

JEAN CLAUDE EUGENE PECLET

By EurIng Brian Roberts, CIBSE Heritage Group



Jean Claude Eugene Peclet, 1793-1857

Peclet was born at Besançon, France, on 10 February, 1793. He showed such a liking and aptitude for physics and mathematics that in 1813 he was allowed to enter the Upper Normal School in Paris. In 1816, he was appointed as Assistant Professor of Physics at the College of Marseille where he “was struck with the lack of application of scientific principles to the manufacturing arts.” Returning to Paris, he had the fortune to be helped in his studies by Ampère.

Peclet taught in the Upper Normal School and while there he wrote his first books: on *Chemistry & Physics* in 1823, on *Illumination* in 1827 and on *Heat* in 1830. He was a Founder and Director in 1829 of the Central School of Arts & Manufacture, a private enterprise taken over by the State in 1857. “It was in these capacities that he was able to apply his ideas of combining science and practice, and to carry out the experimental work on heat for which he is best known.” Later, he became Inspector of the Academy of Paris and then a Supervisor of Schools.

Peclet was primarily a physicist who engaged with the study of the application of heat in industry and, in particular, the theory of fuels & combustion, boilers & furnaces, distillation, evaporation, and drying. He had a special interest in heating and ventilating. However, he is now regarded as being weak on engineering construction and equipment, but in France, at this time, heating and ventilating was still in its infancy (stoves were in common use). Though he contributed to the development of the open fire, he suggested that cost considerations held back the development of more advanced heating systems.

Peclet conducted studies in ventilation, fresh air requirements and removal of water vapour and odours, recommending a fresh air supply rate of 10 cubic metres per hour per person. He carried out his research in schools and at the Prison Mazas. He also looked into the problem of calculating building heat losses, commenting that he thought Tredgold’s methods overestimated the loss. (Peclet’s work on thermal transmittance is reviewed by Billington & Roberts, pp.490-491).

His experience seems largely to have been in hot-air heating installations with little knowledge of steam systems. The reprinted 1861, 3rd Edition of *Traite de la Chaleur* (Treatise on Heat), indicates that hot water heating had achieved notable popularity in France due to the efforts of Duvoir, Duvoir-Leblanc and Grouvelle. Peclet also gave details of their systems installed in many important buildings between 1840 and 1854.

Peclet devoted much of his research to ventilation. He recognised the importance of humidity and knew about infiltration and air leakage but with the instruments then available was unable to quantify their values. Air movement relied mainly on chimney effect since fans were in their infancy and, with the exception of factories, buildings had no means of driving them and had to rely on man power. His scheme for France’s Chamber of Deputies used two manually-driven fans, each requiring two men.

He retired in 1852, keeping his connection with the Central School and had just finished revisions to his Treatise when he died in 1857.

TRAITÉ
DE
LA CHALEUR

CONSIDÉRÉE
DANS SES APPLICATIONS

PAR

E. PÉCLET

ANCIEN INSPECTEUR GÉNÉRAL DE L'UNIVERSITÉ, PROFESSEUR DE PHYSIQUE
APPLIQUÉE AUX ARTS A L'ÉCOLE CENTRALE,
MEMBRE DU CONSEIL DE LA SOCIÉTÉ D'ENCOURAGEMENT.

