

direction has been practically reached. Accordingly, during the past ten years serious attention has been directed to internal combustion engines, and the rapidity of the gas engine's development, with its attendant success, has justified and amply repaid all work done toward its improvement. Previous to 1893, the majority of engineers were doubtful about the ultimate importance of the gas engine as a prime mover; to-day units of 2,000 to 4,000 horse-power are being constructed, while those of 1,000 to 1,500 horse-power are in operation. Growth such as this is phenomenal.

Mr. Herbert A. Humphrey\* gives an interesting table, showing the gas engine horse-power installed and in process of manufacture by the chief builders of Europe and America. In England Messrs. Crossley Brothers and the Premier Gas Engine Co. have supplied, or are about to supply, 7,600 horse-power, averaging 345 horse-power per engine. On the continent four leading manufacturers have made, or have in process of manufacture, engines capable of developing 115,000 horse-power, the average unit being about 675 horse-power.

TABLE I.—Compiled from *Engineering*, September 19, 1902.

List of Gas Engines of over 200 Horse-Power. Delivered or in Hand.						
Where made.	For driving Dynamos.		Engines for other purposes.		Total Engines for all purposes.	
	Total No. of engines.	Total H. P. of engines.	No. of engines.	Total H. P. of engines.	Total No. of engines.	Total H. P. of engines.
England .. ..	65	20 250	16	5,350	81	25,600
Europe .. ..	126	60,105	64	62,800	190	122,905
America .. ..	47	18 600	9	14,500	56	33,100
Total .. ..	..	..	..	..	327	181,605

While the production of gas engines in America is hardly as large as in Europe, three firms in the United States have made, or are making, engines capable of developing over 33,000 horse-power in units varying in size from 300 to 4,000 horse-power.

\* Recent Progress in Large Gas Engines, *Engineering*, September 19, 1902.