



SUPPLEMENT
TO THE
NEW ZEALAND GAZETTE
OF
THURSDAY, APRIL 2, 1914.

Published by Authority.

WELLINGTON, WEDNESDAY, APRIL 8, 1914.

Amended Regulations under the Public Service Act, 1912.

IN pursuance and exercise of the authority conferred on him by the Public Service Act, 1912, the Commissioner, with the approval of the Governor in Council, doth make the regulations set forth in the Schedule hereto, and doth amend the regulations now in force in the manner and to the extent also set forth in the Schedule hereto.

Such regulations and amendments, except where otherwise specified, shall have effect from and after the first day of April, 1914.

SCHEDULE.

REGULATION No. 27 is hereby amended as follows: By adding the word "or" before the word "Chairman" in the second line, and by omitting the words "or member" in the same line; and by adding the following proviso:—

"Provided that if an officer holds or is appointed to or elected to any office not forbidden by this regulation, and the Commissioner is of opinion that the duties of such office interfere with the due and proper discharge of his duty as an officer of the Public Service, the Commissioner may call on him to resign such outside office."

39A. If by reason of a change in the system of work or a rearrangement of duties the position held by any officer is rendered appreciably less or more important, the case shall be immediately reported by the Permanent Head to the Commissioner.

39B. Whenever it is found that an officer is not giving satisfaction in the performance of his duty or otherwise, he shall be informed in writing of the fact and of the direction in which he is failing. In the annual report furnished under Regulation 42, the Permanent Head shall mention the instances in which such notification has been given, and state what the effect has been.

Regulation No. 42 is amended by deleting the word "January," and substituting in lieu thereof the word "March."

Regulation No. 51 is amended by adding the proviso: "Provided that if an officer desires to accumulate leave he may be allowed to do so for two years only, subject, however, to his giving notice to the Permanent Head, when the annual leave schedule for the first year is being prepared, that he does not desire leave during that year. Such accumulated leave shall not in any case exceed forty-two days.

52A. In special cases special leave may be granted on such terms or conditions as the Commissioner may approve.

Regulation No. 53 is hereby amended by deleting the last sentence, and substituting in lieu thereof the sentence: "A schedule of such leave shall be furnished to the Permanent Head every two months, and the leave granted shall be shown in the annual leave schedule."

Regulation No. 55 is amended by striking out all the words from "sick-leave" in the third line down to "Commissioner" in the sixth line, and inserting the following:—

"Sick-leave," when granted by the Permanent Head, shall not be granted in excess of the scale of periods and rates of pay set out in the following schedule; and a report of all leave granted under this regulation shall be submitted every two months for the approval of the Commissioner."

55A. Whenever an officer is absent from duty on account of illness or accident for any period extending beyond three days, a medical certificate stating the nature of the illness or accident and the probable period of absence shall be furnished to the Permanent Head. The Permanent Head may, however, in his discretion, require that the medical certificate shall be furnished forthwith.

Regulation No. 101 is amended by omitting from the last paragraph the words "unless he is prepared without hearing evidence to decide in favour of the applicant."

Regulation No. 109 is amended by adding, after the word "sea," in the proviso the following words: "if the time occupied is more than twenty-four hours."

Regulation No. 110 is revoked, and the following regulation substituted in lieu thereof:—

"110. The allowance shall be for each day of twenty-four hours, and the day shall be deemed to commence at the hour of departure from headquarters. For any portion of a day the rate shall be one twenty-fourth of the full daily rate for each hour's absence; provided that, when the absence does not exceed six hours, actual and reasonable expenses only shall be paid."

"In computing the time of absence, a fraction of an hour, if less than half an hour, shall not be taken into account, but half an hour or more shall be reckoned as one hour.

"In any case special arrangements may be made by the Commissioner as to the allowance to be made to any person.

"Whenever the Permanent Head is satisfied that a lower travelling-allowance than the scale should suffice he may direct accordingly."

110A. An officer travelling by train from Wellington to Auckland or *vice versa* may claim, in lieu of the ordinary travelling-allowance, a refund of actual and reasonable payments made by him. Such claim may include the cost of a sleeping-berth, but if made shall cover a period of twenty-four hours from the time of departure, or the whole period occupied in travelling if such period is less than twenty-four hours.

Regulation No. 150 is amended by adding the following:—

"(l.) In the Lands and Survey Department, by the officers in charge of the works.

"(m.) The Magazine-keeper, Dunedin.

"(n.) The Conservator of Fisheries.

"(o.) The Gaoler in each prison.

"(p.) Inspectors of Rabbits and Noxious Weeds.

"(q.) In the Department of Defence (1) by the Quartermaster-General at Headquarters, and (2) by the Topographical Surveyor."

Regulation No. 155 is hereby cancelled, and the following regulation made in lieu thereof:—

"Subject to the provisions of section 40 of the said Act, no one not already in the Service shall be appointed—

"(a.) To the Professional Division unless he has passed an examination hereinafter called the 'Senior Examination,' which must include the compulsory subjects for the Department he desires to enter.

“(b.) To the Clerical Division unless he has passed an examination hereinafter called the ‘Entrance Examination’:

“(c.) To the General Division unless he has obtained the certificate of competency in Standard IV provided for by the regulations under the Education Act, 1908:

“Provided that in any case the Commissioner may accept an examination which in his opinion is equivalent to the one required.”

Regulation No. 161 is amended by deleting the last sentence, and inserting in lieu thereof the sentence: “No one shall be appointed to the Clerical Division unless his age at the time of appointment is not less than fifteen nor more than twenty-five years, and no one shall be appointed to the Professional Division unless his age is not less than seventeen years at the time of appointment.”

Regulation No. 161 is further amended by adding the following proviso after the words “section 40 of the said Act” :—

“And provided further that a member of the Military Branch of the Defence Forces who has passed the Entrance or Senior Examination may be transferred to the Civil branch of that Department, and may be admitted in such class or subdivision as the Commissioner thinks fit.”

Regulation No. 162 is amended by deleting the words “either the Professional or” in the first sentence.

Regulation No. 163 is amended by deleting the words “or Professional” from the first sentence. The regulation is further amended by deleting the second sentence, and substituting in lieu thereof the sentence: “By passing the Senior Examination, including the subjects required of Professional officers in any Department, an officer of the General or Clerical Division may qualify for promotion to the Professional Division of such Department.”

163A. The Commissioner may, if he thinks fit, from time to time transfer from the General Division to the Eighth or Seventh Class of the Clerical Division any person who has served for at least two years in the General Division, and who has passed the examination prescribed for candidates for appointment to the Clerical Division. Every person so transferred shall, so far as seniority for promotion is concerned, be placed at the bottom of the class to which he is transferred, but he shall be entitled to not less than the same salary as that which he received immediately before such transfer.

Regulation No. 172 is hereby cancelled, and the following regulation made in lieu thereof:—

“The syllabus and procedure for the Civil Service Senior Examination are adopted, and are to remain in force for all Senior Examinations until February, 1915.”

Regulation No. 173 is hereby amended by deleting the words “7th September in each year,” and inserting in lieu thereof the words “8th September in each year. The candidate’s notice may, however, be received between the 8th and the 15th September if it is accompanied with a receipt for a late fee of £1 paid to the Public Account at some branch of the Bank of New Zealand.” Regulation No. 173 is further amended by deleting the word “Commissioner,” and inserting in lieu thereof the words “Education Department.”

Regulation No. 177 is hereby amended by deleting the words “shall not exceed 2,400,” and inserting in lieu thereof the words “shall not exceed 2,200: Provided that if the number of marks assignable to the subjects taken by a candidate in accordance with this condition falls short of the total marks permissible, he may be allowed to select another subject, although the marks for this subject may make the possible maximum aggregate of marks for the subjects taken greater than 2,200, but in any such case the candidate shall be assigned such total marks only in the examination as shall bear the same proportion to 2,200 as his actual marks do to the possible maximum aggregate of the subjects taken by him.”

Regulation No. 177 is further amended by omitting all words after “elementary home science.”

Regulation No. 178 is hereby amended by altering the maximum marks in certain subjects as follows: In arithmetic, 400 instead of 600; in elementary practical agriculture, 400 instead of 300; in shorthand, 300 instead of 200; and in each of the subjects Drawing I and Drawing II, 100 instead of 200. The regulation is further amended by adding, after the subject Elementary Physical Science, the following

subject in Group II: "Elementary home science, 400"; and after the subject French, in Group III, "German, 400"; and by renumbering the subjects consecutively.

No. 181 is hereby amended by adding the following words: "The scope of the Entrance Examination is as follows:—

GROUP I.

(1.) *English*.—The requirements in English will be based on the programme of work prescribed for Standard VII in the Regulations for the Inspection and Examination of Schools, but will be more advanced in character; the paper will also contain questions on the programme of history and civics prescribed in the same regulations. Great importance will be attached to composition and to the comprehension of literary English.

(2.) *Arithmetic*.—The requirements will be based on the programme of work prescribed for Standard VII in the Regulations for the Inspection and Examination of Schools, and will include the fundamental rules; vulgar and decimal fractions; approximations; proportion; percentages (including interest, profit and loss); stocks; square root; cube root of numbers reducible to prime factors not greater than eleven; metric system; areas of plane rectilinear figures and of circles; mensuration of the prism, pyramid, sphere, circular cylinder, and circular cone. The use of algebraical symbols and processes and of graphical methods will be permitted.

GROUP II.

(3.) *Elementary Physical Science*.—Two papers: Section (a) of the following programme, together with one of the sections (b), (c), (d).

(a.) British and metric systems of measurement: Plotting curves. Measurement of lines and of areas of simple plane surfaces; measurement of the volume of regular and irregular solids and of liquids; the balance; tests of accuracy; methods of weighing; rules to be observed in weighing.

Experiments illustrating the properties of matter, the indestructibility of matter, the difference between physical and chemical change and between mechanical mixtures and chemical compounds. Very simple experiments illustrating the meaning of evaporation, condensation, filtration, diffusion, solution, and crystallization.

Density of solids and liquids; principles of Archimedes; specific gravity; flotation; the hydrometer and lactometer; the U tube; transmission of fluid pressure; water-level; artesian wells; the barometer; verification of Boyle's law; centre of gravity; methods of finding its position in very simple cases; stable, unstable, and neutral equilibrium.

The representation of forces; the spring balance; experimental and graphical determination of the resultant of concurrent forces and of parallel forces; moments of force; simple machines; lever; inclined plane; single pulley; common pump; the simple pendulum.

(b.) Measurement of expansion by heat of solids, liquids, and gases; transference of heat; thermometers; experiments on melting and solidifying points (paraffin wax, butter, water), on boiling-points, evaporation and condensation (water, salt solution). Measurement of heat; specific and latent heat of water treated very simply; propagation of light; pinhole images; shadows; photometry; laws of reflection and refraction of light with reference to plane surfaces; transmission of light through a plate, a prism, and a lens; formation of images by single convex lenses; the simple magnifying-glass; the spectrum.

(c.) Properties of magnets; methods of making magnets; induction; elementary notions of the magnetic field and lines of force; the earth as a magnet; dip; declination.

Electrification by friction and by induction; conductors and non-conductors; the gold-leaf electroscope and its use; distribution of electrification on conductors; hollow conductors; the electrophorus.

Elementary notions of the electric current, of the means of producing it, of its magnetic, heating, and chemical effects, of electromotive force and resistance. Ohm's law. The galvanoscope, its use in detecting changes in the strength of a current and in comparing (roughly) the strength of different currents and the resistances of different conductors. The voltameter; the glow-lamp.

(d.) Experiments illustrating the modes of chemical action; the examination of air; quantitative composition of air; proof of the presence of the chief constituents of air; the important properties of oxygen and nitrogen; the examination of water; hardness of water; quantitative composition and synthesis of water; important properties of hydrogen; water of crystallization (easy experiments).

The determination and graphic representation of the solubility of solids in water at different temperatures (easy cases).

An elementary study of coal, charcoal, and coke. The important properties of the oxides of carbon. Combustion. Structure of flame as shown in a candle and in a Bunsen burner.

Elements and compounds. The combining proportions of elements by weight and of gases by volume. The meaning and use of symbols and formulæ (not including equations). Easy calculations.

The nature and general properties of oxides, acids, bases, and salts.

The most important properties of carbon, sulphur, and phosphorus, of sulphur-dioxide, phosphorus-pentoxide, sulphuric acid, chlorine, hydrochloric acid, ammonia, and nitric acid. The bleaching action of chlorine compared with that of sulphur-dioxide.

An elementary study of the metals iron, magnesium, zinc, copper, and lead, with special reference to the oxides and to the interaction of these metals with the common acids. Reduction of metallic oxides.

An elementary experimental study of chalk, blue vitriol, common salt, sal ammoniac, and saltpetre.

The determination in easy cases of the weight of the materials required to yield or to combine with a given weight of a given substance.

The candidate will be expected to show that he has acquired by actual experiment, observation, and measurement his knowledge of the matters set forth in the sections of the above syllabus selected by him; but he will not be expected to show that he is familiar with other than the simple apparatus and appliances commonly used in connection with elementary instruction in practical physics in primary or secondary schools. He will be required to forward, before the date of examination, a certificate in the prescribed form that he has carried out satisfactorily a course of practical work based on the syllabus.

