

Development of High Efficient Dust Collection Techniques by Means of Artificial Tornado

(Masao Fujita)

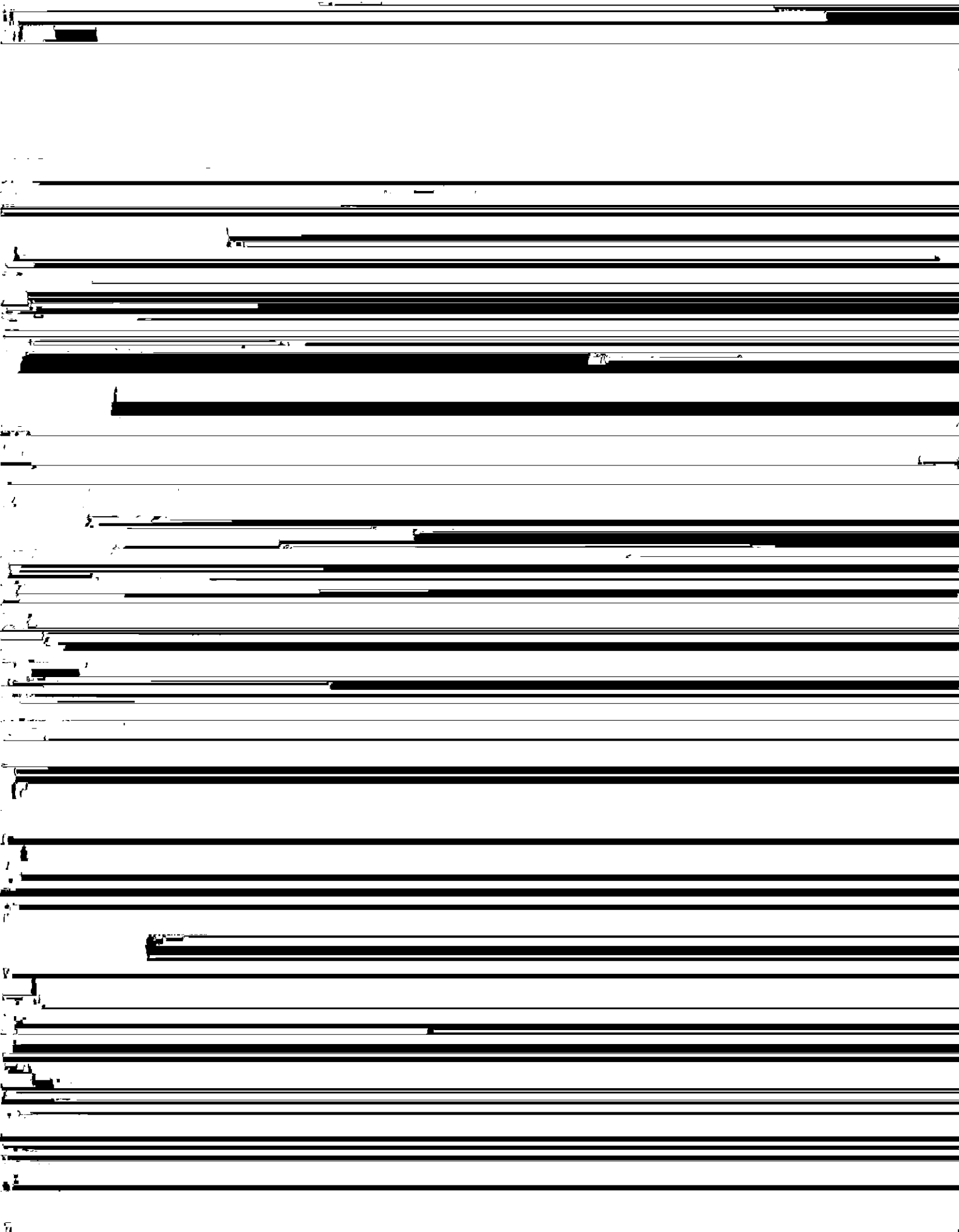
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Synopsis :

The exhaust system with an artificial tornado system is effective even where drafting force is strong like at high temperature blast furnace casthouses. A model experiment and an application to a real blast furnace have proved that the exhaust system with a horizontal artificial tornado, which has a rotating air inertia force in an open space upside of a blast furnace taphole, reduces the exhaust gas volume to a third of the conventional system. In the close space over the iron pit where the hot metal is poured into a torpedo car, it has been proved that the exhaust system with a vertical artificial tornado, which shuts off the circumferential air, can reduce the exhaust gas volume to a half of the conventional system by the model experiment.

