and my own desire to arouse interest in a really worthwhile hobby, are responsible for this effusion.

To people who have already started this fascinating hobby, I have nothing to say, and I advise them to "skip it", but to others, young or old, who would like to explore new worlds, I shall try to introduce one of the most healthful and entertaining pursuits possible. It is a pursuit for the young and strong who can explore the woods and the beaches; also for the old and infirm who can explore only a few yards in their own gardens.

The first thing to procure is a good pocket lens and the cost need not be excessive; a lens of 10 or 12 diameters would cost about six or eight dollars and will last a life-time. Armed with this, you are ready for your first exploration in the world of the little people. With such a lens you can easily see why a nettle stings and the wonderful arrangement on the bee's hind legs for carrying pollen; you may also take a look at his tongue. These and a thousand other adventures await you as you examine plant and insect life with the aid of your "keener eye".

Any study of botany must involve the use of a pocket lens at least, and while it is possible to dissect the larger flowers without its aid, with the smaller ones its use is imperative. Under a good lens we can see how beautifully formed are the stamens with their anthers, and the pistil with its wonderful arrangement of reproductive organs. If you choose to study botany, stay with it until you have learned all you can about it as seen by your pocket lens, and in so doing you will become an expert in dissecting. From the study of flowers it is the most natural thing to turn to the study of insects, and there a vast field is opened for our interest and for our examination.

In the jaws, legs and eyes of the first grasshopper or dragonfly that you catch, your lens will reveal beauty and ingenuity unsurpassed. Probably the most wonderful pair of eyes in the world belongs to the dragonfly and also a most wonderful set of wings. As you watch him at work you realize why these two facts go together. His great eyes cover all points of the compass at one time and he can see his prey in any direction while his powerful wings take him in pursuit.

I am afraid that many descriptions of these things might perhaps make dull reading - I wish I could sketch and show the wonderful arrangement on the fore legs of a bee or of an ant for cleaning her antennae, or the sucking organs of a butterfly so contrived that it can reach down into the deepest places in the flowers and show the difference between it and the sucking organ of the common fly. These interesting discoveries can be seen and studied by the owner of a pocket lens with a satisfaction that a writer cannot give.

A walk along the beach is certainly not complete without your pocket lens; the small pieces of seaweed, the abundance of small marine life and minute shells are all there for our inspection and enjoyment. Start carrying a pocket lens on your walks and you will multiply this interest a hundredfold. Everything you examine is a thing of beauty or interest and generally both. I forget the price of my lens, but over the years I don't suppose it has cost more than twenty cents per year, and the pleasure and interest it has given me is beyond price.

In this article I have purposely confined myself to the pocket lens, but your hobby is progressive both in its achievements and in its thrills, and once you become absorbed, nothing will satisfy but a good compound microscope. Whether you are at home or abroad there is something of interest to examine: the plants in the goldfish bowl, the mould on the basement wall, some shells and weed brought home from one of the beaches. Take two steps down the garden path and you will find wonders enough to keep you pleasantly employed for hours.

EXPLANATION OF PLATES:

The plates shown on pages 122 and 135 are re-printed from "Museum and Art Notes", Volume VI, number 4, 1931, by kind permission of Mr. T.P.O. Menzies, Curator of the Vancouver City Museum. The originals were prepared by Mr. G.H. Wailes, a former member and President of the Art, Historical and Scientific Association of Vancouver and now in Husthwaite, York, England.

The organisms represented are microscopic forms found either free-floating in the plankton or in the bottom ooze. The larger ones may be observed by means of a pocket-lens but for fine details a compound microscope is necessary.

Those on page 122 are as follows:

1. - Cyphoderia)
3. - Arcella) Rhizopod protozoans
4. - Nebela) (single-celled animals
5. - Paulinella) usually in a shell).
2. - Tintinnopsis - a ciliated protozoan, usually marine.
6. - Coleochaete -- a green plant (alga).
- 7 to 21 - Various unicellular plants commonly called desmids.

The figures shown on page 135 are as follows:

- 1 to 3 Cosmarium - - a desmid.
- 4 to 6 Gomphosphaeria - a colonial alga.
- 7 to 9 & 14 to 15 - - Various desmids.
- 10 to 13 Ceratium - - a single-celled animal swimming by means of two whip-like organs.

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NOTICE OF MEETINGS

ANNUAL GENERAL MEETING

Tuesday, 13th March at 8 p.m.
in the
PROVINCIAL MUSEUM

General Business, Installation of Officers, Reports of Chairmen of Groups, also some very interesting films will be shown.

