

MAGNETISM OF DIAMOND DRILL RODS.

THE fourth report of the Michigan Academy of Science, 1904, contains a short paper by Dr. A. C. Lane on 'Magnetic Phenomena around Deep Borings,' in which attention is called to the magnetism of iron or steel casings in deep wells due to their position in the earth's magnetic field. Cases were referred to in which the magnetism was sufficiently strong to hold large-sized spikes or even heavier wrenches, while difficulty was experienced in lowering heavily weighted steel tapes into the wells, the tape being attracted and held against the side of the casing.

An instance has recently come under my observation in which it appears that diamond drill rods have become quite strongly magnetized because of their position in the earth's magnetic field. While prospecting for bodies of magnetite in a basic hornblende-chlorite schist enclosed on either side by more acid rocks, the drillers found that the drill rods became strongly magnetic. They attributed the phenomenon to the influence of nearby ore bodies, and one mining engineer, in reporting on the property, referred to the observed magnetic effects as a conclusive proof of the proximity of large bodies of magnetite in depth. At the time the magnetism was noticed and reported the drill was cutting through the acid series of rocks, practically free from magnetite. Similar effects were reported from two different borings, but not from other borings near by.

Both of the drill-holes referred to are inclined several degrees from the vertical toward the north, thus approaching parallelism with the lines of force of the earth's magnetic field. As is well known, an iron bar held in this position becomes more strongly magnetic than when held in an east-and-west line. It seemed to me, therefore, that the conditions in the case of the drill rods were especially favorable for the production of strong magnetic effects. According to the reports of several witnesses the drill rods would hold heavy spikes, while the pull on heavier masses of iron was very noticeable. I did not observe the phenomena myself, the holes in question having been

abandoned and a new one commenced at the time of my visit. D. W. JOHNSON.

SPECIAL ARTICLES.

THE TERMINOLOGY OF THE PARTS OF THE GRASS SPIKELET.

PERHAPS in no group of plants has there been more variation in the use of terms than in the use of those employed in botanical descriptions of the grass spikelet. This multiplicity of terms and the resultant confusion have been largely, but not altogether, the result of confused morphology. This has been ably discussed by Bentham and his conclusions, as to both morphology and terminology, have been widely adopted. Of late years there has been more or less tendency to discard Bentham's terms in favor of others. This has led the writer to investigate the whole matter with the end in view of adopting the terminology which best serves the purposes of description.

Using as a starting-point such a spikelet as that of *Bromus* and the terminology of Bentham, we have first the two *empty glumes* at the base of the spikelet. The remainder of the spikelet consists of distichous lateral *florets*. Each floret has a large outer scale or *flowering glume*. Opposite and above this is the two-nerved *palet*. Opposite and above the palet are the two delicate *lodicules*. Still above these are the reproductive organs, the whorl of three stamens and the pistil.

Important modifications from this typical form of spikelet occur as follows:

The empty glumes may be entirely absent, as in *Coleanthus*, solitary as in *Nardus*, mere rudiments as in *Homalocenchrus* and *Zizania*; or the lateral spikelets may each have but one empty glume, while the terminal has two as in *Monerma*. In *Uniola* and the *Bambuseæ* there are from three to six so-called empty glumes. These are most probably sterile flowering glumes and not proper empty glumes. Such is clearly the case in the so-called third empty glume of the *Panicææ*, which often encloses more or less rudimentary sexual organs. It is likewise very common for the terminal florets in the *Festuceæ* to be reduced to an