Dr. Lyman will enter upon his new duties on January 1.

PROFESSOR LEROY PATTON, formerly of Muskingum College, Ohio, has been appointed associate geologist of the Bureau of Economic Geology in the University of Texas. Dr. E. H. Sellards, who has been with this bureau several years, has been promoted to be chief geologist, Professor T. L. Bailey, from the University of California, has accepted the position of assistant geologist, vacated by Professor W. S. Adkins a year ago, and Miss Dorothy Shoaf, from the University of Chicago, has been appointed curator of the collections.

DR. J. L. SHELLSHEAR, of Sydney, Australia, has been appointed to the chair of anatomy in the new College of Medicine of Hongkong University.

DISCUSSION AND CORRESPONDENCE

NOTE ON THE DISSOCIATION OF CARBON IN THE INTENSIVE ARC

SOME two years ago while experimenting with the extremely powerful arcs used in the Sperry search lights we noted the singular color and peculiar spectrum in the "negative tongue" which appears at currents of 100 amperes and upwards. It develops rather suddenly as a core of the negative flame, suggesting the inner cone of a blast lamp save in color, which is pale purplish.

The spectroscope disclosed a small number of clearly marked lines superimposed on fainter hazy and complex bands, due to the surrounding arc flame. Examining the tongue spectrum of the lines from time to time, we found substantially the same spectrum from various makes of unmineralized carbons, foreign and domestic. Finally, using a five inch achromatic condenser to throw the image of the tongue on a ground glass we examined it in detail with a direct vision spectroscope equipped with a scale, comparison prism and holder for spectrum tubes.

We thus found as characteristic of the tongue spectrum, some fifteen well defined lines. Of these, seven were good coincidences with the most conspicuous of the well known helium lines, and two others with Hα and Hβ.

The He lines were wl: 7066, 6678, 5876, 5048, 5016, 4922, 4388.

Five of these lines belong to the single line, so-called Parhelium series, being the brightest lines of the principal and second subordinate series, and the three of the first subordinate series.

Of the doublet system the chief lines of the sharp and diffuse series respectively appear, not very brilliantly, while we have not yet detected any of the enhanced series. All indications point to the dissociation of a certain proportion of carbon nuclei with the consequent appearance of He due to the immense concentration of energy in this 150 ampere arc. The H lines may be due to water-vapor absorbed by the soft carbon core, or perhaps to further dissociation. We are now setting up a concave grating spectrograph for the closer examination of the tongue spectrum under much higher dispersion, and hence with a less obtrusive background. We hope that the evidently very high ionization power here manifested may lead us to interesting developments with still other elements.

Our thanks are due to the courtesy of Mr. Sperry in extending the great facilities of his laboratory.

LOUIS BELL
P. R. BASSETT

THE DETERMINATION OF FAT IN CREAM

TO THE EDITOR OF SCIENCE: The authors (E. G. Mahin and R. H. Carr) of a paper on "Errors in the Determination of Fat in Cream," read at the Birmingham meeting of the American Chemical Society, have experienced considerable surprise at the tone of a letter by H. W. Gregory, appearing in the issue of SCIENCE for September 15, 1922, in which he discusses our work upon this subject. Professor Gregory has based his criticisms upon a mere advance abstract, containing no details of experiment or reasoning, and without adequate knowledge of the real points at issue.

In the original paper by Mahin and Carr (not yet published) we have simply called attention to a hitherto unsuspected error in the almost universally used "glymol" method for making fat readings in the Babcock tests on