(4.) *Elementary Home Science*.—Two papers, (a) and (b):—

(a.) British and metric systems of measurement: Measurement of the volume of solids and liquids. Use of the balance, measuring-glass, pipette, and U tube. How to find the relative density of solids and liquids. Flotation; principle of Archimedes. Principle and use of hydrometer, lactometer. The atmosphere; Boyle's law, barometer, and suction-pump. Expansion by heat of solids, liquids, and gases. Thermometers. Conductors and non-conductors. How to find the melting-points of solids and the boiling-points of liquids. Transference and absorption of heat.

Simple experiments illustrating chemical action, the difference between chemical compounds and mixtures and between physical and chemical change. Solution, crystallization, emulsion. Simple experiments involving air and the light thrown on the properties of its constituents thereby. Oxidation and the formation of oxides. The occurrence in nature of carbon and its oxides. Combustion and incandescence. Simple experiments illustrating the properties and composition of water; the important properties of water and of hydrogen. Natural waters; hard and soft water; chief impurities of water; distillation; ice and steam.

An elementary study of sulphuric acid, of caustic soda and of chalk, common salt and blue vitriol as examples of acids, alkalis, and salts respectively.

(b.) Ventilation and hot-water systems: Appliances for heating rooms; the Bunsen burner and its application to gas-stoves. Appliances for lighting rooms; wax and safety matches; the gas-meter and its readings.

Simple experiments illustrating (a) the properties (1) on which the use for domestic purposes of the undermentioned materials is based, (2) which render the use of them under certain conditions objectionable or dangerous: Iron (cast iron, malleable iron, steel; tinned, galvanized, and enamelled plate), copper, brass, aluminium, silver, lead, and cleansing-agents in common use (soap, whitening, soda, ammonia, benzine, emery, &c.); (b) the properties of the more important materials of organic origin in common use for domestic purposes, such as fats, oils, glycerine, cane-sugar, starch, gluten, albumen, alcohol, acetic acid, and yeast. Saponification, fermentation, coagulation. Simple experiments and investigations bearing on the following topics: (1) The composition and action of baking-powder; (2) changes in foods as the result (a) of the application of heat, (b) of the action of the agents of digestion; (3) principles on which the various methods of cooking food are based; (4) the temperatures at which the various culinary processes are best carried out; (5) the proportion of water in different foods; (6) comparison of the weight of foods before and after cooking.

The candidate will be required to forward before the date of examination a certificate in the prescribed form that he has carried out satisfactorily a course of practical work based on the above syllabus.

(5.) *Geography*.—The requirements will be based on the programme of work prescribed for Standard VI in the Regulations for the Inspec-

tion and Examination of Schools, but will be somewhat more advanced in character. Special stress will be laid on physical geography.

(6.) *Elementary Practical Agriculture*.—The candidate will be expected to show (a) that he has a practical knowledge of the operations incident to the work of a school garden, and (b) that he has conducted experiments and observations bearing on the life and growth of plants, on the lines indicated below under the head of experimental and observational work:—

(a.) Work in the garden.—General: Preparation of the land; digging, trenching, hoeing, raking, and surface cultivation. Drawing drills. Sowing. Thinning, pricking off, hardening, and planting out seedlings. Methods of treating light and heavy soils. Fertilizers; the time of year and the condition in which to apply fertilizers; the selection of fertilizers for particular purposes. Use of lime, soot, clay, road-sweepings, ashes, leaf-mould, &c., as soil-improvers. Arrangement of the garden to the best advantage from the points of view of space, succession of crops, and weeding. The application of preventives and remedies for garden pests and diseases.

Special: Methods of plant-cultivation. Cultivation and management of plants selected from one or more of the following groups:—

- (i.) Green, pod-bearing, and tap-rooted vegetables, potatoes, onions, vegetable marrows, tomatoes. Gathering and storing of vegetables.
- (ii.) Flowering-plants (annuals, perennials, and bulbs). Method of propagating flowering-plants. Succession of crops.
- (iii.) Tree and bush fruits. The care of fruit-trees. The operations of pruning, budding, and grafting.
- (iv.) Cereals and other grasses, and fodder-plants generally.

(b.) Experimental and observational work. The seed: Parts of the seed. Conditions necessary for germination and growth. Testing the vitality of seeds. The collection and preservation of seed. Experiments illustrating the phenomena of germination and the establishment of the young plant (*e.g.*, absorption of moisture by seeds; temperature of and pressure exerted by germinating seeds; how seeds escape from their covers; how seeds get buried in the soil; how young plants get above the ground, and how they deal with obstacles met with during the process; how seeds on the surface get their roots into the ground; proof that germinating seeds take in oxygen and give out carbonic acid, &c.).

The root: The function of the root. Root-systems. The use of root-hairs and root-caps. Effect of injury to these parts. How roots grow. Experiments illustrating the work of roots (*e.g.*, relation between root-hairs and soil-particles; exploration of soil by roots in search of moisture; the quantity of water required by roots; use made by roots of mineral matters dissolved out of soil by water; the use of culture-solutions; proof that roots require air and give out carbonic acid, &c.).

The leaf: The general structure, forms, and functions of leaves. Seed-leaves and foliage-leaves compared. Transpiration. Respiration. Formation of starch. Experiments illustrating the work of leaves (*e.g.*, demonstration of the occurrence of water, air, and starch in leaves; behaviour of green leaves in sunlight and in the dark; how the rate of transpiration is controlled; the functions of the upper and lower surfaces of leaves compared, &c.).

The stem and buds: General structure and functions of stems. The "habit" of a plant. The habits of different plants compared. Twining and climbing plants. Peculiar forms of stems (potato, crocus, &c.). General structure of buds. Winter buds. Bud-scales. How the growing point is protected. Influence of temperature, moisture, and light on growth. Experiments on the work of stems (*e.g.*, effect on a plant of "ringing" the stem; how the sap circulates; demonstration of the presence of starch and sugar in stems, &c.).

The flower and fruit: The parts of the flower and their functions. Causes influencing the opening and closing of flowers. Pollination. Devices for the protection of pollen, for the prevention of self-pollination, and the promotion of cross-pollination. The formation of fruits. Different types of fruits. Devices for the protection of seeds from foes. Dissemination of seeds. Experiments on cross-fertilization.

The soil: How soil is made. The mechanical analysis of soil. The texture of soil. The soil as a sponge from which a plant may obtain water, as a storehouse of plant-food, and as a laboratory in which plant-food is prepared and dissolved. Experiments with soils (*e.g.*, how moisture is held in the soil; how the moisture-holding capacity of a soil may be increased; conservation of moisture; rate of evaporation at surface of different soils; how the texture of a soil may be improved; the selection and testing of fertilizers).

The care of plants. The principles of pruning. The enemies of plants. The life-histories of the commoner animal pests. How to preserve specimens of plants.

The candidate will be required to forward before the date of examination a certificate in the prescribed form that he has carried out satisfactorily a course of practical work based on the above syllabus.

(7.) *Elementary Dairy Science*.—The constituents of milk; causes of variations and of defects in the composition of milk; the physical and chemical properties of milk; the coagulation of milk; the composition of skimmed milk, separated milk, buttermilk, and cream; the uses and value of separated milk, buttermilk, and whey; methods of determining the fat in milk; acidity and the estimation of acidity; sampling; the care of milk; influence of temperature on milk; pasteurizing and sterilizing milk; objections to the use of chemical preservatives; conveyance of milk; milk as a medium for conveying disease.

Methods of raising and separating cream; the ripening of cream; use of starters; the process of churning; composition of butter; washing, working, and salting butter; common faults in butter.

A very elementary knowledge of the general anatomy and physiology of the cow, with special reference to the parts concerned in nutrition and milk-production; the care, management, and feeding of dairy cows and calves.

The candidate will be expected to show that during the course he has acquired a knowledge of elementary chemistry and physics sufficient to enable him to understand (a) the principles of the apparatus and appliances, and (b) the processes used in the study of milk.

The candidate will be required to forward before the date of examination a certificate in the prescribed form that he has carried out satisfactorily a course of practical work based on the above syllabus.

(8.) *Elementary Hygiene*.—Elementary hygiene, physiology, and "first aid," as follows: General idea of the cell as a unit of tissues and organs of the body; division of labour.

The general form and external characters of the body; the form and relative positions of the parts of the skeleton and of the chief muscles, organs, great blood-vessels, and nerve-trunks, with special reference to those parts which can be recognized externally.

The mode of attachment and action of muscles. The structure and mechanics of the principal joints. The distinguishing characters of cartilage, bone, tendon, ligament, and muscle.

Signs of fracture and first aid to be rendered in such accidents; treatment of bruises and sprains; bandaging.

The arrangement of the alimentary canal. The chief foodstuffs and the chemical elements they contain. Examples of the occurrence of proteids, gelatine, starch, sugar, and fat in articles of food. The form in which nitrogen, hydrogen, and carbon enter and leave the body. Changes produced in foods during their passage through the alimentary canal; the scene of and the agents causing these changes. How and where the products of digestion are absorbed, and how they are distributed through the body; waste products; excretion.

Care of the mouth and teeth. General composition, relative value and digestibility of the more important food substances and beverages; importance of good habits of eating and drinking; effects of exercise on digestion. The effect of stimulants; harmful effects of alcohol. The mechanics of respiration and circulation; differences between inspired and expired air, between venous and arterial blood, and between blood and lymph. The physical composition and functions of blood. The general differences between arteries, capillaries, and veins, and in the flow of blood therein.

The factors influencing the amount of the expiratory output of carbonic acid. The chief sources of heat-production in the body; the mean temperature of the body in man, and the chief agents keeping it uniform. The general structure and functions of the skin. The importance of cleanliness and of sanitary habits; washing and bathing; materials of clothing; body and bed clothing. Composition and impurities of air; breathing-exercises; artificial respiration and its application in cases of drowning or suffocation. Treatment of cuts and wounds; points where the main blood-vessels may be compressed. Treatment of faints, burns, scalds, bites; stings and poisoning. A general knowledge of the arrangement of the nervous system as a whole; an elementary knowledge of the functions of the brain and spinal cord; the distinction between motor and sensory nerves as regards the parts to which they go and the results produced by nervous impulses through them.

The candidate will be expected to be familiar with the more important steps to be taken in dissecting, say, a rabbit, and he may be

required to recognize and describe parts of the animal-body from specimens or photographs. He will further be required to forward before the date of examination a certificate in the prescribed form that he has carried out satisfactorily a course of practical work based on the above syllabus.

(9.) *Elementary Geology*.—The composition, form, size, and heat of the earth. Divisions of rocks: igneous, sedimentary, metamorphic. Rock structure: lamination, stratification, false bedding, cleavage, foliation, joints, columnar jointing. General characters and composition of the following groups of minerals, with special reference to their New Zealand localities: quartz, opal, and chalcedony; feldspars; micas; hornblendes and augites; carbonates of lime and magnesia; oxides and sulphides of iron. The general characters of the following types of rocks and a knowledge of their occurrence in New Zealand: granite; diorite; gabbro; rhyolite; andesite; basalt; volcanic glasses, pumice, and volcanic dust; conglomerates, sands, and sandstones; clays, shales, and slates; limestones and coals; rock-salt and gypsum; gneiss and schists. Texture of igneous and of sedimentary rocks. Agents producing changes in the earth's surface: volcanoes, earthquakes. Disturbed strata; dip, strike, outcrop, contorted and overthrown strata, anticlinal and synclinal axes, faults, slickensides, dykes. Denuding agents and their work: rain, running water above and below ground, the sea, frost and frozen water, wind, animal and vegetable agencies. Deposition of sediment. Landscape: plains, valleys, formation of escarpments, lateral and transverse streams, lakes, destruction of valleys, mountains, effects of joints and faults, dry valleys. Economic geology: water, artesian wells, mineral and hot springs; coal and oil; building-stone, roofing-slate, sands, lime and cement, clay; road-metal, flagstone; ornamental stone; grindstones; fuller's earth, salt, phosphate soils, metals, lodes and veins. Recognition of New Zealand rocks and minerals named above from specimens or descriptions.

A candidate will be expected to show a first-hand acquaintance with the matters herein contained, and to this end will be required to forward before the date of the examination a certificate in the prescribed form that he has carried out satisfactorily a course of practical work, including work in the field, based on the above syllabus.

(10.) *Elementary Botany*.—The candidate will be required to show that he has acquired his knowledge of the following topics by observation, investigation, and experiment:—

The organs of flowering plants, their arrangement and principal modifications; their functions, so far as can be ascertained by observation and simple experiments.

The general arrangement, distribution, and structure of plant-tissues so far as they can be studied with the aid of a good hand magnifier. The structure of fruits; the various kinds of fruits.

The main phenomena of the life-history (excluding microscopic processes) of common flowering plants; germination; establishment and growth; comparison of different types of germination; the mechanism of pollination; fruit and seed dispersal. An elementary knowledge of the chemical constituents of plants and of the sources from which the plant obtains them.

Simple qualitative and quantitative experiments, illustrating the nutrition of plants, the conduction of water and food substances in the plant, storage of reserve material, respiration and transpiration. Adaptation of plants to their surroundings and to cold and drought; protection against animals. Comparison of creeping plants, climbing plants, rosette-forming plants, grass-like plants, shrubs and trees; plant societies. The identification of common trees at different seasons by means of various parts and organs, such as buds, bark, leaves, &c.

The description and dissection of commonly occurring native and introduced flowering plants (technical descriptions will not be demanded).