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Yoshiaki



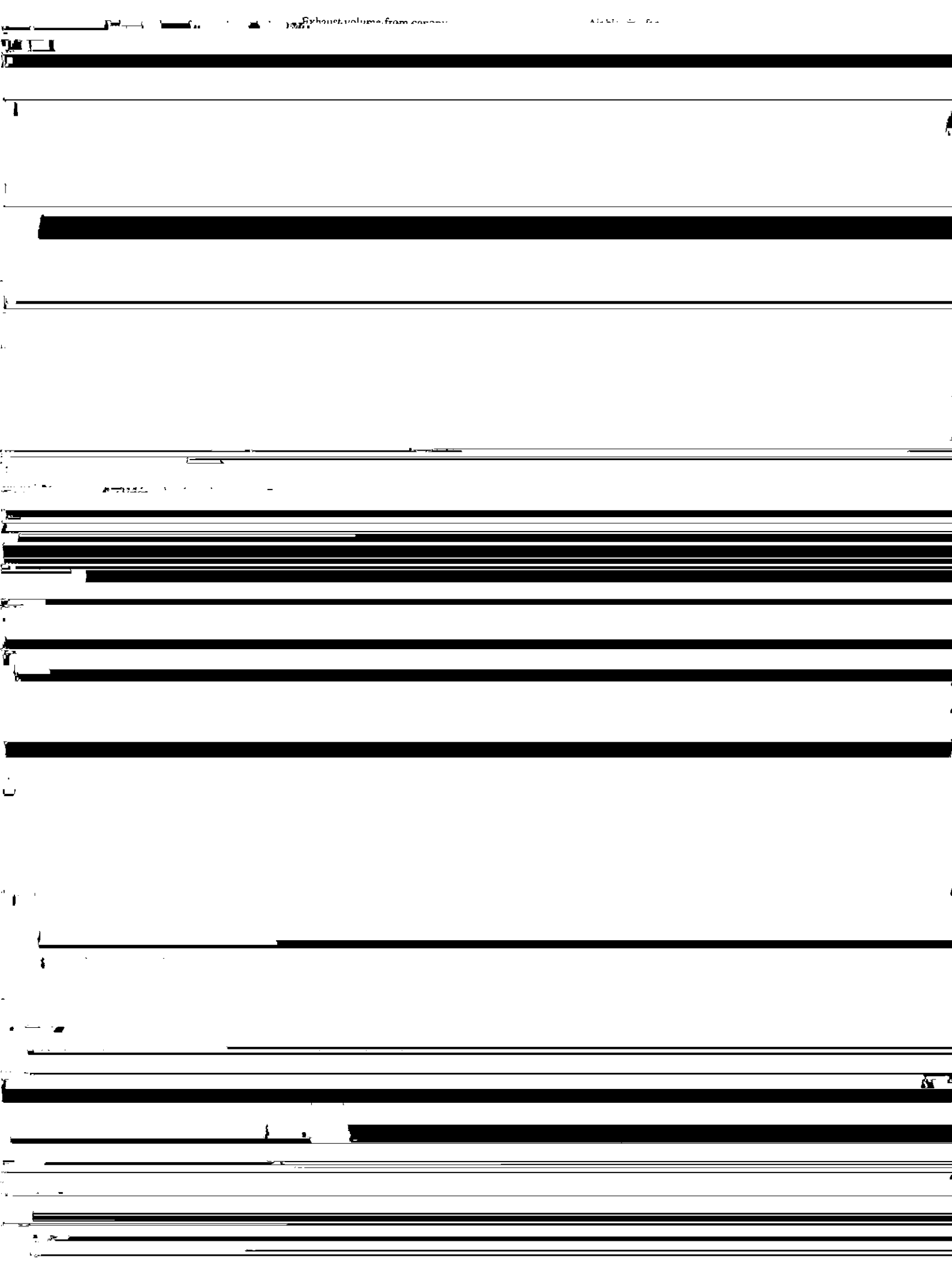


Table 1 Exhaust volume of model system and existing system
artificial tornado

からの吹き出し速度は最大 50 m/s とした。

高層ビル被害による竜巻被害の調査と対策

Table 2 Comparison of the state of dust collection at taphole between artificial tornado system and conventional system

Period of	Conventional			With artificial tornado		
	Exhaust			Exhaust		

4.2.2 実験結果と考察

落ち口部模型の実験結果を Fig. 14 に示す。縦軸には集塵効果の指標である監視窓の空気流入速度を示している。現状の実機による吸引風量は合計で $7700 \text{ m}^3/\text{min}$ であり、模型実験では相似則より $21.3 \text{ m}^3/\text{min}$ に相当する。このときの模型実験による監視窓からの空気の流入速度は約 3.2 m/s である。監視窓の流入速度を同じ相

