

of the Zoological Society. The bird bones belong chiefly to sea-birds — penguins, cormorants, mutton-birds, petrels, and gulls, but there are others of great interest. These are the extinct wood-hen (aphanapteryx), a coot, a crow, and a swan, none of which now inhabit the Chatham Islands, or even New Zealand. But perhaps it is quite as interesting to notice the complete absence of bones of the kiwi and moa.

The printing press presented by Mr. Seager has been put up in the office, and Mr. Colclough has just commenced printing new labels to replace the written ones.

In conclusion, I have to thank the Inspector of Police for allowing a constable to be present in the Museum on Sunday afternoons.

### 3. SCHOOL OF ENGINEERING AND TECHNICAL SCIENCE.

TABLE OF LECTURES, First Term, 1892, commencing Monday, 28th March.

#### MECHANICAL AND CIVIL ENGINEERING.

Subject.	Time.	Fee for Term.
Freehand mechanical drawing ...	Wednesday ... 7 to 9	0 10 6
Descriptive geometry ...	Monday ... 7 " 9	0 10 6
Descriptive geometry (advanced) ...	Monday, Wednesday, and Friday 2 " 4	1 5 6
Mechanical drawing ...	Monday and Wednesday ... 7 " 9	1 1 0
Mechanical drawing (advanced) ...	Monday, Wednesday, and Friday 2 " 4	1 5 6
The steam-engine ...	Friday ... 8 " 9	0 10 6
Applied mechanics ...	Tuesday ... 7 " 8	0 10 6
Mechanics of machinery ...	Thursday ... 8 " 9	0 10 6
Strength of materials in construction ...	Tuesday ... 8 " 9	0 10 6
Principles of civil engineering ...	Tuesday ... 7 " 8	0 10 6
Building construction ...	Thursday ... 7 " 8	0 10 6
Building construction (advanced) ...	Thursday ... 8 " 9	0 10 6
Surveying ...	Friday ... 7 " 8	0 10 6
Surveying (advanced) ...	Friday ... 8 " 9	0 10 6
Surveying (field-work) ...	Saturday ... 3 " 5	0 10 6

Any student attending more than one class will be allowed a remission of 2s. 6d. on each fee after the first.

#### SYLLABUS OF LECTURES.

##### *Freehand Mechanical Drawing.*

Freehand sketching of standard mechanical details from diagrams; sketching from models; sketching from portions of machines for the production of working drawings.

##### *Descriptive Geometry.*

Use of drawing instruments and scales; setting out the ellipse, hyperbola, parabola, cycloid, and other curves; setting out cams and the teeth of wheels; elementary projection; projection of solids; development of flat and curved surfaces.

##### *Mechanical Drawing.*

Applications of geometry to problems in wood-, iron-, and stone-work; preparation of working-drawings; Drawing-office practice; designing bridges, roofs, buildings, machines, and engines; colouring, printing, &c.

##### *The Steam-engine (Section A).*

Early forms of steam-engines; the improvements of Watt; the separate condenser; nature of heat; conversion of heat into work; experiments of Davy, Rumford, and Joule; mechanical equivalent of heat; specific heat; transmission of heat; latent heat; water required for condensation; laws of Boyle and Charles; expansion of steam; superheating; the steam-jacket; the compound engine (triple and quadruple expansion); the surface condenser; the crank and connecting-rod; the slide-valve: lap; lead; various types of valves; designing valve-gear; Zeuner's diagrams; automatic expansion-gears; link-motion; valve-setting; the governor; the indicator; I.H.P.; brake H.P.; details; types of stationary engines; types of marine engines; steam-generators; most efficient types; strength of steam-boilers; rivetted joints; boiler-mountings; Giffard's injector; the locomotive engine.

##### *Applied Mechanics.*

Force, matter, velocity, laws of motion, energy, inertia; composition and resolution of forces; theory and applications of the lever, wheel, and axle; pulley; inclined plane and screw; screw-threads; work; friction; friction of a journal, of a pivot; rolling resistance; frictional dynamometer, friction grips, clutches and gearing; anti-friction contrivances; use of wheels in trains; testing and weighing machines; centre of gravity; circular motion; the conical pendulum; various forms of governors; equilibrium and pressure of fluids; measurement of fluid pressure; velocity of efflux; the jet-pump; Giffard's injector; lift-pumps; force-pumps; deep-well pumps; pumps for exhausting and compressing gases; hydraulic machinery.