The candidate will be required to forward before the date of the examination a certificate in the prescribed form that he has carried out satisfactorily a course of practical instruction based on the above syllabus

(11.) *Elementary Zoology*.—The candidate will be expected to show that he has as far as possible acquired his knowledge of the following topics by observation and investigation: A general knowledge and comparison of the external features (head, limbs, hair, feathers, teeth, beaks, hoofs, claws, &c.), the skeleton (with special reference to adaptations to support, locomotion, and prehension of food), and mode of life (*e.g.*, habitation, locomotion, food, self-protection, adaptation to surroundings) of commonly occurring mammals (cat, dog, rabbit,

horse, &c.), birds (gull, sparrow, hawk, &c.), and fishes (blue-cod, dogfish, flounder, &c.).

The general anatomy as revealed by very simple dissections only of the rabbit (as an example of a vertebrate). The form, uses, and relations to other organs of the component parts of the skeleton. The general arrangement, uses, and mode of action of the circulatory, respiratory, digestive, and excretory organs and of the nervous system.

A general knowledge of the external structure, of the bony skeleton, where present, and of the mode of life, of an earthworm, a crayfish, a spider, a beetle, a honey-bee, a butterfly, a garden snail, a frog, a fish, and a bird (comparisons should be made wherever possible). A knowledge of the chief characters of the classes to which the animals named in this syllabus belong. The reference to these classes of commonly occurring members thereof.

A knowledge of the life-history subsequent to hatching of a butterfly and a frog.

Candidates may be required to recognize or describe from actual specimens or photographs any of the above-mentioned animals or typical parts of them.

The candidate will be required to forward before the date of examination a certificate in the prescribed form that he has carried out satisfactorily a course of practical work based on the above syllabus.

GROUP III.

(12.) *Elementary Mathematics*.—(a.) Algebra: Fundamental operations; easy fractions involving the knowledge of the factors of expressions that are the product of two binomial factors, and of such expressions as $a^3 \pm b^3$ and $a^3 \pm 3a^2b + 3ab^2 \pm b^3$, only numerical coefficients being used; common multiples and divisors to correspond; simple equations involving one or two unknown quantities, and easy quadratic equations involving one unknown quantity; easy problems; graphs of simple algebraical functions within the limits of the foregoing work, and graphical methods of solving simple equations involving two unknown quantities.

(b.) Geometry: Every candidate shall be expected to answer questions in both practical and theoretical geometry. The questions on practical geometry shall be set on the constructions contained in Section A, together with easy extensions of them. All figures should be drawn accurately. The questions in theoretical geometry shall consist of theorems contained in Section B, together with questions upon these theorems, easy deductions from them, and arithmetical illustrations. Any proof of a proposition shall be accepted which appears to the examiners to form part of a systematic treatment of the subject; the order in which the theorems are stated in Section B is not imposed as the sequence of their treatment.

Section A.—Practical Geometry.

Bisection of angles and of straight lines.

Construction of perpendiculars to straight lines.

Construction of an angle equal to a given angle.

Construction of parallels to a given straight line.

Simple cases of the construction from sufficient data of triangles and quadrilaterals, and of the solution of triangles by drawing to scale.

Division of straight lines into a given number of equal parts or into parts in any given proportions.

Experimental determination of the areas of plane rectilinear figures; experimental proof of the proposition of Pythagoras.

Construction of tangents to a circle.

Simple cases of the construction of circles from sufficient data.

Construction of regular figures of 3, 4, 6, or 8 sides in a given circle.

Determination by measurement of the ratio of the circumference of a circle to its diameter.

Approximate determination of the area of a circle.

Section B.—Theoretical Geometry.

ANGLES AT A POINT.

If a straight line stands on another straight line, the sum of the two angles so formed is equal to two right angles; and the converse.

If two straight lines intersect, the vertically opposite angles are equal.

PARALLEL STRAIGHT LINES.

When a straight line cuts two other straight lines, if

- (i.) A pair of alternate angles are equal; or
- (ii.) A pair of corresponding angles are equal; or
- (iii.) A pair of interior angles on the same side of the cutting line are together equal to two right angles;

then the two straight lines are parallel; and the converse.

Straight lines which are parallel to the same straight lines are parallel to one another.

TRIANGLES AND OTHER RECTILINEAR FIGURES.

The sum of the angles of a triangle is equal to two right angles.

If the sides of a convex polygon are produced in order, the sum of the angles so formed is equal to four right angles.

If two triangles have two sides of the one equal to two sides of the other, each to each, and also the angles contained by those sides equal, the triangles are congruent.

If two triangles have two angles of the one equal to two angles of the other, each to each, and also one side of the one equal to the corresponding side of the other, the triangles are congruent.

If two sides of a triangle are equal, the angles opposite to these are equal; and the converse.

If two triangles have the three sides of the one equal to the three sides of the other, each to each, the triangles are congruent.

If two right-angled triangles have their hypotenuses equal, and one side of the one equal to one side of the other, the triangles are congruent.

If two sides of a triangle are unequal, the greater side has the greater angle opposite to it; and the converse.

Of all the straight lines that can be drawn to a given straight line from a given point outside it, the perpendicular is the shortest.

The opposite sides and angles of a parallelogram are equal, each diagonal bisects the parallelogram, and the diagonals bisect one another.

If there are three or more parallel straight lines, and the intercepts made by them on any straight line that cuts them are equal, then the corresponding intercepts on any other straight line that cuts them are also equal.

AREAS.

Parallelograms on the same or equal bases and of the same altitude are equal in area.

Triangles on the same or equal bases and of the same altitude are equal in area.

Equal triangles on the same or equal bases are of the same altitude.

The proposition of Pythagoras—viz., the square on the hypotenuse of a right-angled triangle is equal to the sum of the squares on the other two sides; and conversely.

Illustrations and explanations of the geometrical theorems corresponding to the following algebraical identities:—

$$\begin{aligned} k(a + b + c + \dots) &= ka + kb + kc + \dots \\ (a + b)^2 &= a^2 + 2ab + b^2, \\ (a - b)^2 &= a^2 - 2ab + b^2; \\ a^2 - b^2 &= (a + b)(a - b). \end{aligned}$$

LocI.

The locus of a point which is equidistant from two fixed points is the perpendicular bisector of the straight line joining the two fixed points.

The locus of a point which is equidistant from two intersecting straight lines consists of the pair of straight lines which bisect the angles between the two given lines.

(13.) *Latin*.—Candidates will be expected to show such a knowledge of the language and of its vocabulary and grammar as may be gained by the study of Cæsar's Gallic War, Book II, but candidates will not be expected to have read that particular book, nor will the passages for translation necessarily be taken from it. The candidate should be able, with the aid of a vocabulary of unusual words not found in the standard book named, to render into English easy passages of unprepared translation, and to answer questions in grammar thereon; also to answer in Latin easy questions expressed in Latin arising out of the same passages, and to render into Latin easy sentences or passages selected expressly in imitation of the language and subject-matter of one of the passages, or to write in Latin a free composition of a simple character on a familiar subject.

(14.) *French*.—Candidates will be expected to show such a knowledge of the language and of its vocabulary and grammar as may be gained by the study of E. Daudet's "La Tour des Maures" (Siepmann's Elementary French Series), but candidates will not be expected to have read that particular book, nor will the passages for translation necessarily be taken from it. The candidate should be able, with the aid of a vocabulary of unusual words not found in the standard book named, to render into English easy passages of unprepared translation, and to answer questions in grammar thereon; also to answer in French easy questions expressed in French arising out of the same passages, and to render into French easy sentences or passages selected expressly in imitation of the language and subject-matter of one of the passages, or to write in French a free composition of a simple character on a familiar subject.

(15.) *German*.—Candidates will be expected to show such a knowledge of the language and of its vocabulary and grammar as may be gained by a study of Von Wildenbruch's "Das edle Blut" (Siepmann's Elementary German Series), but candidates will not be expected to have read that particular book, nor will the passages for translation necessarily be taken from it. The candidate should be able, with the aid of a vocabulary of unusual words not found in the standard book named, to render into English easy passages of unprepared translation, and to answer questions in grammar thereon; also to answer in German easy questions expressed in German arising out of the same passages, and to render into German easy sentences or passages selected expressly in imitation of the language and subject-matter of one of the passages, or to write in German a free composition of a simple character on a familiar subject.

(16.) *Maori*.—Candidates will be expected to show such a knowledge of the language and of its vocabulary and grammar as may be gained (1) by easy conversation in Maori about the facts of every-day life, (2) by the study of the story of Tawhaki in Sir George Grey's "Mythology and Traditions of the New-Zealanders"; but candidates will not be expected to have read that particular story, nor will the passages for translation necessarily be taken from it. Great importance will be attached to translation from Maori, and to the writing of easy passages and sentences in Maori.

(17.) *British History*.—The history of the British Empire from 1757 to 1900 A.D. Candidates will be expected to show such a knowledge of the period as they could be reasonably expected to gain in lessons of two hours a week extending over two years.

(18.) *Shorthand*.—Transcribing into shorthand, fully vocalized, a short printed passage as a test of accuracy and neatness of shorthand outline. Writing in shorthand an easy passage dictated at the rate of eighty words a minute, and transcribing it accurately into longhand.

(19.) *Book-keeping and Commercial Correspondence*.—The requirements will include commercial arithmetic and tots and easy précis-writing.

Book-keeping: The object and value of book-keeping. Double entry, its meaning and advantages. The form, nature, and classification of accounts; the balancing and closing of accounts. The explanation of simple commercial terms such as debit, credit, balance, profit (gross and net), interest, discount, commission, insurance, assets, liabilities, capital, bankruptcy, composition, bad debts, folio, trial balance, company (limited and unlimited), invoice, receipt, voucher, cheque, bill of exchange. A knowledge of the transactions involved and the special terms used in connection with cheques, promissory notes, and bills of exchange. The forms and uses of the cash-book, the purchases-book or invoice-book, the sales-book or day-book, the journal and the ledger, and methods of keeping them. Journalizing an easy set of transactions, posting the journal, taking out trial balance, preparing profit-and-loss account, and balance-sheet. The prevention, detection, and rectification of errors.

(20.) *Drawing, I*.—Free drawing with pencil or brush: The candidate shall be required to draw on a half-imperial sheet of paper (i) a natural object, or (ii) a fashioned or artificial object or a group of such objects placed before him either above or below the line of sight. In the case of (i) the candidate may also be required to show that he is able to adapt the form of the object placed before him to decorative purposes. The object or objects are to be represented as seen from the point of view at which the candidate may be seated. The candidate may use the pencil or brush to estimate the apparent relative sizes of the objects or parts of the objects to be drawn, but only by holding it between the eye and the objects. No other form of measuring and no ruling or other mechanical means of execution are allowed. The drawing, which should

be as complete as possible, may be made in outline or in light and shade, and must fairly fill the sheet of drawing-paper.

(21.) *Drawing, II.*—Drawing with instruments: The candidate will be expected to be familiar with the geometrical operations and constructions set out in Section A of subject (12) *Elementary Mathematics*. The measurement of straight lines and of angles. The construction of plain scales. Drawing to scale from dimensioned sketches. The method of enlarging and of reducing a given diagram. Plans and elevations of straight lines and of plane figures lying in, standing vertically on, or inclined to the horizontal plane (but not in the latter case inclined also to the vertical plane). Plans and elevations and conventional isometric views of the following solids and of simple objects based thereon: the cube, the rectangular block, the triangular and the square prism, and the triangular, the square, and the hexagonal pyramid, the solid or object as the case may be having its base in the horizontal plane, and one edge of the base parallel to the vertical plane.”

Regulation No. 184 is hereby amended by deleting the words “prescribed number of marks in each subject,” and inserting in lieu thereof the words “prescribed number of marks.”

Regulation No. 186 is amended by adding the following paragraph:—

“If a candidate desires a certificate or statement with respect thereto, the Commissioner may, in his discretion, issue such certificate or statement on payment by the candidate of a fee of two shillings and sixpence to the Public Account at some branch of the Bank of New Zealand.

Regulation No. 187 is hereby amended by deleting the words “in the Professional Division by the number of marks severally obtained for (1) arithmetic and (2) elementary mathematics; in the Clerical Division.”

200A. The “Senior Examination” referred to in Regulation 200 shall be held in the month of January in each year, commencing between the fifth and the tenth days of the month, in each city or borough in which the Board of any education district has its office, and in any other places that may from year to year be appointed by the Commissioner, and also, if necessary, at such other times and places as the Commissioner may determine.

This regulation shall be deemed to take effect on and from the 1st day of April, 1915.

200B. The examination may be passed as a whole or in sections. In the latter case the first section must consist of not less than two subjects. The examination is intended for officers in the Public Service but any other person may be admitted either to the whole examination or to a section consisting of two or more subjects on payment of an entrance fee of £1; for admission to examination in a single subject, where such admission is permissible, the entrance fee payable shall be 10s.

This regulation shall be deemed to take effect on and from the 1st day of April, 1915.

200c. (1.) Every candidate must give notice in a form prescribed by the Commissioner, and such notice must be sent so as to reach the office of the Education Department not later than the 15th day of October next before the examination, and where necessary must be accompanied by a receipt for the payment of the prescribed entrance fee to the Public Account at some branch of the Bank of New Zealand.

(2.) A candidate's notice may, however, be received between the 15th and the 31st day of October if it is accompanied by a bank receipt for a late fee of £1 in addition to the receipt for any entrance fee otherwise payable.

This regulation shall be deemed to take effect on and from the 1st day of April, 1915.

200D. As soon as possible after the Senior Examination has been held the Commissioner shall publish a list of the successful candidates, and in the list those that, taking the whole examination at once, have passed with distinction shall be specially indicated.

