

*Candolleana*, *P. pteroides*, *P. dentata*, *P. notata*, *P. oreopteridea*, *P. Miltoni*, *P. Pluckenetii*, *Goniopteris emarginata*, *G. elegans* (?), *G. arguta* (?), *Rhacophyllum lactuca*, *Sigillaria Brardii*. Of these species, all but *Sphenophyllum fliculme*, *Neuropteris hirsuta* and *Pecopteris notata* are also European Permian species. The genera *Baiera* and *Callipteridium* commence in the Permian. Out of 107 species of plants in the Upper Barren Measures of West Virginia, 28 are European Permian species.

The Red-beds of South Park, near Fairplay, Col., have afforded Permian species of *Walchia*, *Callipteris*, *Odontopteris*, *Sphenopteris*, *Ullmannia*, etc. (Lesquereux, *Bull. Mus. Comp. Zool.*, vii., No. 8).

On Amphibians and Reptiles of Texas and Illinois, Cope, *Amer. Phil. Soc.* for 1877 and several later years, and also *Proc. Acad. N. S.*, Philadelphia, *Amer. Naturalist Bull.*, vi., *Hayden Surv.*, 1881, and publications of Texas Geological Survey.

## FOREIGN.

### 1. SUBCARBONIFEROUS AND CARBONIFEROUS PERIODS.

#### ROCKS — KINDS AND DISTRIBUTION.

The rocks of the Subcarboniferous and Carboniferous periods cover a very large area in the western half of Russia, or the Continental Interior of Europe, much of the area of Great Britain and Ireland, a moderately large area on the borders of Belgium, France, and Prussia, and small areas in Spain, Italy, Austria, and some other parts of Europe. The beds of the Carboniferous period—the period of the Coal-measures—have their greatest thickness and largest amount of coal in the British Isles, and but little thickness and little coal in Russia. There are workable coal-beds of this era, if the Permian be included, also in China, India, and Australia, but none, so far as known, in South America, Africa, or Asiatic Russia.

The proportion of coal-beds to area in different parts of Europe has been stated as follows: in France,  $\frac{1}{100}$  of the surface; in Spain,  $\frac{1}{50}$ ; in Belgium,  $\frac{1}{20}$ ; in Great Britain,  $\frac{1}{10}$ . But, while the area of the Coal-measures in Great Britain is about 12,000 square miles, it is in Spain, 4000; in France, about 2000; in Belgium, 518.

The distribution of the areas in England is shown on the accompanying map. The cross-lined black areas are Subcarboniferous, and the black those of the Coal-measures. The principal regions of the latter are (1) the South Wales, 1000 square miles in area; and, in nearly the same latitude, the Forest of Dean, west of the Severn, and the region about Bristol, east of the Severn, together 184 square miles; (2) the small patches in central England, in Shropshire (Coalbrook Dale), Warwickshire, Leicestershire, and Staffordshire, 240 square miles; (3) north of these, on the west, the great South Lancashire region, just east of Liverpool, with the basin of Flintshire on the Dee, the whole together, 220 square miles; (4), to the eastward of the last, the large Derbyshire coal region, between Nottingham and Leeds, and adjoining Sheffield, 800 square miles; (5) farther north on the west coast, in Cumberland, about Whitehaven, 25 square miles; (6) on the east coast, the great