

friable coal, lustrous; does not soil the hands; does not swell up on heating; dark-brown streak; ash white. Sulphur, 0·5 per cent.

Analysis of Hikutaia Rock. (E. J. Banks and H. Croucher.)

SiO₂, 64·20 per cent.; FeO, 7·46 per cent.; Al₂O₃, 10·69 per cent.; MgO, 6·21 per cent.; CaO 2 per cent.; MuO₃, 0·56 per cent.; Na₂O, 3·93 per cent.; K₂O, 1·47 per cent.; moisture, at 100° C. 0·84 per cent.; loss on ignition, 2·66 per cent.: 100·02 per cent. The rock was black in colour, partly decomposed, and greasy to the touch.

Analysis of Rock from Thames at Depth of 400 ft., in Deep Sinker. (W. A. MacLeod.)

SiO₂, 54·12 per cent.; Al₂O₃, 3·36 per cent.; FeO, 13·57 per cent.; CaO, 6·53 per cent.; MgO, 1·56 per cent.; K₂O and Na₂O, 2·74 per cent.; moisture, 10·74 per cent.; loss on ignition, 7·44 per cent.: 100·06 per cent. The sample was brown-red in colour, showed slickensided faces, was greasy to the touch, and appears to be a crushed andesite.

SYLLABUS OF INSTRUCTION.

The following is the syllabus of instruction followed during 1897–98 :—

General and Mining Geology.—(Lecturer, the Director, Mr. F. B. Allen, M.A., B.Sc.)

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 characteristic life, and distribution of formations from archæan to recent times, with special reference to the geology of New Zealand.

Mineralogy and Blowpipe Determination.—(Lecturer and Instructor, the Director.)

Systematic Mineralogy.—(1.) Physical properties of minerals, their hardness, specific gravity, &c. (2.) Optical properties—refraction, reflection, polarisation, lustre, phosphorescence. (3.) Chemical properties. (4.) The application of the blowpipe, colour-tests, &c. (5.) Isomorphism, pseudomorphism, and allotropy. (6.) Distribution and paragenesis of minerals. (7.) Classification of minerals—chemical, economic.

Descriptive Mineralogy.—(1.) Non-metallic division—carbon group, &c. (2.) Metallic division—a description of the principal ores of the common metals, and their New Zealand localities and modes of occurrence.

Crystallography.—(1.) The six systems, their axes, typical forms, modified forms, &c. (2.) Holohedral and hemihedral forms. (3.) Reading of faces.

Mathematics.—(Lecturer and Instructor, Mr. W. A. MacLeod, B.A., B.Sc.)

Arithmetic (including the simple rules).—Weights and measures (those bearing on mining and assaying), greatest common measure, least common multiple, vulgar fractions, decimal fractions, proportion, problems.

Algebra (Hall and Knight's Algebra).—The meaning and use of the various signs and symbols, the simple rules, greatest common measure, least common multiple, fractions, factors, symmetry, problems containing one unknown, simultaneous equations, quadratic equations, simultaneous equations with more than one unknown, problems involving quadratics and the use of several unknowns, practice in the use of formulæ and their transposition.

Euclid.—The first four books (Todhunter), including the definitions and axioms.

Land- and Mine-surveying.—(Lecturer and Instructor, the Director.)

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; obstacles to alignment.

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 of 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; calculation of contents of earthworks by prismoidal formula; grading with Abney or reflecting level.