This regulation shall be deemed to take effect on and from the 1st day of April, 1915.

200E. Upon the publication of the list referred to in the last preceding clause, the Commissioner shall cause to be sent to each candidate a notification of the result of the examination. If a candidate desires any further

certificate or statement with respect thereto, the Commissioner may, in his discretion, issue such certificate or statement on payment by the candidate into the Public Account at some branch of the Bank of New Zealand of a fee of two shillings and sixpence.

This regulation shall be deemed to take effect on and from the 1st day of April, 1915.

200F. The following is the schedule of subjects of examination. Subject to any provisions hereinafter contained, every candidate will be required to pass in subject (1) of the schedule, and in not less than four, or in the case of professional cadets in not less than five, other subjects to be chosen from the list. For candidates in the service of any Department, sub-Department, or departmental branch named in clause 200H hereof the selection to be made must be in accordance with the provisions of that clause.

SCHEDULE OF SUBJECTS.

- (1.) English Composition, including Precis-writing and Correspondence.
 - (2.) English Literature.
 - (3.) Greek.
 - (4.) Latin.
 - (5.) French.
 - (6.) German.
 - (7.) Italian.
 - (8.) Spanish.
 - (9.) Maori.
 - (10.) Arithmetic and Algebra.
 - (11.) Geometry and Trigonometry.
 - (11A.) Practical Mathematics.
 - (11B.) Practical Geometry and Graphics.
- [Only one of the three subjects (11), (11A), (11B) may be taken.]
- (12.) Mechanics and Hydrostatics.
 - (13.) Heat and Light.
 - (14.) Electricity and Magnetism.
 - (15.) Chemistry.
 - (16.) Physiography.
 - (17.) Geology.
 - (18.) Botany.
 - (19.) Zoology.
 - (20.) Physiology and the Structure of the Body.
 - (21.) General Hygiene.
 - (22.) General Agriculture.
 - (23.) Agricultural Chemistry [not to be taken in addition to (15)].
 - (24.) Agricultural Botany and Zoology [not to be taken in addition to either (18) or (19)].
 - (25.) Dairy Science.
 - (26.) General History.
 - (27.) English Constitutional History.
 - (28.) Economics.
 - (29.) Economic History.
 - (30.) Economic Geography.
 - (31.) Jurisprudence.
 - (32.) Law of Contracts.
 - (33.) Law of Property (Part I).
 - (34.) Law of Property (Part II).
 - (35.) Law of Torts.
 - (36.) Criminal Law.
 - (37.) Industrial Law.
 - (38.) Statistical Method.
 - (39.) Elementary Actuarial Mathematics.
 - (39A.) Elementary Principles of Interest, Life Annuities, and Insurance [not to be taken in addition to (39)].
 - (40.) Practice of Life and Accident Insurance.
 - (41.) Life and Accident Insurance Book-keeping.
 - (42.) Life and Accident Insurance Law.
 - (42A.) Law and Practice of Fire Insurance.
 - (43.) Applied Mechanics I (Materials and Structures).
 - (44.) Applied Mechanics II (Machines and Hydraulics).
 - (44A.) Mechanical Engineering [not to be taken in addition to (44)].
 - (45.) Electrical Engineering.
 - (46.) Electric Wiremen's Work.
 - (47.) Heat Engines.
 - (48.) Machine Construction and Drawing.
 - (49.) Building Construction.

- (50.) Architecture.
 (51.) Mechanical Drawing (Architectural) and Perspective.
 (52.) Mining.
 (53.) Accounting.
 (54.) Shorthand.

No candidate may have reckoned to his credit for the purposes of the examination more than one of the three subjects (11) Geometry and Trigonometry, (11A) Practical Mathematics, and (11B) Practical Geometry and Graphics, or more than one of the two subjects (44) Applied Mechanics II (Machines and Hydraulics) and (44A) Mechanical Engineering, or more than one of the two subjects (39) Elementary Actuarial Mathematics and (39A) Elementary Principles of Interest, Life Annuities, and Insurance. Similarly, subject (23) Agricultural Chemistry may not be reckoned by a candidate in addition to subject (15) Chemistry, or subject (24) Agricultural Botany and Zoology in addition to either subject (18) Botany or subject (19) Zoology.

This regulation shall be deemed to take effect on and from the 1st day of April, 1915.

200G. In subjects corresponding to those prescribed for the Senior Examination the examinations of any British university, or of any recognized institute of accountants, engineers, or surveyors, the professional examinations for admission as a barrister or solicitor or of any authorized Medical Board, the examinations of the Science and Art Department of the English Board of Education, the examinations of the City and Guilds of London Institute, or any other public examination that the Commissioner shall recognize as sufficient for the purpose, may be accepted *quantum valent* in lieu thereof.

This regulation shall be deemed to take effect on and from the 1st day of April, 1915.

200H. The following schedule indicates the extent to which the choice of subjects, other than subject (1) of the schedule to clause 6, is limited in the case of candidates employed in Departments of the Public Service. A candidate in the service of any Department, sub-Department, or branch of a Department included in this clause, who has not already been gazetted as having passed the examination, shall not be deemed to have passed unless he has passed in the subject or subjects herein prescribed as compulsory for that Department, sub-Department, or branch.

SCHEDULE OF DEPARTMENTAL REQUIREMENTS.

Department, or Branch.	Subjects recommended.	Compulsory Subjects.
Agriculture, Industries, and Commerce	22, 23, 24, 25, 30, 54	Two of the subjects recommended.
Audit	10, 32, 33, 34, 53, 54	10, 53.
Customs	2, 5 or 6, 10, 12, 14, 15, 38, 53, 54	One of the subjects recommended.
Deeds	32, 33, 34, 39 ..	One of the subjects recommended.
Defence—		
Clerical cadets	2, 5, 10, 53, 54 ..	2.
Education	2, 3–21 inclusive, 38, 49, 53, 54	2, and one of the subjects 3–20 inclusive.
Friendly Societies	2, 10, 38, 39, 39A, 53	Two of the subjects recommended (but 39 and 39A cannot both be taken).
Insurance—		
Life Insurance	38, 39, 39A, 40, 41, 42	One of the subjects recommended.
Fire Insurance	10, 42A, 49, 53, 54 ..	42A, 53.
Internal Affairs	2, 5, 6, 9, 53, 54 ..	One of the subjects recommended.
Justice .. .. .	.. .. .	2.
Labour	10, 11A, 21, 28, 29, 30, 31, 32, 35, 37, 38, 39 or 39A, 53, 54	37, and any two others of the subjects recommended.
Land and Income Tax	10, 33, 34, 39, 53 ..	10 or 53.
Lands and Survey—		
Field cadets* .. .. .	.. .. .	10, 11, 17, and either 5 or 6 or 9.
Drafting cadets .. .. .	.. .. .	10, 11, 51, and either 5 or 6.
Clerical cadets .. .. .	.. .. .	10, 32, 54, and either 22 or 33 or 34 or 53.
Forestry cadets .. .. .	.. .. .	10, 17, 18, 23.
Native	9, 10, 53, 54 ..	10, 53.

* Not being holders of a land surveyor's certificate of competency for the Dominion.

SCHEDULE OF DEPARTMENTAL REQUIREMENTS—*continued.*

Department, or Branch.	Subjects recommended.	Compulsory Subjects.
Post and Telegraph—		
Except technical officers ..	2, 5, 10, 14, 54 ..	5, or 10, or 14.
Technical officers (entrance examination for candidates)	..	10, 11, 12, 14.
Public Health, Hospitals and Charitable Aid	5, 6, 20, 21, 28, 38, 39, 51, 53, 54	21, and any two others of the subjects recommended.
Public Trust ..	2, 9, 10, 32, 33, 34, 53, 54	32 or 33 or 34 or 53 or 54.
Public Works—		
Engineering cadets ..	10, 11, 12, 43, 44 ..	10, 11, 12, 43.
Clerical cadets ..	2, 4, 5, 6, 10, 30, 53, 54	10 or 53.
Architectural cadets ..	..	10, 49, 50, 51.
Railways—		
Mechanical engineering ..	..	10, 11 or 11A or 11B, 12, 14, 44.
Civil engineering*	..	10, 11 or 11A or 11B, 12, 43, 49.
Tourist and Health Resort	10, 30, 53, 54 ..	53 or 54.
Treasury ..	10, 38, 53 ..	10 and 53.
Valuation ..	10, 17, 22, 28, 33, 34, 38, 39, 49, 53, 54	10.

* For civil engineering cadets in the signalling and electrical branch of the Railway service (14) Magnetism and Electricity must be taken in lieu of (49) Building-construction.

This regulation shall be deemed to take effect on and from the 1st day of April, 1915.

SCOPE OF THE EXAMINATION.

200i. The scope of the examination in the several subjects is here indicated more or less fully:—

- (1.) *English Composition, including Precis-writing and Correspondence* (two papers).—Precis-writing, Composition, and Correspondence, with special reference to the candidate's power of expressing in terse, clear, and correct English the substance of a set of correspondence or in the making of abstracts of single documents or speeches; writing letters from hastily written, incomplete, or merely suggestive drafts or minutes; the reading, copying, and recasting of manuscript. The examination may also include passages for criticism and amendment, or other exercises designed to test the candidate's knowledge of the principles of English composition and the power of applying them; a short essay on an appropriate topic will be set, and generally the ability to write good English will be treated as essential.
- (2.) *English Literature*.—The course required will include an appreciative and critical study of certain special books to be prescribed from time to time and duly announced, or else of certain special books together with a period of literature.
- (3) to (9). In *Languages other than English* candidates will be required to show reasonable proficiency in translating from and into the language chosen; to show a knowledge of certain special books; and to answer questions in grammar arising out of the special books. In each language one or more special books will be prescribed from time to time and duly announced. At least one of the passages set for translation from the language shall be taken from a special book so prescribed, and part of the work set for translation into the language shall be based upon the vocabulary and diction of one of such prescribed special books. The provisions relating to special books shall not, unless the Commissioner otherwise directs, apply to Maori, and this subclause in its application to Maori is to be read as modified accordingly. For Maori the examination in scope and standard will be approximately the same as is prescribed by regulations under the Native Land Act for a first-grade Interpreter's license.

Questions may also be set to test an elementary knowledge of a period in the national or literary history, as may from time to time be specified in the announcement relating to special books.
- (10.) *Arithmetic and Algebra*.—(a.) Arithmetic: Contracted and approximate methods of multiplying and dividing numbers, so as to omit all unnecessary figures; use of rough checks, especially with regard to the position of the decimal point; use of such expressions as 1.732×10^4 for 17320, and 1.732×10^{-3} for .001732. Meaning of a common logarithm; use of logarithmic tables of four or five figures. Calculation of numerical values from formulæ. Working of problems in practice, interest, &c., by decimals; use of squared paper, and application of graphical methods to arithmetical problems.

A knowledge of the arithmetic and mensuration included in the programme of the Public Service Entrance Examination will be assumed. Tables of logarithms will be supplied.

(b.) Algebra: Definitions and explanations of algebraical signs and terms; addition, subtraction, multiplication, and division of algebraical quantities, including easy fractions and easy surds (the candidate will not be expected to show skill in the manipulation of complicated formulæ, but he may be required to ascertain accurately the numerical value of any quantity or expression given to him); square root; the elementary rules of ratio and proportion; easy equations of a degree not higher than the second, and questions producing such equations; easy arithmetical and geometrical series; graphs of simple algebraic functions within the limits of the foregoing work, and graphical methods of solving equations. Very easy permutations and combinations; binomial theorem (the candidate may be expected to explain the case in which the exponent is a positive integer, but a rigid proof will not be required); the use of approximate formulæ, such as $(1+x)^3 = 1+3x$, $(1-x)^{-\frac{1}{2}} = 1+\frac{1}{2}x$, when x is small compared with 1.

(11.) *Geometry and Trigonometry.*—Every candidate must be provided with a ruler graduated in inches and tenths and in centimeters and millimeters, a small set-square, a protractor or scale of chords, compasses with pencil-point, and a fine pencil. Tables of logarithms will be supplied.

(a.) Geometry: Sections A and B (practical and theoretical geometry) as in the Civil Service Junior Examination, together with the following:—

SECTION C (PRACTICAL).

- To draw a normal to a plane from an external point.
- Projections of a point on three planes at right angles.
- Determination of a point by means of its co-ordinates (x, y, z), referred to three rectangular axes and by means of its polar co-ordinates.
- Projection of a straight line on a plane making a given angle with it.
- Projection of a plane figure on a plane making a given angle with it.
- Development of the right prism, and of the right pyramid.
- Determination of the surface, the base being a regular polygon, of the right prism and right pyramid.
- Volume of the prism and pyramid.
- The generation of the right circular cylinder, right circular cone, and sphere by revolution.
- Development of the right circular cylinder, and right circular cone; the surface of each.
- Volume of the cylinder, cone, and sphere.

SECTION D (THEORETICAL).

- The square on the side of a triangle is greater than, equal to, or less than the sum of the squares on the other two sides according as the angle contained by these sides is obtuse, right, or acute. The difference in the cases of inequality is twice the rectangle contained by one of the two sides and the projection on it of the other.
- If a straight line is drawn parallel to one side of a triangle, the other sides are divided proportionally; and the converse.
- If two triangles are equiangular, their corresponding sides are proportional; and the converse.
- If two triangles have one angle of the one equal to one angle of the other, and the sides about their equal angles proportional, the triangles are similar.
- The internal bisector of an angle of a triangle divides the opposite side internally in the ratio of the sides containing the angle, and likewise the external bisector externally.
- The ratio of the areas of similar triangles is equal to the ratio of the squares on corresponding sides.
- The ratio of the areas of similar polygons is equal to the ratio of the squares on corresponding sides.
- In equal circles (or in the same circle) the ratio of any two angles at the centre or of any two sectors is equal to the ratio of the arcs on which they stand.

