

apprentice; Thomas Carlyle, draughtsman; Alfred J. Hill, draughtsman.

A TECHNICAL school is about to be established at Leicester, the main features of which will be to give instruction in the technology of spinning, and the technology of framework knitting. The governors of the Wyggeston Schools have given 1000*l.* towards this object, the Science and Art Department, South Kensington, has promised 500*l.*, 1000*l.* has been raised by subscription, and another 1000*l.* is all that is required to complete the scheme for the present. The movement has been undertaken by the Chamber of Commerce and the Rev. Canon Vaughan. Mr. Henry Mitchell, president of the Bradford Technical School, has received from the Worshipful Company of Clothworkers, London, an intimation to the effect that they have decided to give 300*l.* a year towards the maintenance of the school.

SCIENTIFIC SERIALS

Bulletin de l'Académie Royale des Sciences de Belgique, No. 5.—On the coralline origin of Devonian limestones of Belgium; reply to M. Dupont, by G. Dewalque.—Photography on the railway and in balloons, by R. Candez.—On surfaces of involution, by E. Weyr.—On the integration of a class of equations with partial derivatives of the second order, by F. G. Teixeira.—Note on a new method for measuring the resistance of batteries, by P. Samuel.

Journal de Physique, June.—Electrical phenomena of hemihedral crystals with inclined faces, by Jacques and Pierre Curie.—Historical researches on the standards of weights and measures of the observatory, and the apparatuses that have served in their construction, by C. Wolf.—Units adopted for absolute measures by the International Congress of Electricians, by H. Pellat.—Thermodynamic analogy of thermoelectric phenomena and the phenomenon of Peltier, by E. Bouty.—Assimilation of the experiments of Hall and Faraday to the effects of the gyroscope, by B. Elie.—Magnetic gyroscope, by A. Crova.

Atti della R. Accademia dei Lincei; Transunti, vol. vi., fasc. 12.—On the pigments of bile, by S. Moreggia.

SOCIETIES AND ACADEMIES

PARIS

Academy of Sciences, July 17.—M. Blanchard in the chair.—The following papers were read:—Report on a memoir by M. Ph. Gilbert on various problems of relative motion, by a Committee. This memoir is a study of the motion of gyroscope apparatus, viz. (1) Foucault's gyroscope; (2) the torse-pendulum, which the author modifies, getting a more sensitive form, the *barogyroscope*; this may be used instead of Foucault's instrument to prove the earth's rotation; (3) the top. The newest and most original part of the work is that relating to (2).—On a point of the theory of perturbations, by M. Radau.—Astronomical observations without measurement of angles, by M. Rouget. He designates them *circumzenithal*.—On the shock of a plane elastic plate, supposed indefinite in length and in width, by a solid which strikes it perpendicularly at one of its points, and which remains united to it, by M. Boussinesq.—On the variations of gravity, by M. Mascart. The idea of measuring variations of gravity at different points of the globe by the height of the mercury column which balances the pressure of a given mass of gas at constant temperature, M. Mascart has sought to realise, and he finds the method capable of great precision. He uses a kind of siphon-barometer with the short branch closed and holding CO₂, introduced at a pressure sufficient to balance a mercury column of 1 m., when the tube is vertical. The instrument is placed in a metallic cylinder filled with water, which is agitated by an air-current, and contains a thermometer measuring $\frac{1}{100}$ deg. The divided scale is fixed on the tube; one sees it by reflection on a gilt surface, which sends the virtual image into the axis of the tube, and the mercury is seen through the gold layer. Thus one can see, with a single microscope, the mercury-level and the corresponding division of the scale. M. Boussingault recalled having used a similar apparatus during his stay at Ecuador, near the mines of Marmato (1,600 m. alt.) Not finding any variation in the mercury column, he inferred there was no perceptible change in the intensity of gravity during the experiment.—On lightning conductors, by M. Melsens. In support of his system

of multiple conductors forming a sort of cage, he cites the experiment in which animals within a metallic cage are unharmed by discharge of a powerful battery of Leyden jars through the cage.—On the hydrate of sulphuretted hydrogen, by M. de Forcrand. A claim of priority.—Researches on the use of crusher-manometers for measurement of pressures developed by explosive substances, by MM. Sarrau and Vieille. They attached to the piston of the crusher a thin piece of leaf-steel to mark a rotating blackened cylinder; and the curve, at explosion, was compared with a sinuous trace made by a tuning-fork at the same time. Results are promised soon.—On the limiting degrees of nitrification of cellulose, by M. Vieille. Cotton wadding was put in 100 to 150 times its weight of nitric acid of various degrees of concentration and at 11°. The last nitrated product obtainable thus is mononitrated cotton (liberating 108 c.c. of bioxide of nitrogen); it is got from nitric acid with 3 eq. of water (density 1.450). By use of sulphonic mixtures, the author reached, as upper limit, a liberation of 214 c.c. of bioxide of nitrogen, nearly corresponding to the formula C₁₄H₂₉(NO₄)₁₁O₁₀.—Influence of compressibility of elements on compressibility of the compounds into which they enter, by M. Troost. The variation of the coefficient of compressibility of vapour of iodine appears again in the vapour of iodide of mercury.—On the derivatives of cupreous sulphites, by M. Etard.—On the gastric juice, by M. Chapoteaut. The aqueous solution of gastric juice (dried and washed previously with ether), treated with alcohol or sulphuric acid, gives a white precipitate, which appears to be the active principle of the juice; its composition is near that of albumen.—On the products of distillation of colophony, by M. Renard.—On a new class of cyanised compounds with acid reaction; cyanomalonic ether, by M. Hailer.—On two new antiseptics, glyceroborate of calcium, and glyceroborate of sodium, by M. Le Bon. The latter (and better) has the advantage over carbolic acid of being soluble in water in all proportions, and quite harmless. For disinfection, meat preservation, &c., its fitness is established.—On the industrial conditions of an application of cold to destruction of germs of parasites in meat destined for food, by M. Carré. With the author's apparatus as applied since 1876 in vessels for importation of meat from La Plata, &c., the cost price is slightly under 0.01 franc per kilogramme. The temperature of -40° or -50° applied for an hour or so is fatal to germs; this is reached in the domestic apparatus (with ammonia).—On the visibility of luminous points, by M. Charpentier. With equal brightness and distance this visibility is directly proportional to their surface, or the square of their diameter; with equal brightness and dimensions, inversely as the square of their distance from the eye; with equal dimensions and the same distance, directly as the illuminations.

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