published in 1874, and much used some years ago in American colleges. It speaks well for the teachers of botany that this book has proved so popular as to have gone through so many editions, in spite of the fact that it has not departed essentially from the scientific sequence of topics, neither has it attempted to introduce popular 'natural history' features in place of the more difficult laboratory requirements. The book contains three 'parts,' the first of which deals with structural, the second with physiological, and the third with systematic botany. It may still be held up as a model worthy of being followed by makers of botanical text-books.

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THE COAL FIELDS OF CHINA.

Professor Drake, of Tien-tsin, has lately published a report on the coal fields in Shan-si province, which he visited last autumn, especially those around Tse-chau, which were first made known to the world by Baron von Richthofen in 1870, and for the working of which concessions have been granted to an Anglo-Italian company. According to the abstract in the London *Times*, the journey from the coast is made across low-lying plains, and then a plateau is ascended, on which the coal measures are found. The workable coal lies in one bed, about 250 feet above a flint-bearing limestone stratum, below which it is possible that there is also coal. In Tse-chau the average thickness of seam is probably not less than 22 feet, and at one place it is worked through a shaft 329 feet deep. Streaks of shaly coal are common in the part being mined, but there is no waste coal taken out, and the proportion of ash is little more than 10 per cent. There is no waste material in the bed in any of the mines. Professor Drake estimates that within the 150 square miles around Tse-chau there are about 3000 million metric tons of coal, and it "must be remembered that this area is only a little of the ragged edge of the great coal fields of Shan-si. Most of Shan-si has been found underlaid by large coal beds. Richthofen estimates that the anthracite coal alone of Shan-si amounts to 630,000 million tons, and that the coal area is greater than that of Pennsylvania." All the Tse-chau coal is anthracite, with a specific gravity of 1.5, and it is hard enough to support any weight put upon it in the blast furnace. The proportion of sulphur is uniformly low, and that of ash also. A cursory examination of the outcrops showed the iron ore stratum to be 2 feet to 3 feet in thickness; the workings are limited to this narrow strip because the ore beds lie near the surface and can be mined by open pits, whereas elsewhere deep shafts and long tunnels would be needed. But the small quantity of ore will probably never justify extensive mining at a depth. Besides coal and iron ore the district yields fire clays of good quality for bricks and cheap pottery. These are now much used by the Chinese for household utensils. Sandstone occurs in abundance and is extensively used by the Chinese; its fault is great friability. Massive limestones are in great abundance and of good quality. They vary in color from light gray to blue and almost black. The soil is largely *loess*, and is therefore fertile and highly cultivated, a dense population being supported by agriculture. The industries are centered round the mines. Nearly all the coal is mined through shafts varying in depth from 50 ft. to over 300 ft. Very little is mined through inclines. No steam is used for raising the coal to the surface, and explosives are not employed. The work is done with the windlass and pick. Tunnels are run through the bed from the bottom of the shaft, and at intervals along the tunnels large quantities of coal are removed, leaving circular chambers 40 ft. to 50 ft. in diameter, and thus about 50,000 tons a year are brought to the surface in the district. For local use, the coal is carried away in little carts drawn by oxen, but most of it is taken down the mountains by pack animals, as the paths are very steep and rough. It is 20 miles to the plains; the paths are about 13 ft. wide and are paved with stone. But "the great thickness and the almost horizontal position of this coal bed make it practicable, as suggested by Richthofen, for other Shan-si coal beds, to run long lines of railroad tunnels through the bed, and load the cars in the mines for distant transportation."