(b.) Trigonometry: Degrees and radians; use of protractor or scale of chords; trigonometrical functions and their fundamental relations; determinations of their value by graphical methods and setting-out of angles when the value of the sine, cosine, or tangent is given. Approximate solution of right-angled triangles and oblique triangles by drawing to scale; tracing of trigonometrical functions through the four quadrants; arithmetical values of the trigonometrical functions of 30° , 45° , 60° , 75° , 90° , &c. Formulæ for finding the sine, cosine, and tangent of the sum or difference of two angles (excluding angles greater than two right angles), and easy derived formulæ; the sine rule in triangles, or $\sin A/\sin B = a/b$, and other simple properties of triangles; the area of a triangle. Use of natural and logarithmic tables of sines, cosines, and tangents of four or five figures. Solution of triangles; heights and distances. Description and use of the vernier, theodolite, prismatic compass, and sextant.

Skill in the transformation of trigonometrical expressions or in the manipulation of formulæ will not be required except in so far as it is implied in the above syllabus.

- (11A.) *Practical Mathematics* and (11B.) *Practical Geometry and Graphics*.—The Commissioner reserves to himself the right to hold the examination in these subjects at any time or place, or to require candidates to take the Lower Examination (older Second-stage Examination) of the Board of Education, Whitehall, London, in the subject, or some other approved examination. On application to the Education Department a syllabus will be supplied.

- (12.) *Mechanics and Hydrostatics*.—The composition and resolution of forces acting on a point and on a rigid body on one plane; the mechanical powers; friction between two plane surfaces treated simply; the centre of gravity; the fundamental laws of motion; the laws of uniform and uniformly accelerated motion and of falling bodies; projectiles (exclusive of problems depending on the geometry of the parabola); impact; circular motion; simple pendulums; the pressure of liquids and gases; the equilibrium of floating bodies; specific gravities; the principal instruments and machines the action of which depends on the properties of fluids, with simple problems and examples.

Candidates will be expected to show an experimental as well as a theoretical knowledge of fundamental laws, but will not be expected to show any further knowledge of pure mathematics than what is demanded in subject (10) *Arithmetic and Algebra*, and subject (11) *Geometry and Trigonometry*.

- (13.) *Heat and Light*.—(a.) General physics: C.G.S. units, velocity, acceleration, force, weight, equilibrium, couples, energy, power, and simple pendulum. Properties of matter—Compressibility, viscosity, and diffusion of gases and liquids; absorption of gases; rigidity of solids, Hook's Law; constitution of matter, atoms, molecules.

(b.) Heat: Change of volume, measurement of temperature, specific heat, calorimetry, change of state, latent heat, hygrometry, transformation of energy, mechanical equivalent of heat; convection, conduction, radiation, and absorption.

(c.) Light: Nature, velocity; photometry; reflection and refraction at plane and spherical surfaces; thin lenses; dispersion and spectra; the principal optical instruments and vision; interference; plane polarization, and double refraction.

A candidate in Heat and Light 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.

- (14.) *Electricity and Magnetism*.—(a.) General physics: C.G.S. units, velocity, acceleration, force, weight, equilibrium, couples, energy, power, and simple pendulum. Properties of matter—Compressibility, viscosity, and diffusion of gases and liquids; absorption of gases; rigidity of solids, Hook's Law; constitution of matter, atoms, molecules.

(b.) Magnetism and electricity: Production of charge, inverse square law, induction and distribution, electro-static field, lines of force, potential capacity, condensers, dielectric capacity, electrometers, electrostatic machines.

Magnetic pole, inverse square law, magnetic moment, magnetic field, and lines of force, induction, permeability, terrestrial magnetism.

Magnetic force due to currents, galvanometers, Ohm's law, E.M.F., thermal effect of a current; voltaic cells and electrolysis; interaction of magnets and currents; mutual action of currents, induction coil; thermo-electricity; technical applications illustrating principles; units.

A candidate in magnetism and electricity 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.

- (15.) *Chemistry*.—Candidates will be expected to show that they have an experimental as well as a theoretical knowledge of the matters set forth in the subjoined syllabus. The three states of matter; indestructibility of matter. Physical changes compared with chemical changes. Difference between mechanical mixtures and chemical compounds. Phenomena of chemical action; conditions that promote or check or otherwise modify chemical action. The metric system. Elements and compounds. Modes of chemical action; direct union, displacement, mutual exchange, decomposition. Effects of pressure and temperature on gases; Boyle's and Charles's laws. Estimation of the weight of an element in a given weight of one of its compounds, of the weight of one element required to displace another from a given compound, and of the weight of known volumes of gases. Combining weights; laws of combination of elements in definite proportions by weight; laws of gaseous combination of elements and compounds; atoms and molecules, their relative weights; the atomic theory; Avogadro's law; meaning and use of symbols, formulæ, and equations; valency; graphic formulæ; calculations of quantities by volume and by weight. Production and properties of oxygen, hydrogen, and nitrogen. Air, its properties, the exact determination of its composition; the constituents of the atmosphere; estimation of the amount of aqueous vapour and of carbon-dioxide. Water, its properties; solution and crystallization; hard and soft water; determination of the composition of water by volume and by weight; production and properties of ozone and of peroxide of hydrogen. The production and properties of chlorine, hydrochloric acid, ammonia, oxides of nitrogen, nitric acid. Definition and general properties of oxides, acids, alkalies, and bases; the basicity of acids and the classification of salts. The physical and chemical properties of the various forms of carbon, sulphur, and phosphorus; the production of the two latter on the large scale; the production and properties of the oxides of the three elements just named; the production and properties of sulphuretted hydrogen, of bisulphide of carbon, of sulphurous and sulphuric acids (manufacture not required), of phosphoretted hydrogen, and of meta-, pyro-, and ortho-phosphoric acid. Experimental determination of the composition of hydrochloric acid, ammonia, carbon-dioxide, sulphuretted hydrogen. The halogens, their physical and chemical properties compared; the production of iodine on the large scale; the combinations of the halogens with hydrogen. The sources and the physical and chemical properties of arsenic, antimony, and bismuth. The more important compounds of these elements, with special reference to their relation to phosphorus. The detection of arsenic. The sources and the physical and chemical properties of boron and silicon; the more important compounds of these elements. General properties of metals and non-metals. The chief methods of isolating and the physical and chemical properties of sodium, potassium, ammonium, silver, calcium, zinc, magnesium, copper, mercury, tin, lead, manganese, and iron; the properties of their more important compounds. The production and properties of the following carbon compounds, with special reference to processes of substitution, oxidation, and reduction, the meaning of constitutional formulæ, and the evidence on which they are constructed, and the characters of homologous series: the homologous paraffins treated as a series, ethylene, acetylene, methyl and ethyl alcohols, formic acid, acetic acid, and their relations to one another.

A candidate in 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.

- (16.) *Physiography*.—(a.) Forms of matter; units of length, area, volume; quantity of matter; specific gravity; law of Archimedes. Measurement of time; its relation to the earth's rotation. Velocity; force, resultant of forces. Centre of gravity. Measurement of angles; angular velocity; "centrifugal force." Energy; forms of energy.

Heat and temperature; expansion by heat; thermometers; conduction and convection. Radiation; reflection and refraction; the spectrum; the rainbow; sunset effects. Chemical composition of matter; mixtures and compounds; air and water; oxygen, nitrogen, carbon, iron, mercury, carbon-dioxide, lime, silica, alkalies, common salt. Rain, dew, snow, hail, ice. Magnetism; mariner's compass; variation of the needle; magnetic poles of the earth. Earth's crust; minerals; rocks, stratified and unstratified. The chief forms of animal and vegetable life; fossils; succession of geological strata.

(b.) The earth's form; the horizon; the earth's dimensions and density; rotation of the earth on its axis. Latitude and longitude as angles and as arcs. Distance of earth from sun; dimensions and density of sun. Inclination of earth's axis; variation of length of day and night; the four seasons. The north and south line; the sundial; altitude of the sun; methods of determining latitude and longitude; great circles, small circles. The moon; lunar and solar eclipses; tides. The solar system; planets and "fixed stars"; law of gravity. Maps, how constructed; the conical, equidistant, and Mercator's projections; scale of map, contour lines; great-circle sailing; rhumb-line sailing. The atmosphere; isothermals; rainfall; dew point; winds, land and sea breezes, steady winds, cyclones, seasonal winds; Ballot's law; isobars. Climate, circumstances affecting climate. The earth's crust, its folding, faulting, movements slow and sudden. Work of rain, ice, rivers, and the sea. Distribution of plants and animals.

The candidate will be expected to show that, as far as possible, he has acquired his knowledge of the subject by actual experiment, observation, and measurement, but will not be expected to show any further knowledge of pure mathematics than what is demanded in subjects (10) and (11) above. He 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.

- (17.) *Geology*.—Form and size of the earth, general chemical constitution of the crust; elements of crystallography and the classification of minerals, the principal rock-forming minerals and metallic ores, macroscopic characters and minute structure of rocks; classification of rocks according to their nature, composition, and mode of origin; volcanoes and volcanic action; earthquakes, secular movements of the crust; metamorphism; the geological effects of air, water, and living organisms; stratification, joints, inclination, and curvature of rocks; cleavage; faults; unconformity; mode of occurrence of igneous and metamorphic rocks; surface-features due to disturbance, volcanic action, and denudation.

An elementary knowledge of the chief orders of plants and the chief orders of animals that are represented in Australasian fossils. Geographical distribution of animals and plants in relation to geology, chronological classification of rocks, geological eras, and the characteristic fossils of the geological periods. The general geological structure of New Zealand, including the broader features of the chief systems of rocks, and the most characteristic genera (only) of fossils. Recognition of a well-known mineral or of a common rock from specimens or from descriptions.

A candidate in Geology 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.

- (18.) *Botany*.—General: (1.) The general structure and life-history of the following organisms, to illustrate certain general biological phenomena and laws—*Haematococcus*, *Spirogyra*, yeast, bacteria, *Amoeba*, aciliate infusorian, a fern, a flowering-plant, *Hydra* or any hydroid polyp. (2.) General structure and physiology of the cell; the general facts of nuclear division and cell-division. (3.) Principles of classification. (4.) Origin of species, heredity and variation, struggle for existence, use and disuse, degeneration, rudimentary and vestigial organs, modifications for protection and aggression, natural selection, production of varieties, connection between ontogeny and phylogeny. (5.) The bearing of the main facts of geographical and geological distribution on the theory of evolution.

Special: (1.) The general morphology of the cells, tissues, and organs of plants. (2.) The physiology of plants, including the knowledge of simple experiments. (3.) The structure and life-history of the following types—Nostoc, Pleurococcus, Volvox, Vaucheria, Closterium, a stonewort, a diatom, Hormosira or any fucoid, any red Alga, Mucor, Saprolegnia, Penicillium, Peziza, Agaricus, any lichen, Marchantia, any moss, Selaginella, a conifer, liliium. (4.) The classification of plants and the characters of the chief subdivisions of the vegetable kingdom. The principal characters of the following orders: Liliaceæ, Amaryllidaceæ, Iridææ, Orchidææ, Gramineæ, Salicinæ, Polygonææ, Ranunculaceæ, Cruciferæ, Geraniaceæ, Umbelliferæ, Myrtaceæ, Rosaceæ, Leguminosæ, Labiatæ, Scrophularinæ, Solanaceæ, Primulaceæ, Campanulaceæ, Compositæ.

A candidate in Botany 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.

- (19.) *Zoology*.—General: (1.) The general structure and life-history of the following organisms, to illustrate the biological phenomena and laws, referred to in the succeeding sections: Haematococcus, Spirogyra, Mucor or other mould, yeast, bacteria, Amoeba, a ciliate infusorian, Hydra or any hydroid polyp, frog. (2.) General structure and physiology of the cell; the general facts of nuclear division and cell division. (3.) General structure of the simple tissues in animals; arrangement of tissues into organs and systems of organs. (4.) General phenomena of nutrition, circulation, respiration, and excretion in animals. (5.) Elementary physiology of muscle and nerve. (6.) General phenomena of reproduction, sexual and asexual, in animals. (7.) General phenomena of development in animals. (8.) Principles of classification. (9.) Origin of species, heredity and variation, struggle for existence, use and disuse, degeneration, rudimentary and vestigial organs, modifications for protection and aggression, natural selection, reproduction of varieties, connection between ontogeny and phylogeny. (10.) The bearing of the main facts of geographical and geological distribution on the theory of evolution.

Special: (1.) The general characters of the following phyla: Protozoa, Porifera, Coelentera, Platyhelminia, Annelida, Echinoderma, Arthropoda, Mollusca, Chordata. (2.) The structure and life-history of the following types: Sea-anemone or any actinozoön, starfish, fluke, tape-worm, earthworm, crayfish, cockroach or any insect, a lamellibranch, snail or any gastropod, a simple ascidian, amphioxus, a dogfish, frog, rabbit. (NOTE.—The skull of the dog may be studied in place of that of the rabbit.) (3.) The mode of formation of the germinal layers in a hydroid, starfish, earthworm, crayfish, amphioxus, frog, bird, rabbit, and the mode of formation of the embryonal membranes in the bird and rabbit. (4.) The life-history of typical insects, such as fly, bee, moth.

