## THE COAL RESOURCES OF THE WORLD

	1908	1909	1910	1911
Shikyakutei	2,262 "	18,699 tons.	41,327 tons.	50,327 tons.
Second Zuihō		3,283 "	3,036 "	4,075 "
Shifunshi		3,458 "	4,200 "	4,148 "

A coal series outcropping on both wings of an anticline at Nanseikaku and running south-westwards, seems to represent the eighth series. The anticline continues to the south of Byöritsu, and outcrops of coal are found here and there on both wings; the length of it from Hatto exceeds 120 km. In Rokuryö three seams, the upper 1.8 ft, thick, the middle one 1.5 ft, and the lower 1.8 ft, thick, strike N. 45° E., dipping S.E. 23°. From Seifuku east of Sankakuyu, southward, the seams become thin and mining is not active, being on a very small scale here and there, though in Tainanho an outcrop of coal 4 feet thick strikes N. 30° E.. with the dip W.N.W. 65°, and a seam 9 feet thick is found in Hokka.

Two collicries, Gytho and Seisuikō, are noted. At the Gytho colliery, ahout 5 km. south-east of Pan-kyō station, three coal-seams are found, 0.7 ft., 1 foot and 1.5 ft. thick, in descending order. As an anticline traverses the area, the dip is reversed in the north and south, the angle in both cases heing from 15° to 20°. In the Seisuikō colliery, ahout 6 km. south of the same station, three seams are found on both wings of an anticline which traverses the area. The strike is N. 45° E., the angle of dip being 20° to 60°. The thickness of the seams, beginning with the uppermost, is 1.8, 1.5 and 1.8 ft., respectively. The series suffers slight disturbance through volcanic intrusion, though the coal is searcely influenced by it.

	1908	1909	1910	1911
Gyūho	4,211 tons.	7,199 tons.	6,041 tons.	5,439 tons.
Seisuikō	52 "	509 "	3,386 "	3.299 "

The ninth series.—This series outcrops on the coast of Namarinshö, about 4 km. east of Kiirun-san, where the coal is being mined. It strikes south-westward, gradually approaching an east-west direction, until it strikes nearly east at Shinkögai and Keibigai and is covered by alluvium at Keihigai. In the east the series forms an anticliue and a syncline, and may be traced for about 20 km. It again appears in the south of Nanseikaku and runs south-west, the coal heing mined at several places, among others at Jyūsanshö, south of Sankakuyū; Sansöshö, south of Taikokan; Denhi; and Nanshö. Near Denhi and Nanshö a small anticline and syncline are also to be seen. The total length of the outcrop of this series is about 120 km. Two seams are known to occur. At Namarinshö two coal-seams, the upper 0.7 ft, and the lower 1.8 ft. thick, strike N. 20° E., and dip E.S.E. 20°. Near Keibigai the strike is nearly east, dip S. 30°-40°, the upper seam heing 1.5 ft. and the lower 2 feet thick. In Denbi the strike changes to N. 30° E. with the dip E.S.E. 45°, the size of the seams remaining the same. Thus it will be seen that the series bends with the mountain system and contains two coal-seams. As the seams are rather thin and transportation is not easily available, mining is unimportant.

The tenth series.—This series outcrops near the coast of Ōtei and runs west-south-west to Shinten through the north end of Chösökei and Sekitei and the south end of Shinkögai. From Shinten the outcrop bends southwest and strikes almost parallel to the ninth series to the south of Nanshö, where it can no longer be followed. Its total length is estin ated at about 120 km. The dip is south-south-east to south-east and the dip is in general  $50^{\circ}$ , although a small anticline and syncline occur in the environs of Denhi and Nanshö and end south of Jyukirin, forming an elongated dome. Two coal-seams are known, the upper being from 0.7 to 1.2 ft. thick and the lower 2 to 2 5 feet. They are worked on a very small scale in several places.

The eleventh series.—This series outcrops from south of Chösökei eastward to the coast of Enryö, where two coal-seams, the upper 0.8 ft. and the lower 1.8 ft. thick, are found, striking N. 10° W. and dipping S.W. 30°. To the west of Chösökei, outcrops are seen only here and there, appearing to run south-west, almost parallel to the tenth series. The total length of outcrop is about 100 km.

The twelfth series.—This series runs from south of Chösökei, nearly westwards, to the south of Taikokan through the north end of Kusshaku, forming a syncline with dips of from 30° to 60°. Its total length of outcrop is about 80 km. Two coal-seams are known, the upper being 0.4 and the lower 1.5-2 feet thick.