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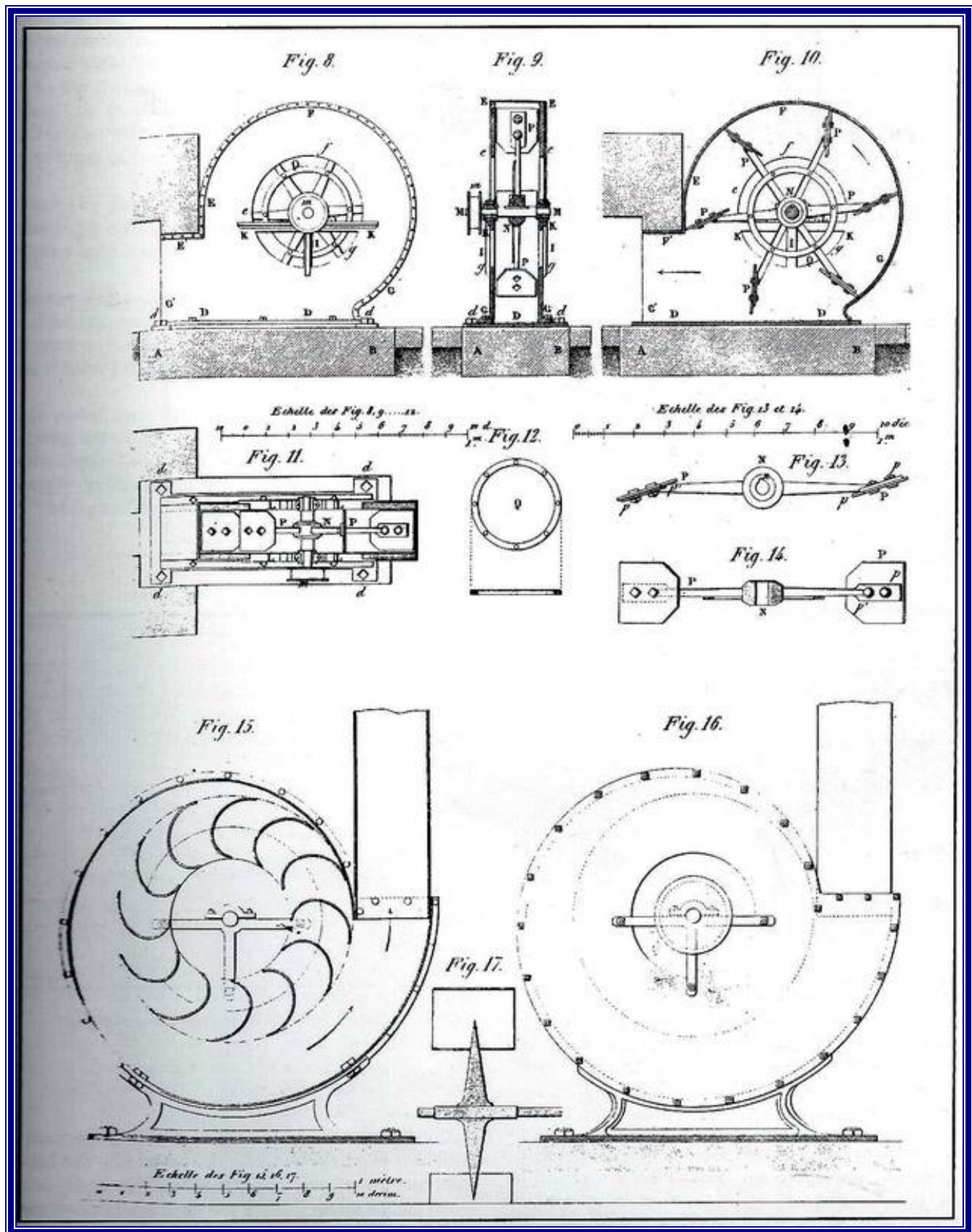
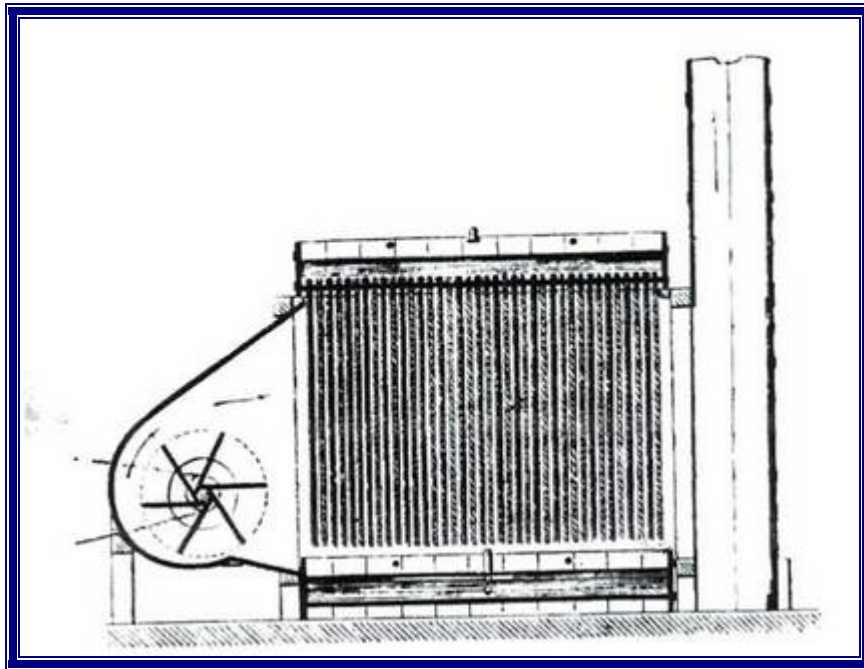


Illustration of a Combes forward/backward bladed fan, from Peclet's *Traite de la Chaleur*, 1844



