

6. Modes of gaining access to underground workings.
7. Lighting underground workings; description of the most approved safety-lamps.
8. Draining of mines of water; adits, pumps, pumping engines, water-pressure engines.
9. Ventilation of mines, its principles and modes of achievement; natural ventilation, artificial ventilation; various approved ventilators; distribution of air through the workings.
10. The mechanical preparation or dressing of ores; machines and appliances.

MINERALOGY.—Professor Ulrich.

1. Crystallography; systems of crystallization; laws determining modification of crystals; compound crystals; pseudomorphous crystals; description and use of goniometers.
2. Physical properties of minerals, discussed as far as essential to recognition and practical distinction of the various mineral species.
3. Chemical composition of minerals.
4. Classification and description of the more important species and varieties of minerals; their modes of occurrence, association, and geographical distribution, with special consideration of those that are of economic value, as ores, in jewellery and in the coarser arts, or of interest in a geological or physical point of view.

These lectures will be illustrated by specimens intended for close inspection.

Text-book: E. S. Dana's Text-book of Mineralogy.

SCIENTIFIC USE OF THE BLOWPIPE AND DETERMINATIVE MINERALOGY.—Professor Ulrich.

Instruction in the use of the blowpipe; reactions of elements; oxides and acids; determination of artificial inorganic compounds, to be succeeded by that of important metallic and earthy minerals, with aid of their crystalline form and physical properties. Experienced students, on providing themselves with the necessary apparatus, will also receive instruction in executing assays for gold, silver, lead, copper, nickel, cobalt, &c., by means of the blowpipe.

Text-books: Guide to the Determination of Minerals by means of the Blowpipe, by Dr. Fudis, translated from the German by T. W. Danby, M.A.; Manual of Determinative Mineralogy, by Professor Brush; Plaitner's Manual of Qualitative and Quantitative Analysis with the Blowpipe, translated by Professor H. B. Cornwall.

PETROGRAPHY.—Professor Ulrich.

Description of the characters of the rocks composing the earth's crust. Discussion of the different systems of classification proposed for the igneous, aqueous, and metamorphic rocks. Various methods for determination of the chemical and mineralogical constitution and minute structure of rocks, with special consideration and illustration of the use of the microscope in the examination of thin sections. Preparation and mounting of thin sections.

These lectures will be illustrated by specimens intended for close inspection.

Sub-Enclosure 4 to Enclosure 2 in No. 21.

REMARKS BY THE PROFESSORIAL BOARD.

It will be seen by an inspection of the foregoing synopsis that all the courses of lectures can be undertaken by the existing staff of the University, with the exception of the following: Physics, mine-surveying, and applied mechanics. As these, however, are all essential subjects, instruction in them will require to be provided by the Council before the School of Mines can be regarded as complete. As regards physics, the Board is aware that rooms have been designed for a Physical Laboratory in the building now in course of erection, and it does not doubt that it is the intention of the Council to furnish the Laboratory with the requisite instruments immediately on its completion, and to provide the necessary teaching-power. The urgent need for doing this becomes the more evident when it is considered that, not merely is a class of physics an indispensable element of a School of Mines, but also that the want of it has been noted as a conspicuous defect in the Arts curriculum. It is proposed that the course of instruction in mine-surveying shall occupy three hours a week, and shall be attended by students of mining during their second year, so that it will be necessary for the Council to make arrangements for the delivery of lectures on this subject before the commencement of the session of 1880. It may be deserving of consideration by the Council whether the lecturer to be appointed should not also be required to give lectures on general surveying, which would be useful, and which might be expected to be attractive, to persons preparing themselves for the surveying and engineering professions. As the lectures on applied mechanics—by which term is meant the construction and working of common machines, and more particularly the steam-engine—are set down for the third year of the course, it will not be necessary to appoint a lecturer on this subject until the opening of the session of 1881. It is assumed that provision will be made for instruction in drawing by an arrangement with the Dunedin School of Art, the ordinary classes of which are quite as suitable for the purpose in view as would be special classes instituted by the University. Should it be considered desirable, there will be no difficulty at any time in providing short courses of lectures on the mining laws in force in the colony, and on the hygiene of technical pursuits.

At the proposed scale of charges the cost of instruction to the students will be extremely moderate—unprecedentedly so, the Board believes, in the case of schools which offer a complete preparation for remunerative professions. Thus, the cost of the whole three years' course of instruction in the first three divisions, qualifying for the Associateship of the School of Mines, will not be more than from thirty-seven to forty-two guineas; while the cost of the two years' instruction in the two last divisions, qualifying for the certificates of Mining Surveyor and Assayer, will amount only to twenty-four and thirty-one and a half guineas respectively. There can be no reason, therefore, on the