

In most insects the field of vision has a small region common to the two eyes in the vicinity of the mouth; it is chiefly developed in the predatory species, and probably serves in determining the distance of their prey from their mandibles.

III. "Measurements of Electrical Constants. No. II. On the Specific Inductive Capacities of Certain Dielectrics." By J. E. H. GORDON, B.A. Camb. First Series. Communicated by Professor J. CLERK MAXWELL, F.R.S. Received March 9, 1878.

(Abstract.)

The author has, under Professor Clerk Maxwell's directions, carried out some measurements of specific inductive capacities by a new method. The essential features of it are:—

- (1.) It is a zero method.
- (2.) The electrified metal plates never touch the dielectrics.
- (3.) No permanent strain is produced or charge communicated, as the electrification is reversed some 12,000 times per second.

The potentials of the electrified plates were about equal to that of 2,000 cells.

The following are the results obtained:—The solid dielectrics were plates 7 inches square, and from  $\frac{1}{4}$  inch to 1 inch thick.

Dielectric.	Specific Inductive Capacity.		
Ebonite, 4 slabs of thickness, $\frac{3}{4}, \frac{1}{2}, \frac{1}{2}, \frac{1}{4}$ inch, about.	(1.) (2.) (3.) (4.)	1·5593 1·5553 1·5671 1·5669	Mean .... 1·56215
Best quality gutta percha .....			1·5939
Chatterton's compound .....			1·6080
India-rubber { black .....			1·5502
{ vulcanised.....			1·5988
Sulphur.....			1·6127
Shellac .....			1·6362
Solid paraffin, sp. gr. ·9109 at 11° C.	(1.)* (2.)	1·4986 1·4943	Mean..... 1·49753
Melting point 68° C.	(3.) (4.)	1·4920 1·5033	
6 slabs, each $\frac{3}{4}$ -inch thick, about.	(5.) (6.)	1·4936 1·5034	

\* These results are corrected for cavities in the plates. The mean of the uncorrected determinations is 1·4864.

Dielectric.		Specific Inductive Capacity.	
*Bisulphide of carbon	.....		1·4474
Chance's optical glass.	{	Double extra dense flint ....	1·6840
		Extra dense flint .....	1·6727
Slabs nearly 1 inch thick.		Light flint .....	1·6677
		Hard crown .....	1·6872
Common plate glass,	{	(1.)	1·6933
2 slabs, each 1 inch thick, about.		(2.)	1·6903
		Mean....	1·6918

The author suggests that the fact that all his results are much lower than those obtained by previous experimenters may perhaps be explained on a supposition that the specific inductive capacity of dielectrics increases from an inferior to a superior limit during the first small fraction of a second after the commencement of the electrification. He discusses this question at some length in his paper.†

An expression of thanks to Professor Maxwell, for his close superintendence of the work, concludes the paper.

IV. "On the Placentation of the Apes, with a Comparison of the Structure of their Placenta with that of the Human Female." By WILLIAM TURNER, M.B. Lond., F.R.S., Professor of Anatomy in the University of Edinburgh. Received March 11, 1878.

(Abstract.)

The introductory chapter of this memoir consists of a summary of the observations of John Hunter, Rudolphi, Breschet, Owen, Huxley, Rolleston, Ercolani, and Kondratowicz, on the form and structure of the placenta in the apes. The author then gives a detailed description of his dissection of the gravid uterus and placenta of a *Macacus cynomolgus* well advanced in pregnancy. He then enters into a detailed comparison between the form and structure of the placenta in the ape and that of the human female, in the course of which he records a number of original observations on the structure of the human placenta. Attention is more especially drawn to the comparative structure of the decidua vera and serotina; to the prolongations of the decidua serotina into the interior of the placenta; to the arrangement, structure, and mode of origin of the intra-chorionic and sub-chorionic cells; to the arrangement of the arteries and veins of the placenta;

\* I cannot vouch for the exact accuracy of this determination, as the method of experimenting on liquids is not yet quite perfected.

† Note added April 7th. Compare Ayrton and Perry, on the "Viscosity of Dielectrics," read March 21, 1878.