A candidate in 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.

- (20.) *Physiology and the Structure of the Body*.—The chief differences between animals and plants, especially as regards nutrition. The animal cell and its more important modifications. Structure of bone and of cartilage; the principal bones of the human skeleton, their arrangement and functions; structure of the principal joints. Muscles, their structure, mode of attachment, and functions, with a knowledge of the principal muscles that give form to the human body. The structure and functions of the vocal organs. The alimentary tract and the functions of alimentation. The lymphatic system. The heart and the circulatory system in general, including the physical composition and functions of the blood. Respiration and the respiratory organs. Glands, especially those concerned in alimentation; secretion in general; excretion and excretory organs. Structure and functions of the kidneys. The skin and its functions. A general knowledge of the central nervous system, with a knowledge of a few of the principal nerves and of the principal forms of nerve-endings; afferent and efferent nerves; reflex action and nerve

functions in general. The sympathetic nervous system. The organs of sense, especially the ear and the eye. Practical histological work will not be demanded, except in so far as the preparation, without the use of the microtome, of unstained tissue for microscopical examination is concerned. The paper will be so framed as to discover, by practical tests or otherwise, whether the candidate has actually dissected some readily available mammal, as the rabbit, dog, or sheep.

A candidate in Physiology 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.

- (21.) *General Hygiene*.—Composition, characters, and classification of drinking-waters. Sources of water-supply. The collection, storage, and distribution of water; constant and intermittent systems of water service compared. Sources of contamination, and protective precautions; the more common impurities of water. The examination of samples of water for impurities; estimation of hardness; effects of impure and insufficient supplies. Large-scale and domestic methods of filtering and purifying water; construction and action of water-filters. Composition, properties, and impurities of air; chemical and microscopical examination of samples of air for impurities. Quantity of fresh air required under varying conditions; air-space around and in buildings; overcrowding. Principles and methods of ventilation; natural and artificial ventilation compared. Effects of respiration and combustion upon composition of air. Classification and relative value and digestibility of foodstuffs. General principles of diet; quantity of each class of food required; energy obtainable from food. Standard diets. Care and preservation of food; putrefaction and fermentation; parasites introduced in food. Adulteration of food; methods of detecting adulteration. Methods and appliances for cooking food; general composition and dietetic value of meat, fish, bread, vegetables, fruit, milk, butter, cheese, eggs, tea, coffee, cocoa, condiments, sugar, and fermented beverages; brewing. Origin, composition, and classification of soils; moisture, air, and heat of soils; selection of building-sites; climate, temperature, sunshine, humidity, winds; properties of materials used in construction of various parts of a building; cause and prevention of damp; floor and wall coverings; methods and appliances for heating and lighting buildings. Materials and principles of clothing for children and adults. Disposal of surface and rain water, of excreta and house refuse; construction and laying of drains, drain-testing; effects of sewer-gas; disinfectants, antiseptics, and deodorizers. Cleanliness, and attention to action of skin and bowels; use of soap; exercise; care of eyesight; rest, sleep. Influence of temperament, habits, idiosyncrasy, and heredity. Infection and disinfection. Parasites. The bearing of vital statistics on questions of public hygiene.

A candidate in general hygiene 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.

- (22.) *General Agriculture*.—Candidates will be expected to show that they have a practical as well as a theoretical knowledge of the matters set forth in the subjoined syllabus. What agriculture is; objects of the farmer; aid given by allied sciences. The soil—how soil is made, the contents of the soil; organic and inorganic constituents; plant-food in soil; nitrifying bacteria; classification of soils; relation of the soil to the plant; transportation of soils; examination of soils; indications determining the nature of a soil and its agricultural value; the texture of soil; causes of bareness and of exhaustion of soil; the importance of good soil and how to obtain it. Value of drainage and irrigation; method of carrying out these operations. Importance of moisture in soil; how water is held in the soil; how the capacity for moisture in the soil may be increased; the conservation of moisture, indications that land needs draining. Tillage—its effects on soil; methods and implements for tillage. The enrichment of the soil and the object of it; farm resources, their value and management. Classification, composition, properties, and management of manures; indications determining the selection of manures; soils and crops for which manures are best suited. The

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.

- (25.) *Dairy Science*.—The constituents of milk ; causes of variations and of defects in the composition of milk ; the physical and chemical properties of milk ; the coagulation of milk ; the composition of skimmed milk, separated milk, buttermilk, and cream ; the uses and value of separated milk, buttermilk, and whey ; acidity and the estimation of acidity ; sampling ; influence of temperature on milk ; pasteurizing and sterilizing milk ; objections to the use of chemical preservatives ; experimental proof that souring of milk is due to bacterial activity ; sources of bacterial contamination ; injurious bacteria of milk ; milk as a medium for conveying disease. The examination will include also a knowledge of the construction, manipulation, and principles of working of the apparatus used for testing milk and its products. Methods of raising and separating cream ; the ripening of cream ; use of starters ; the process of churning ; the composition of butter ; washing, working, and salting butter. Rennet—how prepared, its action on milk, and the determination of its strength ; composition of whey ; process of cheddar-cheese making ; ripening of cheese, with the changes that occur and the agents at work. Chief breeds of dairy cows ; anatomy and physiology of the cow in so far as bearing on nutrition and milk-production ; principles involved in breeding dairy cattle. Care and management of dairy cows and of calves ; food-crops ; other animals as economic adjuncts to a dairy-farm ; the commoner diseases of cows—parturient apoplexy (milk-fever), septic metritis, contagious mammitis, contagious abortion and sterility, tuberculosis, variola (cowpox) ; selecting and judging dairy cattle ; improvement of the dairy herd ; milk and butter-fat yields. General principles to be observed in the construction of buildings used in connection with dairying—farm buildings, creameries, and butter-factories—with a knowledge of their equipment and its uses ; care of milk ; conveyance of milk. Dairy legislation in New Zealand ; sale of milk ; adulterations in milk and its products ; defects in butter and cheese ; an elementary knowledge of book-keeping for dairy farms and factories.

The examination may include also practical work based on the foregoing syllabus.

A candidate in Dairy Science 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.

- (26.) *General History*.—Outlines of general history from 1815 to 1890, with special reference to the main lines of the social and political development of the Great Powers of Europe and the United States of America and Japan ; the partitioning of Africa ; and the establishment and development of colonies by European Powers.
- (27.) *English Constitutional History*.—(a.) Outlines of the British Constitution from 1485, including a general knowledge of the leading cases in Constitutional Law and of the chief constitutional documents.
(b.) A general knowledge of the present working of the Constitution, including the constitutional relations between the United Kingdom and oversea dominions, colonies, and dependencies.
- (28.) *Economics*.—(a.) The general economics of the production, consumption, distribution, and exchange of wealth ; the law of population ; emigration and immigration ; problems of industrial organization ; overproduction ; monopolies and combinations ; proposed remedies for low wages ; trade-unions ; strikes ; land-tenures ; land nationalization ; land rating and taxation.
(b.) The more fundamental treatment of—Money, credit, interest, the banking functions, international trade, foreign exchange, balance of trade, freetrade and protection, preferential trade, economic functions of Government, socialist theories, State and municipal socialism, State regulation of labour, and labour disputes.
- (29.) *Economic History*.—The outlines of the industrial and commercial development of Great Britain, the questions being mainly chosen so as to deal with the period subsequent to 1760, and to include—the effects of the introduction of machinery upon industry and trade ; changes in industrial organization ; the development of transport and the distribution of products ; the economic effect of the Napoleonic wars ; movements of foreign trade ; the effects of protective tariffs upon production and distribution ; trade unionism and its effects in raising or lowering the standard of wages and industrial efficiency ;

the influence of the co-operative movement; the rise and growth of large companies and trusts; the growth of banking; the adoption of the gold standard; and the history of general prices.

- (30.) *Economic Geography*.—Longitude and latitude; great circles, small circles; standard and local time; construction and scale of maps; climate, including rainfall and winds; the division of the world into natural and economic regions; geographical factors controlling the production and exchange of commodities, especially the chief foods and foodstuffs, minerals, and raw materials, and the staple manufactures; distribution of the chief economic plants and animals; factors encouraging or hindering trade.

The paper shall have special reference to Great Britain, to New Zealand, to Australia and the Pacific Islands, and to America—dealing with the chief geographical and local conditions under which commodities are produced and distributed; with the chief trade routes and means of transit; with currencies; with social and political conditions affecting or likely to affect trade with New Zealand; with ports or harbours, coaling-stations; the chief post and telegraph routes; the distribution of population, of minerals, of forests, and of vegetable products; the necessary conditions of development in manufactures, agriculture, and commerce; the distribution of industries.

- (31.) *Jurisprudence*.—The nature of civil law and its relations to other kinds of law; the nature of the State and its functions; the administration of justice and its various forms; the sources of law; the leading divisions of law; the leading ideas involved in a legal system; general principles of legal development; a comparison of the leading principles of English and Roman law (details of these systems are not required).

Candidates may be required to take the B.A. pass paper in this subject.

- (32) to (36). The requirements in the English law subjects—Contracts, Law of Property (Part I), Law of Property (Part II), Law of Torts, Criminal Law—shall be the same as the requirements of the examination conducted by the New Zealand University for candidates for admission as solicitors. Candidates taking these subjects may be required to present themselves at that examination.
- (37.) *Industrial Law*.—The law of master and servant, with special reference to the statutory law of New Zealand, dealing with contracts for employment, age, sex, and educational standard of employees; hours and conditions of labour; payment, recovery, and protection of wages; compensation for injury, and settlement of disputes.
- (38.) *Statistical Method*.—Data and forms of returns; tabulation and other forms of reduction of data; averages, the various forms (*e.g.*, median, geometric, mean) and their respective advantages; average and type; distribution about the average, and measurement of dispersion; ascertainment of probability of given deviations; accuracy, and estimation of limits of error; proportional error in results caused by errors in original data; the use of graphical methods in statistics. The use of index numbers for the determination of changes in prices or wages. The commoner forms of statistical fallacy.
- (39.) *Elementary Actuarial Mathematics*.—The use of logarithms and of easy series as applied to interest, mortality tables, insurance, and annuities. Probabilities with reference to easy problems connected with life expectation, insurance, and annuities. Graphical methods applied to easy economic problems. Approximate methods of solving easy actuarial problems; limits of error in the approximations.
- (39A.) *Elementary Principles of Interest, Life Annuities, and Insurances*.—Easy problems relating to compound interest, including annuities certain. Application of the theory of probabilities to life contingencies. The theory of annuities and insurances (including the use of commutation tables and computation of ordinary premiums). The source and characteristics of the principal mortality tables. The valuation of ordinary forms of policies.
- (40.) *Practice of Life and Accident Insurance*.—The nature of insurance contracts generally (including life and accident insurance contracts). The selection of lives for insurance.
- (41.) *Life and Accident Insurance Book-keeping*, with special reference to the books of the Government Insurance Department.
- (42.) *Life and Accident Insurance Law in New Zealand, and Life and Accident Insurance Companies Law in New Zealand.*

- (42A.) *Law and Practice of Fire Insurance* as applicable to New Zealand, including fire hazards, fire insurance tariff, and fire insurance office system and book-keeping.
- (43) and (44).—*Applied Mechanics I (Materials and Structures)*, and *Applied Mechanics II (Machines and Hydraulics)*.—The Commissioner reserves to himself the right to hold the examination in these subjects at any time or place, or to require candidates to take the Lower Examination (older Second-stage Examination) of the Board of Education, Whitehall, London, in the subject, or some other approved examination. On application to the Education Department a syllabus will be supplied.
- (44A), (45), and (46). Candidates selecting the subjects *Mechanical Engineering* and *Electrical Engineering* are required to obtain the certificate of the City and Guilds of London Institute in Grade II of the subject, and for *Electric Wiremen's Work* a certificate of having passed the Final Examination of the Institute. A syllabus of the City and Guilds of London Institute examination in the subjects named, together with the conditions to be observed by candidates for the required certificates, may be obtained on application to the Education Department.
- (47), (48), and (49).—*Heat Engines, Machine Construction and Drawing, and Building Construction*.—The Commissioner reserves to himself the right to hold the examination in these subjects at any time or place, or to require candidates to take the Lower Examination (older Second-stage Examination) of the Board of Education, Whitehall, London, in the subject, or some other approved examination. On application to the Education Department a syllabus will be supplied.
- (50.) *Architecture*.—The influence of constructive conditions, of the means available, of labour and materials, and of social habits upon architectural styles.

The study of good specimens of architecture, both in the mass and in detail, from buildings of recognized merit. Geometrical and perspective drawings should be made, and methods of construction understood.

Mouldings and such details should be drawn full size, wherever possible, rather than to half or quarter size of the real dimensions.

The orders Greek and Roman. The word "order" as applied to classical architecture. Its meaning as a combination of a column and its usual superstructure or entablature. The term "order" as possessing also a wider significance and extended to denote a style or manner in keeping with one of the varieties of column in use in classic times.

Candidates will be expected to be able to draw from memory with tolerable correctness, with their proper mouldings and enrichments, good examples of the orders, both Greek and Roman. The dimensions of the minute subdivisions of height and projection which are met with in the books on this subject need not, however, be committed to memory.

The differences between the principles of trabeated and arched architecture, and the effect of these differences on Greek and Roman work. The part played in Roman architecture by each principle respectively.