Suggestion for Air Cooling Apparatus, 1861

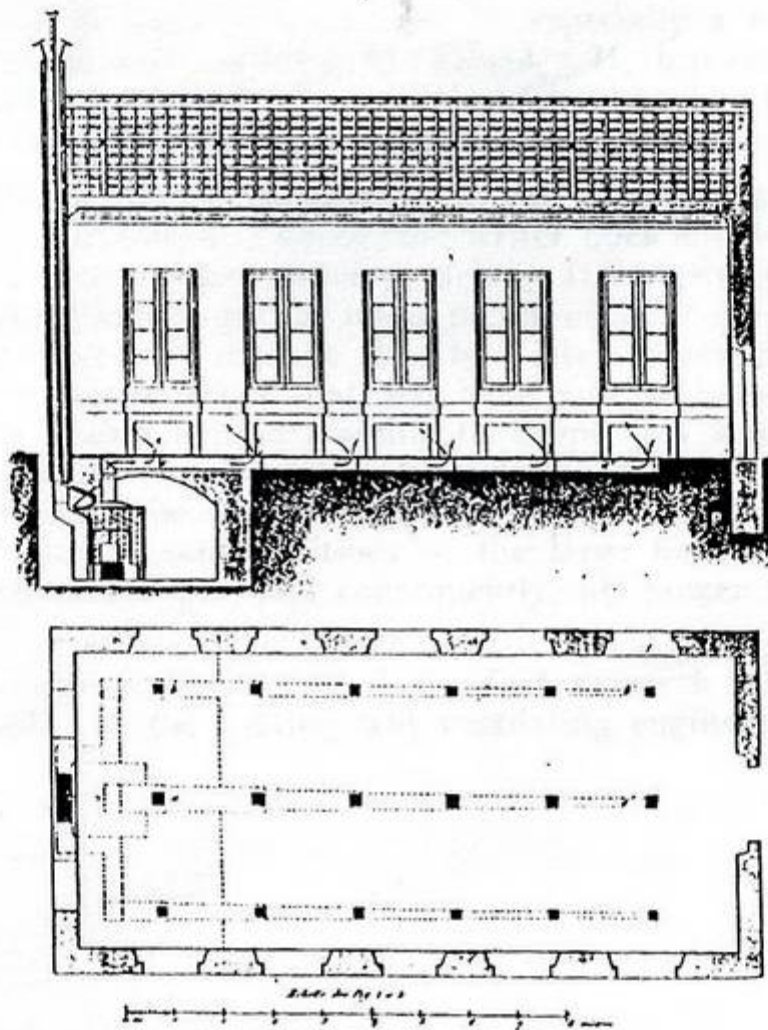


FIG. 6. SUGGESTED HEATING AND VENTILATING FOR SMALL SCHOOL, AA HOT AIR DUCT, BB AND CC POSITIVE EXHAUST DUCTS THROUGH CHIMNEY HEATED BY FLUE PIPE

