Az. or bearing H.C.R. on sun	= =	. 89° 176°	40' 17'	00"
Correction H.C.R. on line		86° 176°	37' 39'	00" 30"
Bearing of line	=	90°	02'	30″

LARGE BATTERY OF COOLING TOWERS.

The accompanying views illustrate a large battery of forced draft cooling towers, built by the Wheeler Condenser and Engineering Co., of Carteret, N.J., for the Texas Power and Light Co. The towers, which have a capacity of 600,000 gallons per hour, are of the steel shell type, arranged in a battery 100 ft. long, 40 ft. wide and 40 ft. high. There are six pairs of 10-ft. fans operating



Views Showing Fans and Motor Connections of a Battery of Six Forced Draft Towers.

at 250 r.p.m., belt-driven by motors located above each pair of fans in small motor houses. The fan housings are extended and are provided with doors which may be opened to permit unobstructed entrance of air for operation by natural draft during the winter season. A platform reached by a ladder from the ground serves the three motor houses, and an upper gallery is built on the level of the water distributors and the water-regulating valves which control the water discharge to each compartment. Any section may be cut off for inspection or cleaning without interfering with the operation of any of the others. The water piping is designed for an additional installation of six towers of equal capacity.

CANADA'S POWER RESOURCES.

HE latest statistical statement respecting Canadian water powers by the Dominion Water Power Branch is of great interest. Within the provinces of the Dominion and excluding the Northwest Territories, practically all of the Yukon and the northern and eastern portions of Quebec, it is estimated that 17,764,000 horse-power are available, this amount being inclusive, in the case of Niagara Falls, Fort Frances and the St. Mary's River at Sault Ste. Marie, of only the development permitted by international treaties, and further, does not contemplate the full possibilities of storage for the improvement of capacities. The developed powers, which are inclusive of all water powers, whether for electrical production, pulp grinders, for nilling or for the great many other uses, aggregate 1,712,193 horse-power as developed by turbines, and this amount is distributed over the provinces as shown in the following table :-

	Horse-power	
Province.	developed.	
Nova Scotia	21,412	
New Brunswick	13,390	
Prince Edward Island	500	
Quebec	520,000	
Ontario	789,466	
Manitoba	56,730	
Saskatchewan	45	
Alberta	33,305	
British Columbia	265,345	
Yukon	12,000	

It is notable that many of the foremost advancements in hydraulic engineering have found their application and also their inspiration in Canada. Several very large power plants have been constructed and the many hydraulic plants approaching two million horse-power in aggregate capacity, have permanently established markets, while over eight times this amount is within reasonable zones of commercially economic development. The large cities of Canada are fortunate in being liberally endowed with adjacent water power sources.

EXPANSION JOINTS IN ROADS.

With respect to the use of expansion joints in concrete roads, Mr. H. J. Kuelling, highway commissioner of Milwaukee County, Wisconsin, states that in road construction under his supervision about three-fifths of the work is not provided with protection plates. The intention is to do away with them entirely, as most of the joints are tarred before winter, whether protected by plates or not. in order to waterproof them. So the main advantage of the plates, that of protection, is lost. The joints, whether protected or not, are filled with felt, impregnated with asphalt or tar, coming flush with the concrete in the case of protected joints and about one-half inch above in the case of unprotected joints. The object of leaving the felt extend above the concrete is to seal the joint by filling the crease, which is made by rounding the edge of the concrete next to the joint to a 1/4-in. radius. The concrete on each side of the felt is brought to grade by means of a double wooden float, thus insuring both sides being of the same elevation. All joints are being placed 50 feet apart and are 1/4 inch thick.