The influence of constructive necessities in developing the subsequent European styles from Roman, and the influence of the same principle in the development of pointed architecture from round-arched.

The characteristics of English architecture from the twelfth century, as in the naves of Peterborough, Rochester, Durham, or the transepts of Winchester, down to the sixteenth century, as in Henry VII's Chapel, King's College Chapel, at Cambridge, or the Halls of Hampton Court, and of Christ Church, Oxford; and also those of the English variety of Renaissance architecture, such as that of Knole, Kirby, Hardwick, and Longleat.

Candidates will be required to describe buildings in the styles above mentioned with which they are familiar, and will be asked to illustrate their description by sketches from memory.

The following buildings in New Zealand are recommended for study as representative of the various classic styles or orders and of English Gothic of the twelfth and thirteenth centuries: The Bank of New Zealand, Auckland; the Union Bank, Dunedin; the Bank of New Zealand, Dunedin; the Bank of New Zealand, Christchurch; the Anglican Cathedral, Christchurch; the old Provincial Council

Chambers, Christchurch; St. Matthew's Church, Auckland; St. Mary's Anglican Church, Timaru.

General Knowledge: Candidates will be required to show a knowledge of the terms in ordinary use in architectural books, and to illustrate their answers under this head by sketches.

- (51.) *Mechanical Drawing (Architectural) and Perspective.*—The application of geometrical drawing to the delineation of portions of buildings and structures, the setting-out of masonry arches, of staircases and handrailings, the drawing of details of construction. The preparation of perspective drawings from plans and elevations. The preparation of bird's-eye views.
- (52.) *Mining.*—The following topics as treated in the lectures delivered in connection with the various Schools of Mines in New Zealand:—
 Mines: Characteristics, mode of occurrence, and distribution of the usual minerals, with special reference to New Zealand localities; classes of ore-deposits; faults; recovery of lost lodes; shaft-sinking and driving levels; dry and wet ground; timbering shafts, levels, and inclines; underground workings. Surface water; dams; force pumps, lift pumps, steam pumps; pumping-engines: capacity of pumps; thickness of pipes.
 Explosives: Composition and strength; mode of charging bore-holes and firing; products of combustion; calculation of quantities.
 Ventilation: The atmosphere; natural ventilation; artificial ventilation; furnaces; fans, &c., division of air-currents; composition and detection of noxious gases.
 Hauling and Winding: Strength of ropes; aerial haulage; underground haulage; roads, rails, and guides; safety appliances; turbine, Pelton wheel; steam-engine; winding-engine and signalling.
- (53.) *Accounting.*—The object and value of book-keeping; the form, nature, and classification of accounts; tabular and columnar book-keeping; self-balancing systems; consignment accounts, account sales and accounts current; average due date; partnership, and an elementary knowledge of executorship and trustee accounts; statements of affairs and deficiency accounts; preparations of accounts from single-entry books, and conversion of single-entry books into double entry; manufacturing, trading, and profit and loss statements of trading concerns, and the passing of all entries connected therewith; branch accounts; a general knowledge of the nature of capital, debentures, stocks, shares, and of company book-keeping.
- (54.) *Shorthand.*—Writing 150 words a minute, and transcribing accurately into longhand. Candidates should be able to explain the principles of the system they use.

This regulation shall be deemed to take effect on and from the 1st day of April, 1915.

Regulation No. 202 is amended by deleting paragraph (e), and substituting in lieu thereof the words—

“(e.) Passed an examination as a medical practitioner, civil engineer, or surveyor, provided that in each case the examination includes the subjects compulsory for his Department;

“(f.) Passed any other examination which, in the opinion of the Commissioner, is equivalent to any of the foregoing.”

This amendment shall be deemed to take effect on and from the 1st day of April, 1915.

Regulation No. 204 is hereby revoked.

Regulation No. 204A is amended by deleting the word “increment,” and inserting in lieu thereof the word “allowance.”

Regulation No. 208 is cancelled as from the 1st day of April, 1914, and the following substituted in lieu thereof:—

“Officers of the General Division whose salaries do not exceed £180 per annum shall, on their service reaching fifteen years, be granted a long-service salary payment of £10. In cases where the salary is more than £180 the payment will be such a sum as will bring the total amount payable to the officer up to £190. Such payment shall not be granted to any officer unless his conduct is favourably reported on by the Permanent Head.”

222. Except in the case of officers whose salaries are already more than £220, the following shall be the amounts or rates of salaries or wages for clerical work or for shorthand and typewriting work per-

formed by female officers, and such officers shall be graded as stated herein:—

- (a.) Where the officer has entered the Service in the order of passing the Entrance Examination, and is engaged on clerical duties exclusively: Maximum salary, £220; Clerical Division.
- (b.) Where the officer is already in the Service and is performing clerical duties such as book-keeping, preparation of returns, &c., but did not enter by virtue of the Entrance Examination: Maximum salary, £180, with an extra £10 after fifteen years' service; Clerical Division.
- (c.) Where the officer is employed as a shorthand-writer and typiste or as a machinist, and performs also minor clerical work, the salary shall be £72 to £156; increments to be £12 per annum; General Division:
 Provided that if the Commissioner is satisfied that the duties of the officer regularly include more than 50 per cent. of clerical work she may, after receiving salary at the rate of £156 per annum for twelve months, and on passing such examination as may be prescribed by the Commissioner, be considered as coming within the provisions of subsection (b) of this regulation.
- (d.) Where the officer is employed as a shorthand-writer and typiste in charge of a group of female officers, or is engaged in special work in one of the more important Departments: £168 to £180, by one increment of £12, with an additional increment of £10 after having received a salary of £180 for three years; General Division.

As witness my hand, this 1st day of April, one thousand nine hundred and fourteen.

D. ROBERTSON,
 Public Service Commissioner.

In pursuance of the provisions of the Public Service Act, 1912, His Excellency the Governor of the Dominion of New Zealand, with the advice and consent of the Executive Council of the said Dominion, approves of the foregoing regulations.

LIVERPOOL, Governor.

Approved in Council, this eighth day of April, one thousand nine hundred and fourteen.

J. F. ANDREWS,
 Clerk of the Executive Council.

*Additional Regulations made by the Public Service Commissioner
under the Authority of the Public Service Act, 1912.*

WHEREAS by section 34 of the Public Service Act, 1912 (hereinafter called "the said Act"), the Public Service Commissioner, with the approval of the Governor in Council, is authorized to make regulations for the carrying-out of the provisions of the said Act:

Now, therefore, the Commissioner, in pursuance and exercise of the said authority, and with the approval of the Governor in Council, doth hereby make the additional Regulations set forth in the Schedule hereto, and doth order that such Regulations shall apply to any officer or other person employed as a workman in the Public Works Department.

SCHEDULE.

GENERAL REGULATIONS.

INTERPRETATION.

1. THESE Regulations shall be construed with reference to the terms and interpretations of the said Act.

"Workman" means any artisan, mechanic, overseer, foreman, driver, carter, yardman, chainman, timekeeper, ganger, storeman, gardener, surfaceman, labourer, or other workman engaged in manual labour, who is employed at a fixed rate of pay, and has been so employed for a period of at least two months prior to the 1st April, 1913, or who may thereafter complete two months' continuous service, and includes the learner of any trade who has been apprentice in accordance with the Master and Apprentice Act, 1908, in any Department of the Public Service, but does not include co-operative workers or any workmen employed on piece-work or part-time.

APPOINTMENT OF STAFF WORKMEN.

2. No workman shall be appointed to the permanent staff who was over forty years of age on his last birthday; and before any workman is so appointed he shall submit evidence that he is possessed of educational qualifications equal to the requirements of Standard IV under the Education Act, 1908, or some examination which in the opinion of the Commissioner is equivalent thereto. He must also produce a certificate from a properly qualified medical practitioner that he is of sound bodily health, and a testimonial of good character.

APPOINTMENT OF APPRENTICES.

3. Apprentices may be appointed to any mechanical or technical department of the Public Service, subject to the approval of the Commissioner, who may at any time during the period of probation dismiss any apprentice for any reason which may be deemed sufficient.

4. An applicant for employment as apprentice must not be under fourteen or over sixteen years of age, and must produce a certificate from a properly qualified medical practitioner that he is of sound bodily health, a testimonial of good character, and a certificate of having passed an examination equal to that of the Fifth Standard under the Education Act.

Except as otherwise provided herein, all apprentices shall be indentured for such periods as may be decided by the Commissioner after having served three months on probation, which shall be deemed to be part of the period of apprenticeship. Apprentices shall be afforded every opportunity of learning their trade, and their conduct and work must be carefully observed and reported upon to the Permanent Head at intervals of three months for the first year and thereafter annually.

TEMPORARY WORKMEN MAY BE PERMANENTLY APPOINTED IN CERTAIN CASES.

5. A temporary workman on completing two years' continuous service, or a period of three years' broken service, and on being granted by the Permanent Head a certificate of competence and of satisfactory conduct, may, if a suitable vacancy exists, and he is able to comply with Regulation 2, be appointed to the permanent staff. Appointment to the permanent staff will not necessarily carry any increase of pay.

WORKMEN TO BE ACQUAINTED WITH THE ACT AND THESE REGULATIONS.

6. Workmen shall acquaint themselves with the said Act and these Regulations, and a copy of the same shall be posted in each shop or room to which workmen commonly have access. Foremen should send in requisitions to the Permanent Head for copies.

WORKMEN TO OBEY INSTRUCTIONS.

7. Each workman shall promptly obey all instructions issued by the foreman, and shall pay strict regard to order, regularity, and system.

WORKMEN TO DEVOTE THEMSELVES EXCLUSIVELY TO BUSINESS.

8. Each workman shall devote himself exclusively to the business of the Department. He shall attend at such hours as may be required, and strictly observe all rules, regulations, and instructions which may be in force from time to time.

HOURS OF WORK.

9. The hours of attendance to be observed by workmen shall be from 8 o'clock a.m. to 12 noon, and from 1 p.m. to 5 p.m., but in places where it is customary to work a short day on Saturday, work may cease at noon.

10. Workmen paid at daily or hourly rates, and who have been employed for less than two months continuously, shall be paid for the time actually worked.

11. Sunday labour is forbidden except in cases of pressing emergency, or with the approval of the Permanent Head.

WORK-DOCKETS.

12. When so directed, work-dockets or such other records as may be prescribed shall be kept by each workman, showing the allocation of his time to the various jobs daily.

FOREMEN RESPONSIBLE FOR CORRECT BOOKING OF TIME.

13. Foremen and timekeepers will be held responsible for the booking correctly of time to job numbers or such headings as may be adopted. They shall also carefully check all time-books or similar records.

APPOINTED HOURS TO BE KEPT.

14. No workman will be allowed to alter his appointed hours of duty, or to exchange duty with any other workman, without the permission of his foreman or the head of the branch.

OVERTIME.

15. Overtime shall be paid at the rates not less than those specified by awards, or, if there is no award, at not less than ruling rates.

LATE ARRIVAL OF WORKMEN.

16. Any workman arriving at his place of employment after 8.5 a.m. or 1.5 p.m. shall report himself to the foreman; and, if a satisfactory explanation is not forthcoming, his conduct shall be brought under the notice of the Permanent Head.

HABITUAL IRREGULARITY OF ATTENDANCE.

17. If any workman is found to be habitually irregular in the time of his arrival, or to absent himself without leave during working hours, his conduct shall be reported to the Permanent Head.

WORKMEN NOT TO LEAVE THE WORK UPON WHICH THEY ARE ENGAGED.

18. No workman shall be allowed to leave his work during working-hours except in connection with his employment or by permission of the foreman; and the period of such absence, if not on official business, shall be recorded.

UNAUTHORIZED ABSENCE.

19. When a workman cannot attend at his place of work at the time appointed he must use his best endeavours to send an intimation of his absence, and the reason therefor, to the foreman at such a time as will enable it to be received within one hour of

the time he is due to attend. In cases where a workman's absence is not sanctioned, there shall be deducted from his wages his pay for the period of such absence.

DILIGENCE ENJOINED.

20. A workman shall continue to work diligently until the signal is given to cease. Any case of loitering shall be promptly dealt with by the foreman.

IMPROPER CONDUCT.

21. If any workman is convicted by any Court of any offence arising from improper conduct of such workman, the foreman shall immediately report the circumstances to the Permanent Head.

INSOBRIETY.

22. If a foreman observes at any time that any one under his supervision is unfit to perform his duties properly by reason of over-indulgence of intoxicating liquor or drugs, he shall suspend him from duty and immediately report the matter to the Permanent Head.

INTOXICATING LIQUOR.

23. Any workman found introducing or causing to be introduced intoxicating liquors into the workshop premises shall be liable to be dealt with under section 52 of the said Act.

TEMPORARY FOREMEN.

24. A workman temporarily employed in an advanced capacity, and in charge of at least four men other than himself, shall be paid an allowance of 1s. per day extra while so engaged.

HOLIDAYS.

25. A workman of more than two years' continuous service shall be granted fourteen working-days' holiday on full pay in each year, and, in addition, special holidays during the year not exceeding on the whole nine days, provided this can be arranged without inconvenience to the Department.

26. The granting of any such holiday-leave on pay shall be subject to the express condition that the behaviour of the workman has been in every way satisfactory.

SHORT LEAVE OF ABSENCE.

