

future proper state of society. He showed that even under the most favourable conditions of physique and surroundings population would so increase that migration would be an absolute necessity, the emigrants thus finding themselves in conditions totally different from those they left. They would stand face to face with the stern reality of change; a change so great they could not realize it. Help is called for; and science like a good genius, extends her hand. The dreamer and the dream are gone. Large as our world may be, it never has been, and we have no grounds for believing it ever will be, a universal paradise: and without it becomes so, the people of the dream can never become realities. We find not a single writing in the stones that records evidence of either uniform climate, uniform soil, or uniform conditions of any kind whatever conducing to the perfection of existence either among the lower or the higher classes of animals. The very factor so necessary to the perfection of type, viz., health, is the great factor of productiveness; and this productiveness is the factor of destruction by overcrowding. Over and over again has this been recorded on the rocks.

Man has not only spoiled many of the sites which his ancestors wisely selected as vantage grounds against the foe, the flood, and the drought; but is hourly spoiling his own form by his artificial habits, and laying at the same time the foundation for a still further departure from a natural standard in his offspring. He is polluting the soil on which his habitations stand, he is befouling his water-courses and springs, and he is poisoning the air he breathes. He has thus created surroundings from which he can with difficulty escape. "Now I hold," Mr. Haviland said, "that any institute established for the purpose of teaching us the science of living in a cleanly and wholesome manner—as regards water, air, and soil—should first of all teach in its schools what has already been taught by such men as I have mentioned, as a wholesome restraint against the pride which a little knowledge engenders. Before we can boast of any sanitary science, let us be able to point to our researches on the climates, the soils, the diseases we find at home and abroad in our vast colonies. Let the crust of the earth in various parts of the globe be thoroughly examined in its relation to diseases—recollecting that had not man been born, there are certain spots in this earth that produce certain specific poisons, the chemical constitution of which we know nothing. Such spots should be mapped, after having been thoroughly investigated as to soil and climate, for the use of emigrants, colonists, and those in command of our expensive but necessary soldiery."

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

CAMBRIDGE.—During Prof. Maxwell's illness, Mr. W. Garnett is lecturing for him at the Cavendish Laboratory, on Voltaic Electricity, Electro-magnetism, and Electric Measurements; the lectures are experimental. Mr. Garnett is also giving a more elementary experimental course of lectures on Mechanics and Hydrostatics, adapted to candidates for the First M.B. and First Part of the Natural Sciences Tripos. Prof. Stuart's workshop will be open for pupils this term at the New Museums. Practical instruction in the use of tools in wood or metal is provided, and further practical instruction for those who already have a sufficient knowledge of the use of the tools. During the present term his lectures will be on Mechanism. Mr. W. J. Lewis, M.A., Fellow of Oriel College, Oxford, has been incorporated as M.A. of Cambridge, and entered at Trinity College. Prof. W. H. Miller, F.R.S., Professor of Mineralogy, being in ill-health, Mr. W. J. Lewis has been appointed his deputy for twelve months, and Prof. Miller has assigned two-thirds of his whole annual stipend to his deputy. Mr. Lewis has for some time been working very assiduously in the Mineralogical Museum, and is now lecturing on Mineralogy, while in the Easter Term he intends to lecture on Crystallography and Crystallographic Physics. Next term Prof. Stuart's lectures will be on the Theory of Structures. Prof. Challis's lectures on Practical Astronomy are postponed on account of ill-health. Prof. Cayley will lecture this term on Differential Equations.

THE City and Guilds of London Institute for the Advancement of Technical Education, announce the opening of their technical classes, at Cowper Street School, Finsbury. In the section of applied physics, Mr. W. E. Ayrton will deliver a course of twelve lectures on "Some of the Practical Applications of Electricity and Magnetism," commencing on Monday, November 3, at 7 p.m. In that of applied chemistry, Dr. H. Armstrong, F.R.S., will deliver a similar course on "The First

Principles of Chemistry," commencing Wednesday, November 5, at 8 p.m. An inaugural lecture will be delivered by Mr. Ayrton, on Saturday, November 1, at 8 p.m., on "The Improvement Science can Effect in our Trades, and in the Condition of our Workmen." A class in connection with this for the study of blowpipe analysis and assaying, will be commenced next week at the Birkbeck Institution, by Mr. G. Chaloner, F.C.S.

SOCIETIES AND ACADEMIES

PARIS

Academy of Sciences, October 20.—M. Daubrée in the chair.—The following papers were read:—Researches showing the power, the rapidity of action, and the varieties of certain inhibitory influences of the brain on itself or on the spinal cord, and of this latter centre on itself or on the brain, by M. Brown-Séquard.—Discovery of a small planet, by Mr. Peters (telegram from the Smithsonian Institution).—Observation of the planet 206, Peters, at the Paris Observatory, by MM. Henry.—Observations of declination, inclination, and horizontal intensity in the basin of the Mediterranean, by M. de Bernardière. These observations were made during a voyage of the training-ship, *La Flore*, in 1878-79. The numbers for some twenty-six places are tabulated.—On whole functions, by M. Picard.—On the Laurent saccharimeter, by M. Laurent. Two improved models were presented, giving more light and distinctness, while the reflections in the tubes are suppressed.—New researches on the mode of union of cells of the mucous bodies of Malpighi, by M. Ranvier. These cells, formed of masses of protoplasm with nuclei, are united by protoplasmic filaments, which are common to them and each of which does not result from junction of two filaments placed end to end, nor is the nodule occupying their middle the mark of a junction or juxtaposition; it is an elastic organ, which allows of easy enlargement of the spaces destined for circulation of nutritive juices between the cells.—On asphyxial glycaemia, by M. Dastre. Cl. Bernard affirmed that a prolonged asphyxial state destroyed the glycogen of the liver, and made the sugar disappear from the blood. Some physiologists hold, on the contrary, that in accordance with Lavoisier's theory, sugar accumulates in the blood when the oxygen (for its combustion) is diminished. M. Dastre considers we must distinguish between the effects of rapid asphyxia, immediately consequent on withdrawal of oxygen, and the consecutive effects of slow asphyxia (such as wasting of tissues and exhaustion of reserves). Rapid asphyxia may be realised in two ways, making an animal breathe air confined in a closed vessel, or making it breathe in rarefied air constantly renewed. He tried both on dogs, and found the quantity of sugar in the blood to vary in contrary direction to the quantity of oxygen (less oxygen, more sugar).

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