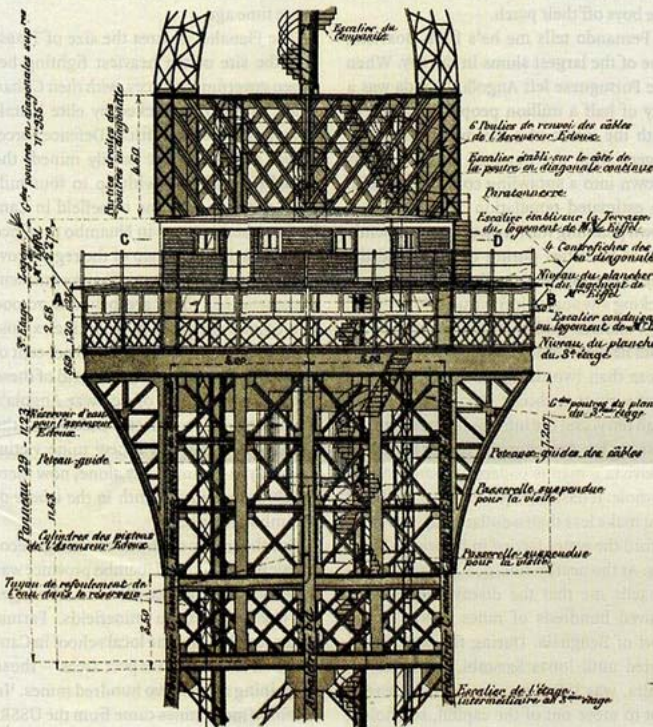
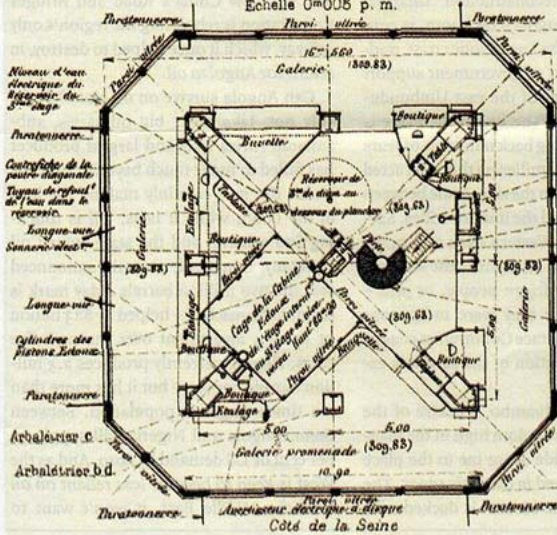


TROISIÈME ÉTAGE
 Fig. 3. Élévation
 Echelle 0=005 p. m.



Plan du troisième étage
 Fig. 9. Coupe horizontale AB
 (Voir Fig. 3)
 Echelle 0=005 p. m.



COUPOLE
 Fig. 4. Élévation
 Echelle 0=005 p. m.

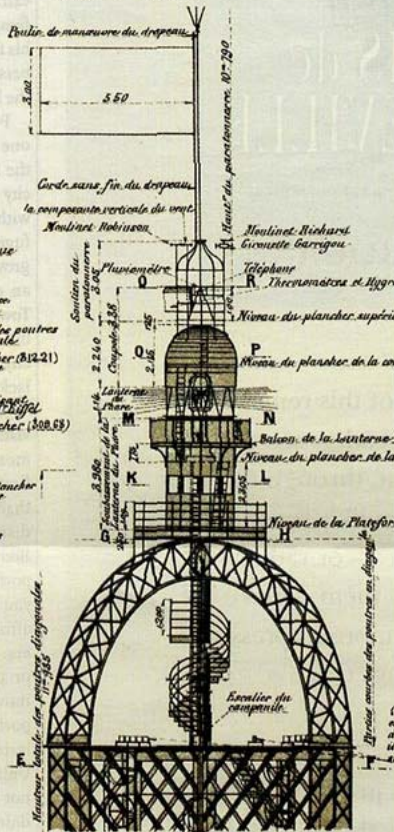


Fig. 10 Coupe horizontale QR (Voir Fig. 4)



Fig. 12 Coupe horizontale MN (Voir Fig. 4)



Fig. 13 Coupe horizontale KL (Voir Fig. 4)

When the 1900 Universal Exposition opened in Paris, Gustave Eiffel's tower, 'la tour de trois cents mètres', was 11 years old. It had been constructed for the same event in 1889 and despite protests by 'defenders of the beauty of Paris' held its place as a landmark and an attraction. There were some improvements (new lifts) but, unaltered in its essentials, its success was not quite what it had been in 1889, when the initial cost – a good percentage of it came from Eiffel's own pocket – had been recouped from ticket sales in a few months. There were half as many visitors in 1900, but they still numbered a million. Eiffel's book, 'La Tour de trois cents mètres', two volumes of a grandeur commensurate with the structure itself, was published that year. In it he explained and illustrated in the fullest possible detail the tower and its construction. Every rivet is drawn, every piece of iron dimensioned. The pumps and pistons of the hydraulic lifts are there in plan and section, as are the deep foundations and the structural ironwork. The plates have now been reprinted (Taschen, 160 pp., £69.99, October 2006, 978 3 8228 4148 8). On the drawings of the third level (left) one finds the 'logement de M. Eiffel' with its dining-room, kitchen and optical and physiological laboratories. The tower had been given an official life of ten years. Eiffel wanted it to be preserved and argued that it would make an ideal platform for experiments and observations in aeronautics and meteorology. (Its longevity was guaranteed when it became a radio transmitter.) The comprehensiveness of the book is compelling. All the information that would be needed to duplicate the tower is there. It almost looks as though it would be easy, given a suitably gigantic Meccano set. The building, done with great expedition, was the work of only 326 engineers, foremen and labourers – they are all named in Eiffel's text. Eiffel et cie – the engineers for the job were Maurice Koechlin and Emile Nouguier – drew on wide experience in bridge building. The contribution of the architect, Stephen Sauvestre, who brought a touch of suavity to the beams and trusses, is seen in particular in the arches which link the four uprights at first-floor level. Eiffel's ultimate defence of the industrial aesthetic was the usual one: 'The very conditions that give strength also conform to the hidden rules of harmony.' It is possible to let the eye scan these plates, enjoying the complexity without reading them. For those who remember cutaway drawings of warships in the 'Illustrated London News' or enjoy following the drive chain in an axonometric of a car engine, for those who take pleasure in working out how things work, Eiffel's plates are narratives in which cause and effect, stress and strain can be traced through girders and pipework. French engineering firms, like English brewers, are long-lived. Eiffel are still in business, and still building bridges. They were, for example, responsible, in part, for the construction of the new Millau viaduct. The summit of one pier, at 343 metres, is a little higher than the tower.