

quite so large a mouth could be utilized if the pipette were to be used in liquids lighter than water.) It is a most useful collecting convenience. In places where a small net could not be used because of stones or other debris and in handling objects liable to injury in a net the writer has found it almost indispensable. The capacity of the rubber bulb and the large mouth of the pipette make it possible by means of a sudden suction to catch small animals too quick to be taken in a small gauze net. The glass bulb retains all the sucked-in water, enabling one to see what has been taken and obviating the difficulty of losing or mutilating a choice specimen by getting it into the rubber bulb. The pipette is not over-fragile and is short and convenient for slipping into the pocket or collecting case. It is also more convenient to use than the long pipette in common use.

The calcium chloride tubes are made in various sizes. For a smaller pipette a rubber bulb of 25 c.c. capacity and a calcium chloride tube 150 mm. long may be used. The cost of the pipette is slight.

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STATION FOR EXPERIMENTAL EVOLUTION

IS MELANISM DUE TO FOOD?

It is a well-known fact that occasional dark-colored individuals occur among wild animals of various kinds. Once in a while a pure black beaver is caught. Fur traders sometimes pick up skins of mink, otter, marten and other animals which are coal black. These skins are especially valuable. Perhaps the best known instance of dark specimens occurring in a species ordinarily light in color is that of the silver or black fox, which may be one in a litter of common red foxes.

This occurrence of dark animals is called "melanism," but so far science has failed to ascertain the cause. It is my purpose in this article to call attention to some facts which may or may not throw some light on the subject, but which seem to me to be at least suggestive.

Northern Minnesota has been a great fur-producing region ever since the Hudson Bay

Company established posts here at the headwaters of the St. Lawrence, the Mississippi and the Red River of the North. We should expect, and the fur traders actually get choice furs from this cold, high, heavily wooded land of lakes. The high grade of furs obtained in northern Minnesota is well known to the trade; the value of the annual catch, over a million dollars, is something less widely known.

It is commonly supposed that the relative proportion of different kinds of fur caught in the state runs along fairly constant year after year. This is not the case for two reasons. A series of years may be favorable for the increase of a species, resulting for a time in an abnormally heavy catch of that animal. As an instance of this, we cite the Canadian lynx, which increases with the abundance of the snowshoe rabbit, and suffers or migrates at intervals when its food supply has been seriously reduced by the dying off of the rabbits from the so-called "rabbit plague." Perhaps a better instance is that of the muskrat, which may increase because of several winters during which ice and water conditions are favorable to its "wintering over." The other reason is that which gives rise to this article. A species like the red fox may suddenly show an unusually strong tendency to vary from its type.

Ordinarily there are caught annually in northern Minnesota somewhere in the neighborhood of fifteen hundred red foxes. Of this number of skins, we venture to guess that, for the five years preceding the winters of 1911 and 1912, not more than ten each year were sold as black or silver foxes, and not over forty as cross foxes. The winter of 1911-12 saw a marked increase in the number of high-grade fox skins brought in to the posts, and there was a still further increase in 1912-13. In the Rainy River watershed, especially, it seemed as if about one fifth of the foxes caught last winter were either dark, silver or cross foxes. This winter, 1913-14, the percentage of these high-grade color phases is even higher.

During the past three years there has been an abundance, amounting almost to a plague, of mice (white-footed wood-mice) in the

woods of northern Minnesota, particularly in the Rainy River country. These have been years of abundance of the snowshoe rabbit also. The latter have been so numerous that they did great damage by girdling small trees, and the quantity of brush they ate off was simply amazing. As one of our rangers put it, "The rabbits in my district have eaten up the brush this winter, and if they increase any more they'll probably start logging next year." The rabbits are rapidly dying off in certain districts this year.

Ordinarily the black fox is a larger and stronger individual than his red brother. This in itself may have significance.

Is it unreasonable to assume, in view of the foregoing facts, that a plenteous supply of the food most palatable to the red fox has some influence at least in strengthening the tendency of this animal to produce dark-colored specimens, in other words to cause melanism?

It is true that some of the increase in the proportion of dark foxes may be due, and probably is due, to the coming in of dark specimens from more northern localities in Canada, following up the abundant mouse and rabbit crop. No locality, even in any of the adjoining portions of Canada, however, has a much higher relative proportion of silver foxes than is ordinarily found along the Rainy River.

In view of the farming experiments now under way with dark foxes, I should welcome a discussion of this point, which is coming to have economic importance.

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STATE FORESTER OF MINNESOTA

SCIENTIFIC BOOKS

Igneous Rocks. By JOSEPH P. IDDINGS. Vol. II., Description and Occurrence. New York, John Wiley & Sons. 1913. 8vo. Pp. xi + 685, 20 figures and maps.

The first volume of Iddings's treatise on igneous rocks, dealing in the abstract with their composition, texture, mode of occurrence, origin and classification, appeared in 1909 and was reviewed in *SCIENCE*, Vol. XXX., pp. 408-411, 1909. The work is now complete with this

second volume, which presents a systematic description of the rocks and a review of their known distribution and association in all parts of the world. This volume is of the greatest importance to petrographers, for in no other work in any language is there such an extensive and judicial analysis of the vast literature of petrography. Iddings has succeeded wonderfully in his difficult task, but it is clear that the time is rapidly approaching when each of the great subjects, systematic description, mode of occurrence and world distribution, of igneous rocks, must be fully treated by itself, unrestricted by the limitations of a general work.

The markedly original features of Iddings's book make it unusually desirable that the reader should familiarize himself with the author's purpose and plan which are outlined in the preface. From this statement it may be well to quote certain passages, as follows:

"Since the fundamental need of petrology at this time is a correct understanding of the constitution or composition of igneous rocks it has been the purpose of this treatise to emphasize the chemical and mineral characteristics in their description. For this reason chemical analyses of rocks, transformed into possible mineral compounds, have been made the foundation on which the systematic description of igneous rocks has been constructed; that is, they have been employed as a basis of definition and of correlation of rocks that differ in texture and to a greater or less extent in apparent or actual mineral composition. Igneous rocks have been treated as though they were portions of *continuous series of mixtures* of mineral compounds varying in numerous ways, and not as specific though somewhat ill-defined compounds possessing individual entities to be reckoned with in their grouping or classification" (page iii).

"The purpose of the second part of the book has been to present a brief sketch of the distribution of igneous rocks throughout the earth so far as now known, in order to lay the foundation for a study of possible petrographical provinces in different regions, since much investigation of these rocks in all re-