on rabbits concludes that sex is determined by the ova, which he regards as male and female, respectively, or in Mendelian terminology, that it is the female which is heterozygous.

There is, we think, no reason *a priori* why in nature generally dominance should be the special property of one sex alone. We rather anticipate that dissimilarity will be found between the great groups in this respect.

Consistently with the view that in Vertebrata the female is heterozygous, the production of male secondary sexual characters ensues in the female consequent on ovarian disease, while castration of the male produces effects which may perhaps all be regarded as arrests of development. In the Crustacea, however, the work of Geoffrey Smith and of Potts on parasitic castration points to the converse conclusion, namely, that the male is there heterozygous for sex, assuming definite female characters when castrated, while in the female castration merely arrests development.

Correns refers to E. B. Wilson's facts respecting the accessory chromosome as supporting the view that the male is the heterozygous sex, and we have lately done the same.[5] Doncaster, however, has pointed out to us what must be a serious difficulty in the application of this argument; for if the male sex be dominant, it has then to be supposed that dominance attaches not to the presence of the accessory chromosome, but to its absence, since it is in the female that the accessory chromosome is paired. Great weight we think must be given to this criticism. Dominance, as we now suppose, is due to the *presence* of something which is *absent* from the recessive, and we are almost precluded from imagining that the absence of a chromosome can be a cause of the dominant quality.

In order to bring the facts of sex inheritance in the parthenogenetic forms (bee, aphis) into line with our view, it would perhaps have to be supposed that sex segregation in these types takes place not between gametes, but between the primitive soma and the germ plasm, so that the ova would all bear the recessive male character and the spermatozoa the dominant female factor. To discuss this suggestion in detail would, however, carry us beyond the scope of this note.

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March 19, 1908

the output of females, an opinion can scarcely be formed on the cases published by Russo, for these are declared to have been selected. It is to be hoped that the full statistics will soon be published.

[5] SCIENCE, XXVI., 1907, p. 658.

PRE-CAMBRIAN ROCKS IN SOUTHEASTERN WYOMING[1]

DURING the past summer the ancient rocks of the Laramie and Sherman quadrangles in southeastern Wyoming were studied in some detail. The maps cover a portion of the Laramie Mountains and the easternmost spurs of the Medicine Bow range. It appears that most of the region is underlain by a coarse-grained red granite, but there are scattered patches of older rocks which show various degrees of metamorphism and bear complex relations to one another.

The oldest rocks recognized in the district are a series of schists and gneisses, which are largely metamorphosed volcanics, although they contain some rocks clearly of sedimentary origin, and others which are doubtful. The supposed volcanics include hornblendic schists and schistose rhyolites. Some occur in the form of dikes, while breccias indicative of surface extrusives were recognized in several places. Certain highly quartzose rocks and tremolite-schist are interpreted as altered sediments. The rocks are so highly folded, metamorphosed and cut by later intrusions that the relations of the different members to each other are very obscure and have not yet been elaborated.

Next in age follows a group of granitic gneisses, which are evidently metamorphosed granites. They are clearly intruded into the schists just mentioned. There are at least two distinct varieties of these gneisses: one

[1] Published by permission of the Director of the U. S. Geological Survey.

a coarse-grained gray-to-pink biotite-gneiss and the other a highly acid pink muscovite-gneiss of finer texture. The latter was found intruded into the former.

A variant group of semi-metamorphosed basic intrusives is somewhat younger than the gneisses. These include syenites, gabroid and dioritic rocks. In some of these rocks a gneissic structure has been induced, while others are not notably altered. It is evident that they are of different ages relatively to each other, although belonging to the same general interval of time in the section.

In the northern part of the Sherman quadrangle gray anorthosite, or labradorite rock (with or without hornblende), is exposed over wide areas. It is intruded into the schists, granite-gneiss and dioritic rocks, but is itself essentially unaltered.

On the east side of the district the gneisses are further intruded by a quartz-porphyry, which is so little altered that it is believed to be younger than the basic intrusions, although it may be older than the anorthosite.

All of the foregoing formations are surrounded and probably underlain by the great mass of coarse red granite, to which the name "Sherman granite" has been given. The contact surface is in many places so nearly horizontal that bodies of gneiss and schist form outliers on hill-tops, while the valleys have been trenched through into the younger granite. Dikes of all sizes emanate from this foundation and traverse gneisses, schists, porphyries and gabbros indiscriminately. The granite itself is essentially unaltered, except that it is deeply weathered at the surface. It is crossed by a moderate number of small dikes, consisting of fine-grained granite, pegmatite and diabase. The diabases are apparently the youngest rocks of the pre-Cambrian complex.

Since there are no well-defined sedimentary rocks in the pre-Cambrian mass, it is not possible to assign the rocks to any particular age. They are covered unconformably by the Carboniferous, but they are so nearly identical with granites and older rocks, which to the north in the Big Horn Mountains and to the south in Colorado lie beneath the Cambrian, that the writer has no hesitation in considering them all to be of pre-Cambrian age. It is probable that the schistose complex of volcanics and intrusives, with traces of sedimentary rocks, belongs to the Archean; it is equally probable that the unaltered granites and diabase are not older than the Algonkian. The position of the intermediate formations is entirely problematical.

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A STATISTICAL STUDY OF BROWN SCALE PARASITISM

Parasitic and predatory enemies are important factors that should be taken into consideration in the control of injurious insects; but the effectiveness of such agencies is very often overestimated, since their efficiency is usually based on estimates made instead of upon accurate and sufficient data. It very frequently happens that a notable decrease in numbers of insects occurs coincidently with the introduction of a parasite, but this reduction should not be attributed to the parasite alone, as is often the case, since there are many other factors entering into the problem.

The brown scale (*Eulecanium aremniacum* Craw) is one of the most important pests of prune trees occurring in this state, and according to statements frequently made and published here, this scale is kept in very complete subjection by its parasite (*Comys fusca*). This control for the whole state is usually estimated at 95 per cent. During the past winter the writer visited sixty-six different orchards, covering all the important prune sections in the state, and has made an examination of a total of 63,700 scales. From this count the actual percentage of parasitized scales is 12.02 per cent. The counts were made in units of 100 and covered various parts of the tree and various trees in the orchard. The location of each orchard and the name of its owner were taken, and the abundance of scales, both young and adult, in relation to the amount of parasitism, was noted. A summary of a part of these data is given in the table below: