

former years, and the owners of all the parcels treated have expressed themselves well satisfied with the results.

“SYLLABUS OF LECTURES AND INSTRUCTION, 1891-92.

“Practical Assaying and Metallurgy: Lecturer and instructor, the Director. Tuesday, Wednesday, Thursday, and Friday.

“Practical Chemistry: Lecturer and instructor, the Director. Tuesday, Wednesday, Thursday, and Friday.

“Theoretical Chemistry: Lecturer, the Director. Monday and Saturday.

“Mineralogy and Blow-pipe: Lecturer, the Director. Laboratory—Monday and Thursday; field—Wednesday.

“Geology and Geological Surveying: Lecturer and instructor, the Director. Laboratory—Monday and Thursday; field—Wednesday.

“Mining: Lecturer, the Director. Laboratory—Thursday; field—Wednesday.

“Land- and Mine-surveying: Lecturer and instructor, the Director. Laboratory—Monday; field—Tuesday and Friday.

“Mechanical Drawing: Instructor, E. F. Adams, M.E. Friday.

“*Practical Assaying and Metallurgy.*

“Fuels, appliances, fluxes, &c., used in the dry assay of ores of gold, silver, lead, tin, antimony, copper, &c. Assay of gold, silver, and lead bullion, and wet assay of ores of iron, copper, lead, zinc, antimony, bismuth, arsenic, manganese, &c. Preparation of pure silver; litharge assay; melting and refining base bullion; amalgamation; retorting. Text-book, ‘Berringer’s Assaying.’

“*Practical Chemistry.*

“Chemical manipulation; acids; reagents; group reagents; separation of metals; properties of metals; testing solutions; testing rocks and minerals; solution of mineral substances; analysis of simple substances; analysis of compound substances; quantitative analysis of sulphides and complex ores, coals, soils, waters, slags, limestones, &c.

“*Theoretical Chemistry.*

“Principles of chemistry; atoms; molecules; vapour density; quantivalence; chemical formulæ; the elements—their history, occurrence, preparation, properties, and uses; compounds of the elements: their occurrence, preparation, properties, and uses.

“*Mineralogy and Blow-pipe Determination.*

“Systematic mineralogy; properties of minerals—their cleavage, hardness, specific gravity, &c.; optical properties—refraction, reflection, double reflection, polarisation, lustre, phosphorescence; chemical properties—the application of the blow-pipe, supports, reagents, flame reactions, colour tests with borax beads, &c.; isomorphism, pseudomorphism, and allotropy; distribution and paragenesis of minerals; classification of minerals—chemical system, economic system; descriptive mineralogy—non-metallic division, carbon group, haloids and salts, alkaline earth group, silicates, aluminates, with a description of the principal minerals of each group, aided by hand-specimens; metallic division—a description of the principal ores and compounds of the different metals, their occurrence, hardness, specific gravity, crystallographic form, colour, lustre, streak, composition, uses, distribution, &c.

“Crystallography: The six systems, their axes, typical forms, modified forms, holohedral and hemihedral forms, macles, reading of faces, &c.

“*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; mode 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