tions of glacial climate, and, on the other hand, conditions of arid climate.

Limitations to the normal geographic cycle are even more severe than these bare statements intimate. If the United States, for instance, be divided into three north and south belts of subequal size one of the divisional lines coincides with the course of the Mississippi River; and the other with the line of the Rocky Mountain front. The belts are each approximately one thousand miles in width.

In the easternmost of these belts the forces of normal landscape sculpturing are most active. The rivers at the present time are wearing down the mountains and hills towards base-level about as rapidly as is done anywhere else on the face of the globe, and about as fast as it is ever done.

In the central belt, the tract lying between the Great River and the Rocky cordillera, the streams traversing the region are far from doing normal corrasive work or of producing net results. Between the Canadian and Mexican boundaries, a distance of more than 2,000 miles, only five streams leave the Rocky Mountain front, and four of these are quite inconsiderable. They can have relatively little influence in the effort to base-level so vast a region as the Great Plains. Dust and sands from western deserts are constantly exported to this region. In fact, lying on the leeward side of the arid lands the Great Plains country is a chief area of wind-laid depositions. The continental deposits over much of the region are more than 1,000 feet thick, a fact amply attesting the prodigious extent and the unusual rapidity of their formation. This circumstance alone explains the excessively slow rate of continental denudation which the recent government stream-measurements of the Mississippi River give. The normal geographic cycle does not obtain in this region.

In the westernmost belt the general lowering and leveling effects of rivers are inappreciable. Water-work is reduced to its lowest terms. Wind is the mastering erosive agency. The geographic cycle has for its dominant element wind-scour instead of stream-corrasion.

The idea has a still broader bearing. It has world-wide application. According to the late Sir John Murray more than one fifth of the entire land surface of the globe is desert. Another one fifth and more is little affected by normal river corrasion. Still another one fifth of the land surface is, or at least was until very recent geologic times, as truly desert as is the Sahara to-day. Of all the world's land area, therefore, fully two thirds are not subject to normal stream-work; and the normal geographic cycle is without verity.

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UGO SCHIFF

IN SCIENCE, June 30, 1916, page 922, Professor Wm. McPherson, in his obituary notice of Ugo Schiff, says:

> This recalls the fact also that Professor Baeyer's laboratory at Munich did not include any laboratory devoted to physical chemistry until 1913, when a small room was fitted up for this work.

Professor McPherson is mistaken. During a number of years before and after 1887, Krüss gave, in Baeyer's laboratory, courses of lectures and laboratory work in physical chemistry. The complete courses ran through several semesters and the experimental exercises were given in a room specially fitted. They included density determinations of solids, liquids and gases, by various methods, cryoscopic molecular weights, spectroscopic work (emission and absorption), optical rotation, etc. Probably no better courses were given anywhere, at that time, outside Ostwald's laboratory. It may well be that Krüss's premature death caused the courses to be discontinued.

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SCIENTIFIC BOOKS

The Origin of the Earth. By THOMAS CHROWDER CHAMBERLIN, head of the Department of Geology, The University of Chicago. The University of Chicago Press, 1916. Pp. x + 271. (The University of Chicago Science Series.)

This book, by the distinguished author of the planetesimal hypothesis, is one which has