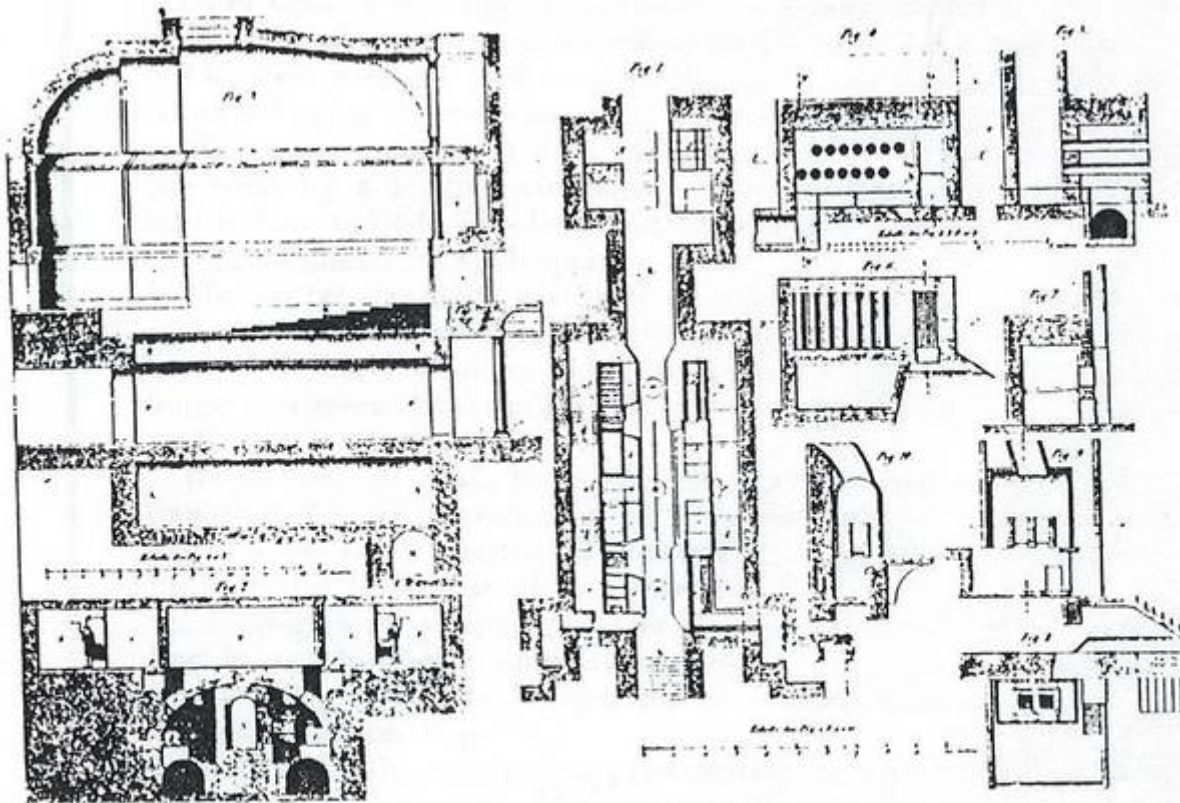
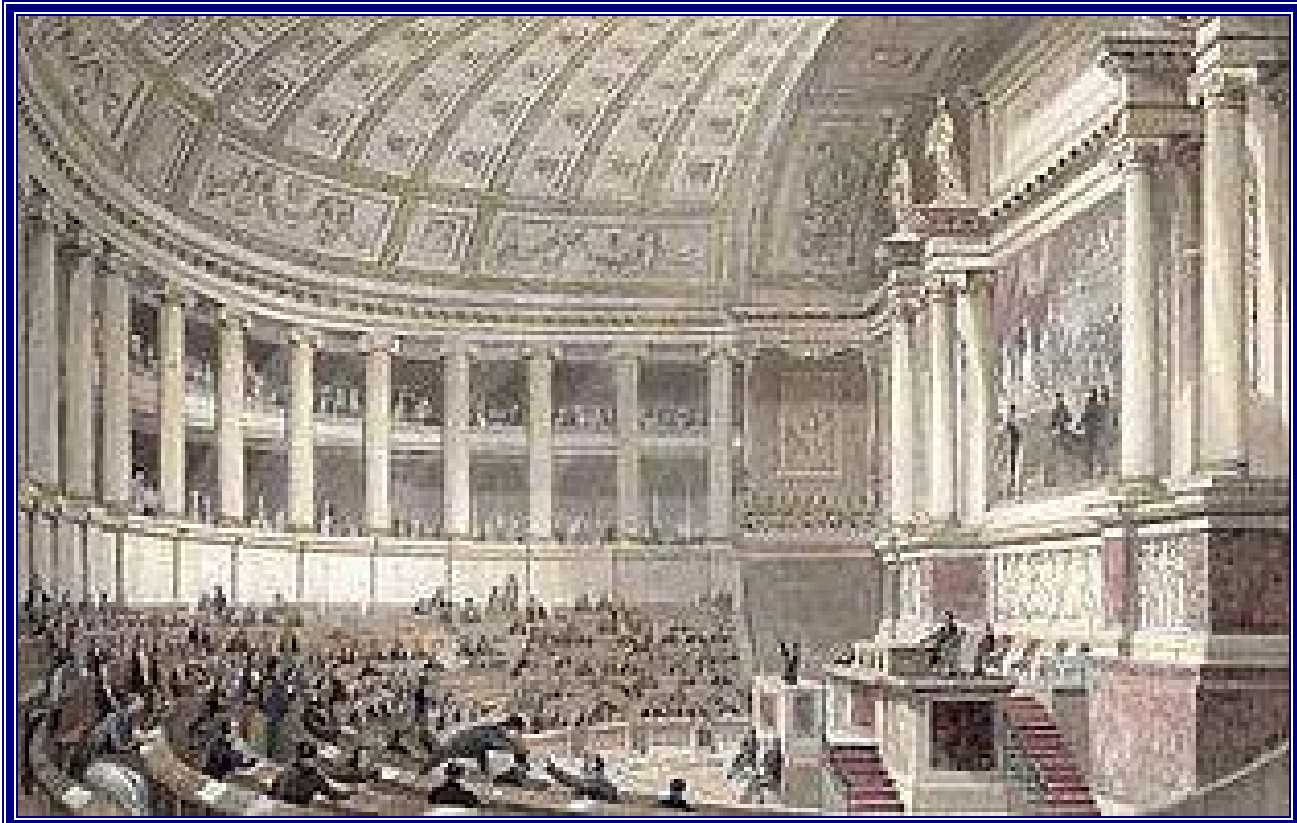


FIG. 7. INSTALLATION FOR CHAMBER OF DEPUTIES ASSEMBLY HALL, FIGS. 4, 5 AND 6 SHOWING FURNACE FOR HEATING THE AIR, WHICH PASSES THROUGH THE PIPES—NOTE THE MANUALLY DRIVEN FANS, TWO MEN FOR EACH

1861



France: Chamber of Deputies, 1841



Demolition of the Prison Mazas in 1898



Peclet

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