Geometry,' C. A. Petterson, Jefferson High School, Chicago.

Discussion led by G. C. Shutts, State Normal School, Whitewater, Wis.

O. W. CALDWELL, *President*,
C. M. TURTON, *Secretary*.

THE ONONDAGA ACADEMY OF SCIENCE.

THE regular monthly meeting of the Onondaga Academy of Science was held Friday evening, October 20, 1905, the president, Dr. T. C. Hopkins, in the chair.

Mr. Charles E. Wheelock gave an interesting account of some overthrust faults occurring across central New York from Little Falls to Ithaca and which are most prominently developed in the Scalaris[1] and in the overlying Helderberg limestones. He tried to show that these disturbances were found only in rocks immediately overlying the Salina formations from which the various salts had been leached out. As the rocks of central New York dip slightly toward the south, the hypothenuse of the triangle would be shortened by the dropping down of the overlying formations due to the solution of the salts, and thus produce a lateral pressure in the rocks capable of producing the overthrusts.

Professor Philip F. Schneider read an interesting paper on 'The Correlation of Some Alnoite Dikes in East Canada Creek.' Heretofore but three dikes were known at East Canada Creek, showing only on the Montgomery side, with a narrow dike on the Herkimer side which it was impossible to correlate with either of the others. The paper established the fact that there were five dikes on the east side and also five corresponding dikes on the west side of the stream. All were located accurately and figures given as to their width, distances apart and strike, showing that they were corresponding dikes. Megascopically the dikes bear a close resemblance to those already known and it is believed that a microscopic study of the same would show that they are practically identical.

Dr. Daniel S. Martin, of Brooklyn, spoke of the close resemblance of the peridotite dikes in New York, Kentucky and South Africa and the possibility of diamonds occurring in them in this country. While the material composing all these dikes is practically identical, as shown by their petrographic study and chemical analyses, even to the extent of their containing certain gems in common, as the pyropes and olivenes, nevertheless the diamond is conspicuous by its presence in the African fields and equally conspicuous by its absence in the American localities.

President T. C. Hopkins spoke of the rumor that two diamonds had been found in the drift deposits south of Syracuse. The owner of the sand bed claimed to have found a good-sized diamond in the drift which was deposited in a Syracuse bank and later sold to a party in Springfield, Mass., for two hundred and fifty dollars. Another so-called diamond obtained from this same sand pit was shown to Dr. Hopkins by the owner, but a hasty examination convinced him that it was a topaz. However, nothing positive was known concerning the character of the first found stone. Geologists were advised to watch carefully excavations, both in the disintegrated dike and in the drift material, for possible diamonds.

PHILIP F. SCHNEIDER,
Secretary.

[1] The Scalaris limestone as described by P. F. Schneider in the October, 1905, number of the *American Journal of Science* is the prominent limestone ledge in the Camillus Shale of the Salina formation and immediately underneath the gypsum deposits. It is the first formation of the salt deposit in central New York containing fossils, the *Leperditia Scalaris* Jones being the most abundant.

DISCUSSION AND CORRESPONDENCE.

HONORARY DEGREES.

TO THE EDITOR OF SCIENCE: I have been very much interested in your note in the issue of October 27, concerning the honorary degrees conferred at the recent inaugural of the University of Illinois. Instead of the too prevalent practise of conferring the degree of doctor of laws indiscriminately on all of the gentlemen whom it was desired to recognize, it is pleasing to see the degree of doctor of science given to a gentleman of distinguished scientific attainments, that of doctor of engi-

neering to an accomplished and distinguished engineer as well as to the successful dean of a school of engineering, and that of doctor of agriculture conferred on gentlemen who have done much to promote this great profession.

I should like to call attention to the discussion before the American Society of Naturalists at its St. Louis meeting, as reported in SCIENCE of May 27, 1904, in which the question of honorary degrees was analyzed by a number of distinguished speakers, in connection with that of degrees at large. May it not be hoped that the attention of those having it in their power to confer such degrees may be directed once more to the desirability of such differentiation as the University of Illinois has here applied? WILLIAM TRELEASE.

SPECIAL ARTICLES.

THE ORIGIN OF BLACK SHEEP IN THE FLOCK.

THE phrase 'Every flock has its black sheep' connotes the sporadic nature of their appearance. They crop out in flocks of breeding ewes and rams that are wholly white. When a quality suddenly arises from parents that have its opposite the probability is that the two opposed qualities follow Mendel's law in inheritance and that the new, filial character is recessive, the parental opposite dominant.

There are four tests of recessiveness. First, if the germ gland contains the dominant characteristic that characteristic, and not the recessive, will show in the soma; consequently, the patency of the recessive in the soma of any individual indicates that its germ gland contains only the recessive quality. Hence, when two recessive individuals are interbred they will produce only recessive offspring.

Second, if a recessive individual is mated with a heterogametous individual—*i. e.,* one which because of mixed ancestry, has both dominant and recessive germ cells—fifty per cent. of the offspring should be recessive.

Third, if two heterogametous individuals be mated, twenty-five per cent. of the offspring should, in the long run, be recessive.

Fourth, if recessive individuals (having exclusively recessive germ cells) mate with pure dominant individuals (having exclusively dominant germ cells) the soma of the hybrids must show the dominant characteristic.

An opportunity to test the recessiveness of the black coat in sheep is afforded by the 'Sheep Catalogue' of Dr. Alexander Graham Bell's (1904) flock,[1] giving the records of 877 sheep used or acquired in pedigree breeding by Dr. Bell. We may apply in turn the four criteria.

First, of twenty offspring both of whose parents were black, nineteen were black. When I discovered this fact I wrote to Dr. Bell concerning the exception (No. 814, white, female), and he was good enough to reply:

> I have examined the original entry of birth of 814 and find her reported as wf 4n s born March 23, 1898, out of 712 bf 4n s by 626 bm 5n tw:—still-born, weight 2 pounds. This lamb was still-born and was born in March, this means that I did not see the lamb myself for I am not usually at Cape Breton at that time, and there has not been any verification of color.

Dr. Bell goes on to state that his shepherd has made errors in recording black as white, and *vice versa,* but these "have been corrected by subsequent examination. In this case, as the animal was still-born, the record rests entirely upon the unsupported statement of the shepherd." We may consequently neglect No. 814 and conclude that all descendants of two black parents are black. This result is in accord with the hypothesis that black is recessive.

Second, of 51 offspring of a recessive (black) individual that was heterogametous (because a hybrid between a white and a black parent) 26 were white and 25 black. This accords with the hypothesis that black is recessive.

Third, of 47 offspring, each from two heterogametous parents, 40 were white and 7 black. In every family but one the proportion of blacks is below the 25 per cent. expectation. The result is not in strict accord with Mendelism, although closely allied with it. There is evidently some modifying factor. It may

[1] Bell, Alexander Graham, 1904, 'Sheep Catalogue of Beinn Bhreagh, Victoria Co., Nova Scotia: Showing the Origin of the Multinippled Sheep of Beinn Bhreagh and Giving all the Descendants Down to 1903.' 22 pp. Washington, D. C.