

**Factory Inspection.**—The report of M. Engel-Dollfus, in the name of the Association for preventing accidents from machinery, institutes some comparisons between the methods of inspection in Berlin, Pomerania, Saxony, Coblenz, Cologne, and Treves, Switzerland, and England. A bill prepared for the consideration of the Swiss Federal Assembly, contains the following article :

“Every person who wishes to establish or carry on a factory, or to alter a factory already existing, must first obtain permission from the cantonal authorities. He must furnish exact statements as to the kind of industry which he proposes to follow ; the plan, constitution and interior arrangement of his establishment ; the number of workmen to be employed ; and the nature of the materials which are to be manipulated ; in order that the authorities may satisfy themselves that the requirements of the law have been all observed.

“No factory can be opened or set in operation without the formal consent of the government.

“When the nature of the establishment will involve special dangers for the healths and lives of the workmen, or of the neighboring population, the authorities will grant a concession only under certain reservations.

“If, during the running of a factory, grave inconveniences are noticed, which evidently compromise the lives and healths of the workmen, the authorities should, without prejudice to the concession which has been granted, require the proprietor to take such measures as are necessary to remedy the evil, and fix, with due regard to all the circumstances, the time at which the necessary ameliorations must be introduced.

“If any controversy arises between the cantonal government and factory-proprietors, concerning the execution of this article, the federal Council shall decide upon the appeal which shall be submitted to it.

“The federal Council is further authorized to issue general directions upon any of the points which are embraced in the present article.”

The proprietors are represented as coöperating cordially with the Association, almost without exception, but the workmen are often reckless, and so set in old ways as to be slow to adopt any proposed improvements. Some idea of the character of the inspection may be found from the following summaries of the defects noticed in the year 1875.

The inspector for Pomerania reports examinations of a hundred manufactories, and changes in 137 cases, viz: 4 defensive guards to a piston rod, 5 balustrades about fly-wheels, 9 removals of work-benches from dangerous proximity to the engine, 7 balustrades added to staircases, 1 repair of a dilapidated stairway, 1 stairway condemned on account of proximity to machinery, 1 elevator wholly condemned, 11 elevators furnished with additional safeguards, 13 elevators condemned until they were supplied with automatic stops, 1 removal of a worn elevator chain, 8 guards at belt-opening through the floor, 1 guard for a crank near a passage-way, 2 dilapidated floors, 2 openings not guarded by balustrades, 12 defensive guards for wood-working machinery, 12 coverings for floor-shafting, 1 repair of an enlarged belt-opening, 6 special protections against danger from machines working under great pressure, 2 safeguards against danger in case of break in a wire cable, 2 reforms and removals of elevators, 2 violations of law in locating the purifying tanks of gas-works, 2 dangerous exposures to fire in gas-works, 1 defective gasometer, 2 violations of the provisions for the site of match-factories, 1 want of sufficient care to remove chlorine vapors, 7 workshops too crowded with workmen, 21 cases of defective ventilation.

The inspector for Saxony reports admonitions, as follows:

71 for faulty separation of steam-engine and fly-wheel, 70 for want of protection against danger from belts and cranks, 29 for want of protection against shafting and gearing, 16 for defective enclosure of elevators and hatchways, and 26 for want of balustrades to galleries or reservoirs, insufficient lighting, or non-enclosure of dangerous machinery.—*Bull. de la Soc. Ind. de Mulhouse, June, 1877.* C.

**Chemical Physics.**—The French Academy has been lately engaged in earnest discussion of some of the fundamental points of Chemical Physics. At the meeting of June 4, communications were presented on vapor-densities, by Sainte-Claire Deville; on the law of Avogadro, by Ad. Wurtz; on the atomic notation, in reply to M. Berthelot, by Ad. Wurtz; on atoms and equivalents, in reply to M. Wurtz, by M. Berthelot; on the law of Dulong and Petit, by M. Fizeau; and a reply to Fizeau, by Berthelot. Deville, in considering the cases where the vapor-densities vary with the temperature, states that "the movement of a material point, taken in the expanding material, may be accurately enough represented by a parabolic func-