

“Geology and Geological Surveying.”

“Physical Geology.”—The earth as a planet, its form and motions; geological climate; the atmosphere; ocean; solid crust; the interior of the earth.

“Dynamical Geology.”—Metamorphism; agencies modifying the crust of the earth—atmospheric, aqueous, chemical; weathering; sedimentation; classification of deposits—mechanical, aqueous, organic, and chemical; denudation and erosion.

“Structural Geology.”—Stratification; jointage; contortion; faults; conformity; unconformity; dip and strike; cleavage; metamorphic rocks; intrusive sheets, bosses, dykes, fissures; formation of quartz-veins, lodes, and metallic deposits; dynamics of lodes; recovery of lost lodes.

“Geological Surveying.”—The practice of running natural sections; noting dip, strike, and inclination of strata and lodes; mapping geological formations; collection of mineral and rock specimens.

“Stratigraphical Geology.”—Classification of plants and animals; fossils; blending of species; geological record; the study of characteristics, life, and distribution of formations from archæan to recent times, with special reference to the geology of New Zealand.

“Mining.”

“Shafts: Selection of site, size, modes of excavation in dry and wet rock, wet sand, and swamp; timbering of shafts; ladders; chambers—size, excavation, timbering; levels and drives—size, excavation, timbering; securing sets or inclines; modes of stoping, height, and timbering of stopes; main passes—size, timbering, division; mullock passes—size, timbering, distance apart. Pumping and pit work—pumps and engines used in metal-mining, force-pumps, plunger-pump, draw-lift, fixing pump-pieces, bearers, friction-rollers, V-bobs, balance-bobs, main rods, flat rods, clacks, buckets, bucket-rod, catches, staples, and glands; thickness of pipes; capacity of pumps. Ventilation—atmospheric pressure, vapour density; ventilation of drives and underground workings by natural and artificial means; furnaces, water-blasts, fans; division of air-courses; noxious gases met with in metal- and coal-mines, their composition and detection. Explosives—their use in quarries and mines, relative strengths, action, gases evolved, composition; charging bore-holes; firing explosives; quantity to be used. Hauling and winding—safety-cages; man-engines; strength of ropes; strength of timbers. Water-power—turbines, pelton-wheels, calculation of horse-power and flow of water from boxes and nozzles.

“Text-book used: Gordon’s ‘Miner’s Guide,’ 5s.; Government Printer.

“Land and Mine Surveying.”

“Adjustments of theodolite, dial, level; chain and steel tapes; traversing with theodolite and dial; connecting survey with standard meridian; ranging lines; division of land; computation of areas by latitudes and departures; reduction of slope-measurements; off-sets; chaining; computation of co-ordinates; balancing survey; plotting survey and off-sets. Mine-surveying: Different methods of connecting underground with surface meridian; magnetic variation; to reduce magnetic meridian to true meridian; conducting underground traverse with theodolite and dial; correcting magnetic survey by method; back- and fore-sights; holing. Mathematics: Equations; logarithms; plane trigonometry; solution of triangles; calculation of last or connecting line; of distance from working-face to nearest point on boundary of lease. Levelling: Recording levels; practice with level and staff; grading roads, tramways, and water-races; plotting and striking grades.

“Practical Astronomy.”

“The ecliptic; equinoxes; meridians; longitude; latitude; altitude; declination; right ascension; azimuth; use of Nautical Almanac; polar distance; zenith distance; hour-angle; sidereal time; mean time; solar time; parallax; refraction; retardation; acceleration; convergency of meridian; determination of meridian by star- and sun-observations, by single altitudes; greatest elongation of circumpolar stars; use of star-charts; calculation of hour-angle, azimuth, and altitude of celestial bodies for any time and place; determination of latitude by meridian altitudes; determination of time by star transits and sun-observations.

“Physics.”

“Fundamental ideas of matter and energy; conditions of matter; gravitation; mechanical powers; sound; light; heat; magnetism; electricity; chemistry; physiology, and health.

“Mechanical Drawing.”

“Use of scales; printing and lettering; outline drawing; shading; colouring; drawing to scale from copies and objects, portions of machinery, and woodwork, showing plans, elevations and sections.

“Scale of Charges for Public Assays and Analyses.”

			£	s.	d.
Bullion assays	...	...	...	0	5 0
Assay of quartz, tailings, or concentrates	...	...	...	0	5 0
Examination and determination of rocks and minerals	...	...	...	0	5 0
Assay of lead- and tin-ores, each	...	...	...	0	5 0
“ iron- and manganese-ores	...	...	...	0	10 0
“ copper- and antimony-ores	...	...	...	0	10 0
“ zinc-, mercury-, and bismuth-ores	...	...	...	0	10 0
“ gold- and silver-ores, with parting assay	...	...	...	0	5 0