plicants should state whether they can supply themselves with simple and compound microscopes, or whether they wish to hire. Microscope slides, dissecting and drawing implements, bottles, and other supplies, to be finally taken away, are on sale at the Laboratory. Further information in regard to this department may be had by addressing Professor Hermon C. Bumpus, Wood's Holl, Mass., to whom applications for admission should also be made.

The Botanical Laboratory for Teachers and Students will be opened on Wednesday, July 5. The laboratory work in botany will be restricted to the study of the structure and development of types of the various orders of the Cryptogamous plants. Especial attention will be given to the study of the various species of marine Algæ which occur so abundantly in the waters about Wood's Holl, and students desiring to give their entire attention to these plants will be encouraged to do so. The fungi and higher Cryptogams will receive less attention than the Algæ, but will be studied in fewer types. Lectures will accompany the laboratory work. The course may be outlined somewhat as follows:—

First week. *Cyanophyceæ:* Lyngbya, Calothrix, Rivularia, Stigonema, Tolypothrix, Anabæna. Second week. *Chlorophyceæ:* Spirogyra, Ulva, Enteromorpha, Chætomorpha, Bryopsis, Vaucheria, Oedogonium; *Phæophyceæ:* Ectocarpus. Mesogloia, Leathesia, Laminaria, Fucus, Sargassum. Third week. *Rhodophyceæ:* Batrachospermum, Nemalion, Callithamnion, Chondriopsis, Rhabdonia. Fourth week. *Phycomycetes:* Mucoe, Sporodinia, Peronospora, Cystopus, Achlya; *Uredinei:* Aecidium, Uredo, Puccinia, Uromyces. Fifth week. *Basidiomycetes:* Agaricus, Lycoperdon; *Ascomycetes:* Microsphæra, Sordaria, Peziza, Physcia. Sixth week. *Muscineæ:* Riccia, Madotheca, Marchantia. Mnium, Tetraphis, Hypnum; *Filicineæ:* Dicksonia, Adiantum, Equisetum, Lycopodium, Marsilia, Selaginella.

The tuition for students in the regular course of laboratory work and lectures is thirty-five dollars, payable in advance; for students engaged in investigation the tuition is fifty dollars.

Students are expected to supply their own instruments, or to pay an extra fee for those borrowed from the Laboratory. Applications should be addressed to William A. Setchell, 2 Hillhouse Avenue, New Haven Conn.

The Botanical Laboratory will be open from June 1 to September New investigators

Room accommodation two persons, may be obtained near the Laboratory at prices varying from $3 to $4 a week, and board from $4.50 to $6. By special arrangement, board will be supplied to members at The Homestead at $5 a week.

A Department of Laboratory Supply has been established in order to facilitate the work of teachers and others at a distance who desire to obtain materials for study or for class instruction. Certain sponges, hydroids, starfishes, sea urchins, marine worms, crustaceans, mollusks, and vertebrates are generally kept in stock, though larger orders should be filed sometime before the material is needed. Circulars giving information, prices, etc., may be obtained by addressing the collector, F. W. Walmsley, Wood's Holl, Mass.

Wood's Holl, owing to the richness of the marine life in the neighboring waters, offers exceptional advantages. It is situated on the north shore of Vineyard Sound, at the entrance to Buzzard's Bay, and may be reached by the Old Colony Railroad (2¼ hours from Boston), or by rail and boat from Providence, Fall River, or New Bedford. Persons going from Boston should buy round-trip tickets ($2.85).

The Annual Report of the Trustees, containing an account of the organization and work of the Laboratory, may be obtained from the secretary, Anna Phillips Williams, 23 Marlborough St., Boston.

The officers of instruction are: C. O. Whitman, director, head professor of zoölogy, University of Chicago, editor of the *Journal of Morphology*. Zoölogy — A. Investigation, Howard Ayers, director of the Allis Lake Laboratory; J. Playfair McMurrich, professor of biology, University of Cincinnati; E. G. Conklin, professor of biology, Ohio Wesleyan University; F. R. Lillie, fellow in zoölogy, Chicago University. B. Instruction, H. C Bumpus, professor of comparative anatomy, Brown University; W. M. Rankin, instructor in zoölogy, Princeton College; Pierre A. Fish, instructor in physiology and anatomy, Cornell University; A. D. Mead, fellow in zoölogy, University of Chicago. Botany — W. A. Setchell, instructor in botany, Yale University; W. J. V. Osterhout, Brown University. Physiology — Jacques Loeb, assistant professor of physiology, University of Chicago. Ryoiche Takano, artist; F. W. Walmsley, collector; and G. M. Gray, laboratory assistant.

ELECTRICAL NOTES.

THE paper by Dr. Sumpner on "The Diffusion of Light" is one of the most important pieces of work which has recently been published, especially from the practical side. It shows us at once how to calculate the amount of light necessary to illuminate a room of any shape or size, provided only that we know the material used for decorating it. Hitherto this has been done on the happy-go-lucky plan, for, although a rule has been laid down by Mr. Preece to the effect that one candle-power should be used for every square foot of floor space, the well-known antipathy which mathematics bears to Mr. Preece has caused this formula to be looked upon with suspicion; and in this case with reason. The work of Dr. Sumpner is, however, of an entirely different class, and his results may be depended upon for making practical calculations. The principal result of his work is a knowledge of the immense effect that the material covering the walls of a room has on the amount of light required to illuminate it to a given degree. We learn that the amount of light reflected from a newspaper or piece of foolscap is equal, within 10 per cent, to that reflected from a good glass mirror. The following figures may be of interest (deduced from his results):—

I.	II.
Black cloth,	100
Dark-brown paper,	87
Blue paper,	72
Yellow paint (clean),	60
Wood (clean)	50
Wood (dirty),	80
Cartridge paper,	20
Whitewash,	15

Column I. gives the material covering the walls of the room of a given size, and column II. the proportionate number of candles necessary to light it. It will be seen that it takes nearly six times as much candle-power to illuminate a room papered with dark-brown paper as it does to illuminate to an equal degree a whitewashed room. While, of course, we cannot sacrifice æsthetics to economy, it is evident that by suitably choosing the paper of a room, no inconsiderable saving in gas bills may be effected.

R. A. F.

NOTES AND NEWS.

A NEW society has been organized in Washington under the name of the "Geological Society of Washington." The officers are: President, C. D. Walcott; vice-presidents, S. F. Emmons and W. H. Holmes; secretaries, J. S. Diller and Whitman Cross; treasurer, Arnold Hague; council, G. F. Becker, G. H. Eldridge, G. K. Gilbert, G. P. Merrill, and T. M. Chatard. The members are classified as resident and corresponding, the dues of the former being $2 and of the latter $1 per annum. The meetings are held on the second Wednesday of each month from October to May, inclusive. The membership already numbers 108. The members need not be geologists themselves: to have an interest in the subject is sufficient to entitle one to the privileges of the society. Its object is the presentation of short notes on work in progress rather than the reading of elaborate papers. The first scientific meeting was held March 8, at which, after an introduction by Major J. W. Powell, Director of the Geological Survey, a paper was presented by Mr. H. W. Turner, on the Structure of the Gold Belt of the Sierra Nevada. Mr. S. F Emmons then read a paper on the Geological Distribution of Ore Deposits in the United States.