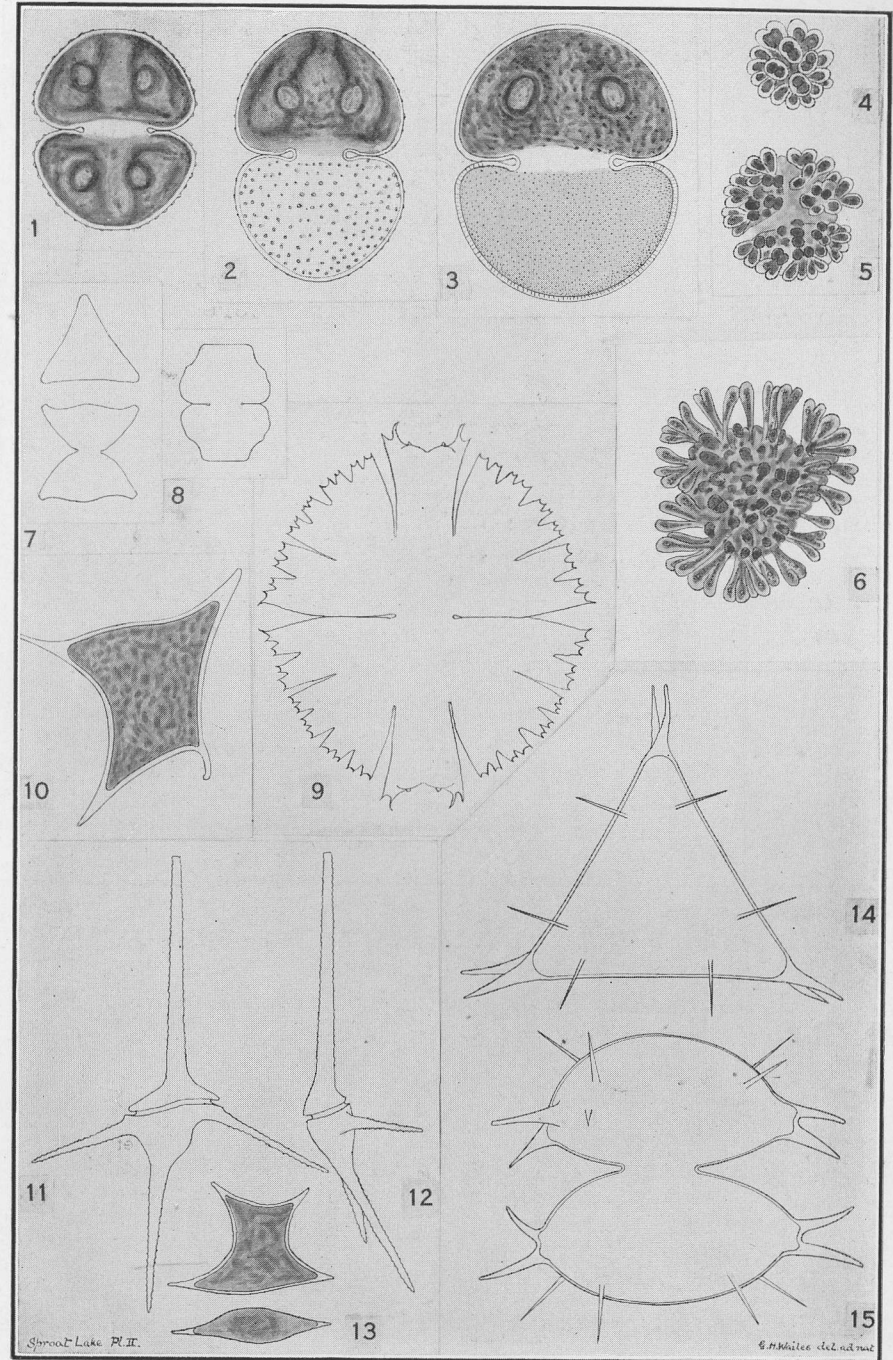
GROUP MEETINGS

- Tuesday Mar.20th Entomology - - - - - Speaker: Mr.W. Downes
"Orders of Insects, Their Collecting and Preserving."
Dominion Entomology Lab., 545 Superior St.
- Tuesday Mar.27th Botany - - - - - Speaker: Archdeacon Connell
"Spring Flowers"
Biology Lab., Victoria College, Joan Crescent
- Tuesday Apr.3rd Zoology - - - - - Speaker: Mr.A.E.Pickford
"Indians - Past, Present and Future."
Biology Lab., Victoria College, Joan Crescent

SPECIAL MEETING

Saturday Mar.24th A joint meeting with the Pacific Northwest Bird and Mammal Society will be held in the Museum at 8 p.m. on the occasion of their annual visit to this City. Some very interesting papers will be read and a film will be shown on Tweedsmuir Park.

NOTE: Subscriptions are now due for the ensuing year and should be given or mailed to Mrs. K. Watson, 42 Linden Avenue.



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Annual Subscription: Single, \$2.00; Family, \$3.00; Juvenile, \$1.00.

NOTICE OF NEXT MEETING

The Annual Meeting of the Society will be held in
PROVINCIAL MUSEUM, PARLIAMENT BUILDINGS
at 8 p.m. on Tuesday the 13th March, 1945

