

scopes telescopes, conditions of achromatism, interference and double refraction, polarization, spectrum analysis and colour-sensation. These lectures are experimentally demonstrated. Text-book (first year only), Ganôt's "Physics" (abridged edition); first and second year, Ganôt's "Physics" (complete edition).

*Applied Electricity.*—A student who wishes to obtain a certificate as Expert in Applied Electricity or Telegraphy must attend the following course of instruction and pass a satisfactory examination upon it, and obtain certificates for—chemistry, elementary; mathematics—logarithms, simple equations, elements of plane trigonometry; freehand drawing; English and bookkeeping. One year's course of study. Wednesday, at 8 p.m. Syllabus: Frictional electricity, the voltaic pile; current, its detection, effects, and measurement; conduction and resistance, electro-magnetism; induction; the principles underlying and detail of construction of the following apparatus—galvanometer, electric bell, telephone, microphone, carbon transmitters, and dynamic machinery; the thermopile, BA units, lightning-conductors; secondary batteries.

*Telegraphy.*—One year's course of study. Thursday, at 6 p.m. Syllabus: The Morse system of telegraphy; theory of the voltaic cell; batteries used in telegraphy; current, conduction, resistance; the elements of electro-magnetism and induction, use of the galvanometer for faults and breaks, earth-plates, lines, connections; the principles underlying the instruments in use.

Text-book for applied electricity and telegraphy, "Lessons in Electricity and Magnetism," S. P. Thompson. Students wishing fuller information or advice should apply to the instructor in physics.

In the agricultural department the Board have examinations made by experts, free of charge, of specimens of diseased plants, supposed poison-plants, insects believed to be injurious to plants or animals, and other things forwarded to the Board which may be of use to those engaged in agriculture or mining. The agricultural laboratory contains diagrams, models, samples of soil, wool, appliances required for the agricultural, wool-sorting, and botany classes. Popular lectures are delivered by the instructor in the College-hall every week, admission being free. Lectures are also delivered in the country districts from September to March. Any agricultural society or school of arts committee may have, upon application to the Board, any two of the following lectures given, providing that they provide the hall and lights and advertise the lecture effectively. The lecturer has further instructions to examine soils, &c., of the district in which he is lecturing, and give all information.

*Course of Popular Lectures on Agriculture.*—1, Science and practice of agriculture in Australia; 2, soils, Australian, their nature and constituents; 3, soils and their relation to the indigenous vegetation for pasture and for farming; 4, some native grasses; 5, timbers of New South Wales; 6, botany, and study of the indigenous vegetation of the country; 7, mechanics of agriculture, tools, implements, &c.; 8, agricultural divisions of the colony, the rainfall and winds; 9, stock-raising; 10, cultivated grasses and pastures; 11, sheep and wheat-farming; 12, our competitors in the wool-trade; 13, grain-crops, wheat, barley, oats, rye, their diseases, &c., including the nature of wheat-rust; 14, maize as a crop, its nature, diseases, &c.; 15, wool-sorting; 16, droughts—water-supply and water-storage; 17, draining and irrigation, Californian and Australian practice; 18, pumps and machines for raising water; 19, grape-culture for table use, wine, and raisin-making; 20, fruit-farming, budding, grafting, &c.; 21, our fruit-soils, their defects, diseases of fruits, insect enemies, &c.; 22, fruit-preserving, raisin-making, &c.; 23, ordinary crops of New South Wales; 24, sugar-farming and manufacture; 25, tobacco- and arrowroot-farming and manufacture; 26, fibre-yielding crops; 27, veterinary practice; 28, dairying, with nature of siloing, and crops for cow-feeding; 29, pig-feeding, bacon, hams, &c.; 30, fencing and fencing-materials, &c.; 31, manures—how to make and to use them; 32, poultry-farming for New South Wales; 33, bee-farming and honey-making in Australia; 34, insect pests on plants and animals; 35, harvesting and storing Australian crops; 36, flower-gardening for town and country; 37, old crops with new faces; 38, science in farming—is it profitable?

These lectures are of a popular character, and are interesting, as well as instructive. Diagrams or blackboard-illustrations are employed when practicable. The Board also offer to agricultural societies and other bodies in the country districts to educate pupils sent by them, free of charge, in all available classes of the Board at the Sydney College. A portion of land near Sydney has been set aside for the purpose of treating with artificial manures.

The department of applied mechanics is ably conducted by Professor W. H. Warren, of Sydney University. I found upon my first visit about twenty students engaged in machine-drawing, preparing working-drawings to scale of details of machinery and engines from copies, and in many cases from the actual model. The work of the students in this section seemed thorough. The rooms are well supplied with models (principally Schroeder's) and a large number of diagrams. The ventilation of the rooms was extremely bad, and must be injurious when such large bodies of students are at work. At my second visit Professor Warren was lecturing to about thirty students in applied mechanics, and I must say, as a class, I found a greater amount of energy and enthusiasm displayed than is usual in such classes. The clear and concise remarks and clever blackboard-illustrations of the professor, however, will no doubt account for the amount of appreciation shown by the students. Professor Warren informed me that a large number of students have distinguished themselves in connection with these classes. Several have already received good appointments, one student having just been sent to Melbourne at the request of an engineering firm, to be employed in the construction of one of the large new bridges now being built in that city.

The workshops are situated in Kent Street, and are fitted with special appliances of the latest type. The whole of the machinery and fittings were designed, obtained, and erected by and under the personal supervision of the Vice-President of the Board (Mr. Norman Selfe). The arrangements in connection with the fittings and machinery are admirable, and admit of extension to much larger premises.