and when not; transmission of pressure; Bramah's press; equilibrium of liquids of unequal density in a bent tube; the barometer; air-pump; water-pump, common and force; siphon.

ELECTRICITY: Voltaic cells, common kinds; chemical action in the cell; magnetic effects of the current; chemical effects of the current; voltameters; electroplating; astatic and tangent galvanometers; simple notions of potential; Ohm's law; shunts; measurement of resistance; electric light, arc and incandescent; current induction; induction coil; dynamo and motor; the joule and watt; electric bell; telegraph; telephone; elements of terrestrial magnetism.

One examination paper.

CHEMISTRY.

Chemical Theory. The study of the following elements, with their most characteristic compounds, in illustration of Mendelejeff's Classification of the Elements: Hydrogen; Sodium, Potassium; Magnesium, Zinc; Calcium, Strontium, Barium; Boron, Aluminium; Carbon, Silicon, Tin, Lead; Nitrogen, Phosphorus, Arsenic, Antimony, Bismuth; Oxygen, Sulphur; Fluorine, Chlorine, Bromine, Iodine; Manganese, Iron. Elementary Qualitative Analysis.

A practical examination shall be held in connection with this subject, a pure salt will be sent out for qualitative analysis, and the candidate shall be allowed the use of an analytical table.

One examination paper.

BIOLOGY.

1. ELEMENTS OF ZOOLOGY: Thorough examination of the external form, the gills, and the viscera of some common fish. Study of the prepared skeleton of the same. Demonstration of the arrangement of the muscular and nervous systems and the sense-organs, as far as these can be studied without the aid of the microscope.

Comparison of the structure of the frog with that of the fish. The skeleton of the pectoral and pelvic girdles and of the appendages of the frog, should be studied, and the chief facts in the development of its spawn till the adult form is attained should be observed.

Examination of the external form of a turtle and a snake.

Examination of the structure of a bird.

Study of the skeleton, and also of the teeth of a cat or dog.

Study of the crayfish as a type of the Arthropods.

Comparison of the crayfish with an insect (grasshopper, cricket, or cockroach); also with a millipede and a spider.

Examination of an earthworm.

Study of a fresh-water mussel.

The principles of zoological nomenclature as illustrated by some of the common fresh-water fish, such as the sucker and herring, bass and perch.