Magnus, who first demonstrated it in 1852. This force will be utilised in driving the trucks around a circular track and the

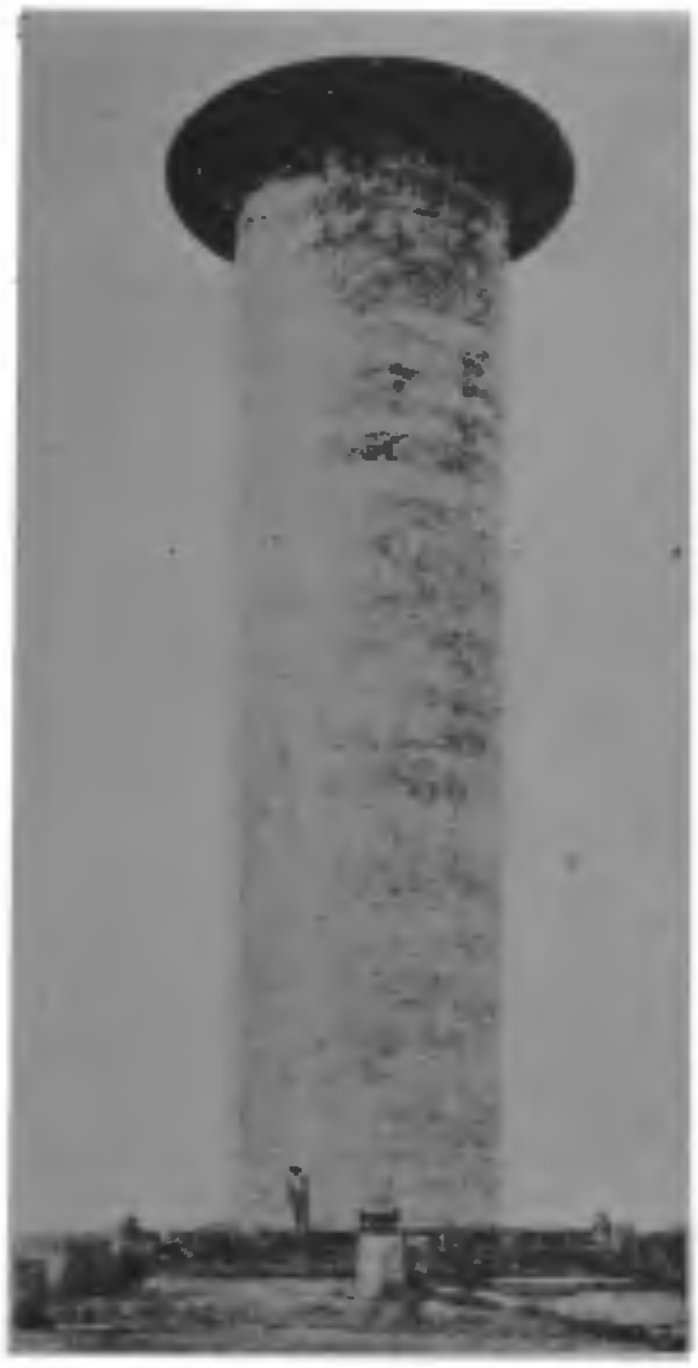

Fig. 4.

The experimental rotor of Madaras in New Jersey.

production of electric power will be effected by huge generators geared to the wheels. Even a wind velocity of 10 m.p.h. is able to produce a peripheral velocity of 50 m.p.h. in the tower. Each such unit will weigh 150 tons and can be depended upon to generate 1,000 KW. On the basis of preliminary calculations it is claimed that the installation costs per KW. will be only about £ 10, $\frac{1}{5}$th the average cost of a hydro-electric plant. By establishing such generating stations in specially windy location, we can tide over the greatest problem—what to do when the wind refuses to blow?

HIGH-ZONE WIND POWER STATIONS.

This is the last and a very bold attempt on the part of a German engineer Herr Herman Honnef to harness the wind for power. With the materialisation of this plan the question of a favourable and suitable location can easily be dispensed with as there is always plenty of wind high above the earth's surface. The idea is to erect five "windmills" on the top of a colossal tower 1,500 ft. high made out of welded steel tubes. Each will be 250 ft. in diameter and the unit is speculated to generate 50,000 KW.

The modified electric generators have already assured the future of small windmill installations, as hundreds of them have been giving good service for a period of years. Also the difficulties in the regulation of big wheels especially in storms, and direct linking to high voltage transmission systems, are sure to be surmounted within a very short time due to the sincere interest evinced by engineers all over the world to obtain the cheapest energy from nature.

Lyochromes.

RECENT work on the chemistry of a new group of pigments of great physiological importance, now called Lyochromes, has yielded very valuable information regarding their constitution (*Nature*, 1934, **133**, 553-56). These animal pigments are related to Warburg's respiratory ferment on the one hand, and to vitamin B_2 on the other. They are insoluble in the common neutral organic solvents but are soluble in water, and exhibit a characteristic yellow-green fluorescence which changes reversibly to a violet fluorescence on addition of acids or alkalies. Further, they are reversibly reduced to a leuco-base by reducing agents such as hydrosulphite while being highly resistant towards oxidising agents.

One of the richest sources of these pigments is whey from which they can be adsorbed by fuller's earth. The adsorbate can be washed with alcohol and water and eluted by pyridine. By employing this technique, Ellinger and Koschara obtained concentrates from which five crystalline coloured substances designated lactoflavines *a–e*, were isolated. These five substances differ from each other in their crystalline form, solubility and intensity of colour in solution. The flavines *a*, *b* and *c* answer the murexide test and on warming in solution decompose into soluble pigments and substances of a purin character; they are therefore called purin-lyochromes. Lactoflavine *d* gives a negative murexide test while *e* gives the test only with chlorate and hydrochloric acid.

B. N. S.