

Theoretical Chemistry.—(Lecturer, Mr. P. G. Morgan, M.A.)

Principles of Chemistry and Chemical Philosophy.—Atoms, molecules, vapour-density, quantivalence, chemical formulæ.

The Elements.—(1.) Their history, occurrence, preparation, properties, uses. (2.) Compounds of the elements, their history, preparation, properties, uses, &c.

Metallurgy of Gold and Silver.—(Lecturer, the Director.)

(1.) Ore-crushing and -pulverising machinery—*a*, rock-breakers; *b*, stamps; *c*, mills, rolls, &c. (2.) Metallurgy of gold—*a*, amalgamation on copper-plates, in pans, &c.; *b*, chlorination processes and operations; *c*, leaching processes (Cassels', &c.) (3.) Metallurgy of silver—*a*, smelting and amalgamating ores; *b*, smelting—reduction with lead and fluxes; *c*, amalgamation in pans with mercury—use of chemicals; *d*, leaching with solvents—sea-water or brine, ammonia, sodium hyposulphite, alkaline cyanides; *e*, oxidizing and chloridizing roasting.

Text-books: Eissler's "Metallurgy of Gold and Silver;" Gordon's "Mining and Engineering."

Physics.—(Lecturer, the Director.)

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

Practical Astronomy.—(Lecturer and Instructor, the Director.)

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 and 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.

Mechanical Drawing.—(Instructor, Mr. John Parr, B.Sc., M.E.)

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

Special Classes are held for the instruction of candidates for the Government mine-managers', battery superintendents', and engine-drivers' certificates. First term—First Monday in February to 30th April; second term—9th May to 20th August; third term—9th September to 20th December. Registration of membership—10s. per annum; class fees—5s. per term for each subject taken up.

Scale of Charges for Public Assays and Analyses.

	£	s.	d.
Bullion assays	0	5	0
Assays 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
Analysis of limestone and calcareous freestone	complete	1	0
	partial	0	10
" coals and fuels, each	0	10	0
" rocks and soils	complete	2	0
	partial	1	0
" fireclays and slags	1	0	0
" manures	2	0	0
" waters	complete	3	0
	partial	2	0
" nickel-, cobalt-, and chrome-ores	0	10	0
" concentrates	1	10	0
" complex sulphide-ores, &c.	1	10	0

Experimental Plant.

Reports of working tests of parcels of gold- and silver-ores, concentrates, and tailings, from 1 to 3 tons:—

(1.) By Cassel cyanide process: Wet- or dry-crushing—*a*, by percolation; *b*, by agitation. (2.) By amalgamated copper-plates. (3.) By amalgamation in pans: Wet- or dry-crushing—*a*, by raw amalgamation in charges; *b*, by Washoe process with chemicals (*a*, hot pan-amalgamation; *b*, after chloridizing roasting.) (4.) Chlorination: Small barrel tests.

Cost of treatment (minimum charge): £5 per parcel not exceeding 1 ton; £3 per ton for tailings.

During the year I have supervised two Government examinations for mining managers and battery superintendents. At the first one, in May, 1896, one Thames student sat for first-class mining manager's certificate and two for the battery superintendent's certificate, and all three were