plant in its relation to soil, climate, animal life, and man; how the plant lives; the factors of growth; the food of plants, how and whence plants procure food; root-distribution. How plants are propagated; importance of a good seed-bed and of good seed; seed-testing; preparation and care of the seed-bed. How plants adapt themselves to and are influenced by their surroundings. The chief characters, management, and care of the principal crops; selection of suitable soils and situations; rotation of crops; objects of grafting and pruning; enemies of plants, preventives and remedies; intertillage of crops; eradication of weeds. Making new kinds of plants.

A candidate in General Agriculture will be required to forward to the Education Department, before the examination, a certificate on the form supplied by the Department that he has gone through a sufficient course of practical work in the subject occupying at least eighty hours.

(23.) *Agricultural Chemistry.*—The atmosphere, rain, dew, and their composition.

Soils: The origin, formation, and mechanical analysis of soils; the physical properties of soils; the chemical and physical properties of the constituents of soils; the effects on soils of weathering, of vegetable and animal life, and of tillage; the oxidation of organic matter in soils; the active or available and the dormant or reserve soil-constituents; the conditions necessary for the formation of the active from the dormant constituents, or promoting this formation.

Manures: Definition of manures; the principles governing their use; the properties and composition of the chief general, artificial, and manufactured manures; fermentation.

Plants: The organic and inorganic constituents; the proportions of water and solid matter. The ash of plants; the essential, non-essential, and useful ash-constituents; differences in composition between the ash of grain and that of straw or leaf. General composition of farm crops; chemical elements in the plant obtained from the air and from the soil; chemical actions in different parts of the plant; effects of light and heat; chemical changes during germination.

Animals: Chief organic and inorganic constituents of animal bodies; ash-constituents of blood, muscle, and bone; composition of fats; the general composition and values of ordinary farm foods and their uses in the animal body. The constituents of milk, cream, butter, and cheese.

A candidate in Agricultural Chemistry will be required to forward to the Education Department, before the examination, a certificate on the form supplied by the Department that he has gone through a sufficient course of practical work in the subject occupying at least eighty hours.

(24.) *Agricultural Botany and Zoology.*—The elementary morphology, anatomy, and physiology of plants; the functions of the members of the plant; pollination and fertilization; formation of seed; adaptations for protection and dispersal of seed; germination and growth; storage of food; general conditions of plant life; contention with physical environment; competition with fellows; variation. Description of gymnosperms used for timber in New Zealand, and of cryptogams that are parasitic upon higher plants and upon animals of economic value, with methods of prevention and cure. Classification of phanerogams, with special reference to those orders to which the more important trees, grasses, plants, weeds, &c., with which the agriculturist is concerned belong. The recognition, description, reference to their orders, and uses of such trees, &c. The prevention and destruction of weeds, with a special knowledge of impurities and adulterants, and the determination of the germinating power of seeds. The chief characteristics, geographical distribution, and general conditions of existence in respect to those orders of the animal kingdom to which the animals (including those injurious to agriculture) that are of economic importance to agriculturists belong. A knowledge of the external features, general structure, and mode of life of such animals. The means of destroying animals injurious to agriculture, or of holding them in check.

A candidate in Agricultural Botany and Zoology will be required to forward to the Education Department, before the examination, a certificate on the form, supplied by the Department, that he has gone through a sufficient course of practical work in the subject occupying at least eighty hours.