studies may result in determining the mode of transmission of this disease.

The course of lectures delivered by the Kaiser Wilhelm professor in Columbia University, Professor Carl Runge, of the University of Göttingen, is to be published in book form by Columbia University. The subject of the lectures is "Graphical Methods in Mathematics and Physics." The lectures treat of a subject which has not received sufficient attention either in this country or abroad. A considerable amount of the material contained in the lectures is original with Professor Runge. The methods studied have many important applications in astronomy, physics, engineering and various departments of technology.

The proper manipulation of the microscope requires an adequate knowledge of the optical and mechanical principles underlying its construction. As an adjunct to their treatise on the "Manipulation of the Microscope" by Edward Bausch, the Bausch & Lomb Optical Company has recently issued a chart of the microscope stand. Side by side are shown a perspective view and a vertical cross-section of the most modern type of instrument. The different parts and accessories are lettered and named and the path of the rays and the formation of the various images is shown. The chart, 3′ 6″ by 4′ 7″ in size, is executed in colors and mounted on cloth, with rollers at the top and bottom. It is a useful addition to the equipment of the laboratory and is now being distributed to the leading scientific institutions of the country.

Dr. Joseph E. Pogue, who is in charge of the Division of Mineralogy in the U. S. National Museum, has recently described in the Smithsonian "Miscellaneous Collections" a remarkable specimen of pyrite studded with crystals of gold and partly covered with plates of galena from the Snettisham District near Juneau, southeast Alaska. The pyrite is in the usual form of a cube, but what is very remarkable is that there are on it more than one hundred and thirty well-defined crystals of metallic gold. These are also in the cubical system and from one third to one half buried in the pyrite, never more, and seem to have no definite relation to the crystallization of the pyrite. Similarly crystals of galena and chalcopyrite are found on the pyrite. The structure and relation of the galena to the pyrite is of considerable scientific interest and is described in technical detail by the author.

UNIVERSITY AND EDUCATIONAL NEWS

An endowment fund of $500,000 for Trinity College has been raised.

Mr. N. T. Kidder has assumed the expense of the addition now being built for the Gray Herbarium, Harvard University, amounting to about $11,000. The corporation has voted to have this addition called the Kidder Wing.

Albert P. Sy, Ph.D., has been appointed professor of chemistry and director of chemical laboratories at the University of Buffalo, to succeed Dr. H. M. Hill, who resigned last summer.

Dr. E. C. Moore, superintendent of schools at Los Angeles, Cal., has been elected to the newly established professorship of education at Yale University and has accepted.

M. E. Balize, of Nancy, has been appointed professor of organic chemistry, at Paris, and is succeeded at Nancy by M. Grignard.

M. Lameere has been appointed professor of zoology and comparative anatomy at Brussels.

DISCUSSION AND CORRESPONDENCE

THE LUMINOSITY OF TERMITES

In Science of October 22, 1909, XXX., 574–575, Mr. Frederick Knab points out that the mounds made by certain Brazilian termites, or possibly the termites themselves, are luminous.

Although I have seen many thousands of the mounds made by termites in all parts of Brazil, I do not remember ever having observed this luminosity. A specimen of the nest materials was lately sent me by a Brazilian friend from the vicinity of Queluz, in

the state of Minas Geraes. This material shows no signs of luminosity at present, though it does not follow, of course, that it never was luminous.

The following note which I translate from "Viagem ao redor do Brazil," 1875–1878, pelo Dr. João Severiano da Fonseca, Rio de Janeiro, 1880, page 353, is much more to the point:

> On the head waters of Rio Verde (state of Matto Grosso, Brazil) we saw one night a surprising sight. One of the white ants' nests seemed to be covered with little lights, and these tiny stars made it look like a miniature tower brilliantly illuminated. It was near the tent of Captain Craveiro, the commander of the troops, and that gentleman invited us to share his surprise and pleasure. When the nest was struck with a stick the miniature lights went out as if by enchantment, but only to reappear again little by little, beginning where the blows had been weakest.

I know but one other reference to this phenomenon in the works of Brazilian travelers, and that is the following brief note given in Castelnau's "Expédition dans les parties centrales de l'Amérique du Sud, Histoire du Voyage," Paris, 1850, Vol. II., p. 103. In describing the travels in the neighborhood of the city of Goyaz the author says:

> On the night of the fifteenth in the vicinity of the Agoa Limpa estate we noticed a luminous mass in the middle of the campo that aroused our curiosity greatly. On approaching it we found it to be a termites' mound from which shone a great number of small points of light [petits foyers lumineux]. This phenomenon is produced by the presence of an immense number of small phosphorescent larvæ which withdrew into the galleries they had built when one tried to capture them.

The fact that I have lived and traveled in Brazil for ten years without ever having seen this luminosity at all; the surprise of Dr. Severiano da Fonseca at seeing a single instance in Matto Grosso; and the note by Castelnau, who traveled through tropical South America for four years, all lead me to surmise that this luminosity is probably confined to some particular species, or possibly to some special occasions or conditions of termite life.

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STANFORD UNIVERSITY, CAL.,
December 13, 1909

CORRELATIONS OF CLIMATIC CHANGES

HAVING taken into consideration the yearly mean temperatures of 1891 to 1900, from all available sources, and after having discarded all doubtful records, I have drawn maps representing the geographical distribution of annual departures from the normal temperatures, the means of the ten years' observations being considered as normal values. On those annual maps I call thermopleions, or simply pleions, the areas occupied by positive departures, antipleions those of negative departures. The pleions and antipleions are bounded by the quasinormal line.

On this line the departures are nil, the values being equal to the ten-year means.

The lines of equal positive and negative departures I call hypertherms and hypotherms. The pleions represent inflections of the isothermal lines towards the pole, or, more properly speaking, towards the regions of colder climate.

The antipleions, on the contrary, characterize a local abnormal descent of the isotherms towards the equator.

The maps of successive years, for the same country and those of different countries for the same year, show remarkable correlations in the distribution of the departures.

A pleion, in most cases, exists during several years, moving from place to place. When one compares the different maps, and especially those of European and Asiatic Russia, one is led to believe that the pleions are produced by immense waves intercrossing. It seems that for the whole world, the years are either too warm or too cold following the predominance of pleions or antipleions. For example, the year 1893 was exceptionally cold, 1900 on the contrary was too warm. The temperature of the earth's atmosphere was at least one half a degree Centigrade higher during the year 1900 than during 1893. It is a notable fact that neither the Alps, the Caucasus nor the Rocky Mountains form barriers,