27. The Permanent Head or any officer authorized by him may, in case of pressing necessity, grant any workman of not less than two years' service leave of absence not exceeding three working-days. For the purpose of this regulation leave granted for Saturday shall (in places where it is customary to work a short day on Saturday) count as one-half of a working-day. Any leave granted under this regulation shall be deducted from the annual leave.

SICK-LEAVE.

28. Sick-leave when granted by the Permanent Head shall be granted in accordance with the following schedule, but a report of all leave granted under this regulation shall be submitted every two months to the Commissioner:—

Length of Service.	Period for which Leave may be granted.		—
	On Full Pay.	On Half-pay.	
Under five years ..	Months. 1	Months. 2	In exceptional cases the Commissioner may take any special circumstances into consideration, and may vary the scale of payments.
Over five years and under ten	2	1	
Over ten years ..	3	..	

29. Every application for sick-leave shall be accompanied by a medical certificate.

30. Where sick-leave for more than three months is applied for, the application must be referred to the Commissioner.

31. Where in case of illness any workman who has received leave of absence for three months is not so far recovered as to be able to

resume his duties, further extensions of leave may be granted by the Commissioner, provided that on each extension of leave the applicant shall be subject to an examination by a medical practitioner approved by the Commissioner.

32. Special circumstances may be taken into consideration—*e.g.*, where a workman in discharge of his duty sustains injuries of such a nature as to incapacitate him for duty.

33. If any workman is absent from duty on account of illness, and such absence has extended beyond three months, he shall not be permitted to return to duty until some medical practitioner approved by the Commissioner has certified that he is fit to resume work.

INEFFICIENCY THROUGH ILLNESS.

34. If in the opinion of the Permanent Head any workman is inefficient through repeated illness, such inefficiency shall be reported to the Commissioner, who may take steps to have such person examined under the provisions of the Public Service Superannuation Act, with a view to his retirement from the Public Service as being medically unfit for further duty.

ILL HEALTH RESULTING FROM MISCONDUCT.

35. No leave on account of illness shall be granted with pay if the sickness or ill health has been caused by the misconduct of the workman. In order to satisfy himself on that point the Permanent Head may send a medical practitioner to attend on and examine such workman. A fee shall be paid to the medical practitioner for his attendance and report; and if such report is in the opinion of the Permanent Head not favourable to the workman concerned, the amount of the fee so paid shall be deducted from any money which is or becomes payable to the said workman by the Government.

PENALTY FOR IMPOSITION.

36. Any workman practising imposition under the plea of sickness shall be subject to dismissal, disratment in rank, or reduction in salary, as the Commissioner may determine.

SICK-LEAVE FOR TEMPORARY WORKMEN.

37. The Permanent Head may, on satisfactory evidence that the leave is necessary on account of sickness or ill health, grant to any workman who has been temporarily employed for more than two months and less than two years leave of absence on half-pay for a period not exceeding two weeks.

38. Sick-leave on pay shall not be granted where a workman received compensation under the Workers' Compensation Act, 1908.

LEAVE OF ABSENCE FOR MILITARY PURPOSES.

39. Leave of absence may be granted by the Permanent Head to workmen who are members of the Defence Force for the purpose of attending camps and courses of military training. Leave of absence granted in pursuance of this regulation shall be additional to the holidays before mentioned.

SPECIAL LEAVE ON RETIREMENT.

40. Special leave of absence will be granted to workmen retiring from the Public Service on the following conditions: Provided that the sick or other leave in the twelve months preceding retirement has not exceeded three months, and that the interval between the ordinary and special leave is at least three months.

- (a.) Workmen retiring on superannuation, or compensation in lieu of superannuation, three months.
- (b.) Workmen of under ten years' service retiring for their own purposes, other than medical unfitness, no leave.
- (c.) Workmen of ten years' service and under twenty years' service retiring for their own purposes, other than medical unfitness, one month.
- (d.) Workmen of at least twenty years' service retiring for their own purposes, other than medical unfitness, six weeks.
- (e.) Workmen retiring on medical certificate, three months.

(f.) Workmen dispensed with through no fault of their own before reaching the retiring-age—

If under five years' continuous service, one month.

If five years and under ten years, two months.

If ten years or over, three months.

TRAVELLING-EXPENSES.

41. Workmen travelling under instructions shall be entitled to a refund of actual and reasonable expenses incurred for board and lodging. Receipts for all sums in excess of 5s. shall be submitted.

The cost of transport by land or sea will be paid by the Department, or, when paid by the workman, will be refunded to him on production of vouchers, but no vouchers for such expenses will be required for sums of 5s. or less; and vouchers for railway fares will not be required if the railway travelled upon and the extent of the journey is stated.

Workmen who are transferred from one locality to another at their own request, or by mutual exchange, must bear the whole cost of their removal.

42. When transferred on account of misconduct the cost must be borne by the workman at fault, unless otherwise determined by the Commissioner prior to removal.

When any workman is transferred—

(a.) In the public interest;

(b.) To meet the convenience of the Department;

The actual cost of conveyance of such workman and of his family (with personal and household effects only) will be paid by the Department; but the Head of the Department shall decide as to the transfer of the workman's family if the work to which the workman is to be transferred be estimated to last for a shorter period than six months.

(c.) In the interests of the workman,—

When there is no public work available in a district, and a workman desires to be retained in the Public Service and there is work available for him in another district, he may be transferred to such last-named district, but in such case his personal expenses only will be paid by the Department.

ACCIDENTS.

43. Every accident must be immediately reported to the head of the branch. In every case the foreman is fully empowered to call in medical assistance. Every accident must be reported as soon as possible, care being taken to preserve all important facts in connection with the accident for embodiment in the report. A stock of first-aid appliances and material must be provided and kept in accessible positions, and such stock shall be regularly examined to see that it is in a proper and serviceable condition. This must be the special duty of the foreman, and a record must be kept of the result of each examination.

FIRST AID.

44. Workmen are recommended to make themselves proficient in the rendering of first aid. Books of instruction will be supplied by the Permanent Head on application.

WORKMEN NOT TO VISIT OTHER PARTS OF SHOP.

45. Each workman must confine himself to that part of the shop in which he is engaged, and must not visit or work in any other part unless authorized.

REMAINING IN OR RETURNING TO WORKSHOPS AFTER HOURS. VISITORS.

46. A workman must not remain in or return to the workshops premises after working-hours without the permission of his foreman. Visitors must not be allowed in the workshop without the permission of the foreman.

WORKMEN TO BE COMPETENT.

47. Foremen must see that each workman is competent for the work he is set to do, and that the work is performed in a proper manner. Any carelessness, negligence, or incompetency must be at once reported.

ECONOMY.

48. All work must be executed in a workmanlike manner, and each workman must be economical in the use of stores and material. Old or surplus material shall be disposed of only as directed by the Permanent Head.

TIDINESS REQUIRED.

49. It shall be the duty of each foreman to see that the staff under his control appear on duty as tidy as circumstances will permit.

NEGLECT OF INSTRUCTIONS.

50. Any workman disobeying instructions, doing his work in an unworkmanlike manner, interfering or wrangling with any other workman, using objectionable or abusive language, or being absent from duty without leave shall be liable to be dealt with under section 52 of the said Act.

COMPLAINTS.

51. Any workman who has cause to complain of the conduct of another workman must make his complaint to the foreman or head of the branch within seven days of the date on which such conduct is alleged to have occurred. Such complaint shall be immediately forwarded to the Permanent Head, who shall forthwith call upon the person complained of to furnish an explanation.

BORROWING FORBIDDEN.

52. A workman is strictly forbidden to borrow money from, or to place himself under pecuniary obligation to, any subordinate workman.

SMOKING.

53. Workmen shall not smoke in any prohibited parts of any workshop or premises during working-hours. Foremen must see that notices are posted in prominent places in the matter of smoking in the prohibited portion of any building.

CANVASSERS TO BE EXCLUDED.

54. All canvassers are strictly excluded from departmental premises.

REGISTERING ADDRESSES OF WORKMEN.

55. The place of residence of each permanent workman and any change of residence must be at once notified to the foreman, who will be responsible for seeing that the names and addresses are registered.

DEFICIENT OR SURPLUS PAY.

56. If a workman has reason to believe that he has received the wrong amount of pay he must at once report the matter in writing to the foreman.

57. Any workman whose pay does not agree with the amount appearing on the pay-sheet must notify the paying officer before leaving, otherwise no claim for alleged shortage will be entertained by the Department. Should there be any instance of overpayment it must at once be reported.

FIRE.

58. Any workman using artificial light or fire must extinguish it before leaving the premises. Shavings and other combustible materials must not be permitted to accumulate. Foremen will be responsible for seeing that this regulation is complied with.

TESTING FIRE-APPLIANCES.

59. All fire-appliances must be tested regularly, and a record kept by the foreman showing the date of testing and state of the appliances.

NOTICE WHEN LEAVING SERVICE.

60. Any permanent workman wishing to leave the service of the Department must give one month's notice of his intention so to do.

COMMUNICATIONS TO BE ADDRESSED THROUGH FOREMAN.

61. A workman is forbidden to address communications in connection with his duties in the Department other than through his foreman.

SUGGESTIONS.

62. Workmen are invited to suggest, either orally or in writing, improvements to working appliances or methods in use. Where a book is provided in which suggestions may be recorded such book shall be inspected at regular intervals by the foreman, who must report such suggestions to the Permanent Head.

COST OF WORK.

63. Each foreman should regard it as a special part of his duty to keep himself in close touch with the cost of each work placed in his hands for execution, and where in any case the cost may appear excessive the fullest inquiry should be made to ascertain the reason.

STORES REGULATIONS.

64. Each foreman will be responsible for observing all regulations affecting the purchase, custody, receipt, and disposal of stores, and all matters relating thereto or in connection therewith.

AUTHORITY TO PURCHASE MATERIAL.

65. No material for use in the workshops shall be purchased without the specific authority of the officer appointed for the purpose.

CREDITING SURPLUS STORES.

66. When stores have been drawn from stock for any one work and are not wholly required, foremen must see that all such stores remaining over are properly credited.

PRESERVING STORES AND MATERIAL.

67. Special attention must be paid to the preservation of all stores and material so as to prevent loss, depreciation, or deterioration. Regular inspection must be made and constant watchfulness exercised by foremen to secure the observance of this regulation.

FILING INVOICES.

68. Each foreman must file all invoices for goods received by him, in order that he may be able to certify to the correctness of claims referred to him for check.

BRANDING BULK TIMBER AND TOOLS.

69. Every tool the property of the Department must bear the departmental brand, and each workman must see that the brand is made and maintained on each tool. Such tools must not be used until they are properly branded. On leaving the Department each workman must account for all departmental tools entrusted to his care. A system of branding timber shall be adopted to suit the conditions of the Department.

RESPONSIBILITY FOR TOOLS.

70. The officer in charge of each workshop or gang will be held responsible for the safety, accuracy, branding, and condition of all portable and special tools, and must report any case of injury to such tools by any workmen, provided such injury is not due to fair wear-and-tear.

CARE OF TOOLS AND MACHINERY.

71. All machinery and tools must at regular intervals be cleaned and kept in proper working-order. Workmen shall be afforded the necessary time in which to perform this duty, and the work should, as far as possible, be evenly distributed among all workmen.

DAMAGE TO PROPERTY.

72. A workman must not damage, destroy, or otherwise make away with any tool or other article, or deface, mutilate, or destroy any drawing, pattern, notice, or other article, the property of the Department.

73. A workman in the course of his work breaking or otherwise damaging tools or machinery or other property of the Department must at once report the matter to the foreman or head of the branch.

RECORD OF TOOLS AND EQUIPMENT.

74. A record in prescribed form shall be kept by each foreman of all tools and equipment under his charge.

PERMIT TO TRANSFER TOOLS AND MATERIALS.

75. Any workman having occasion to take tools or material from the shops to any place where he may be temporarily employed must obtain a permit from the foreman. Such tools and any surplus materials must be returned to the workshop.

PERMISSION REQUIRED TO LEND OR BORROW TOOLS.

76. Tools, appliances, or material of any description belonging to the Department must not be loaned or borrowed without permission of the Permanent Head.

WORK IN WORKMAN'S OWN TIME.

77. A workman is, except with the permission of the Permanent Head, forbidden to bring into the workshop material or goods of any description, other than tools required for his work which are not provided by the Department.

DEPARTMENTAL PROPERTY NOT TO BE TAKEN FROM WORKSHOPS.

PRIVATE WORK.

78. A workman is forbidden to take any departmental property from the workshop (other than for departmental purposes), and must not convert to his own use any material or article the property of the Department, however small its value may be, and under no circumstances shall a workman make for private purposes tools, patterns, models, or articles of any description upon the premises.

SHOPS TO BE KEPT CLEAN.

79. *The shops and premises adjacent thereto must be kept in a cleanly condition.*

REPAIRS TO SHOP PREMISES OR EQUIPMENT.

80. Foremen should call attention to any repairs necessary to shop premises or the equipment.

MACHINERY IN MOTION TO BE PROTECTED.

81. Foremen will be held responsible for seeing that all machinery in motion is properly protected.

DRAWINGS TO BE ADHERED TO.

82. No drawing shall be altered or departed from without written authority, but if at any time any alteration suggests itself to any workman which may be of advantage to the Department he should call attention to it at once.

83. Drawings, documents, or matter of any kind placed in hands of workmen shall be treated as confidential.

YEARLY REPORT ON WORKMEN.

84. On the 31st March in every year the overseer shall furnish to the Permanent Head, for transmission to the Commissioner, a report upon the conduct, diligence, and general efficiency of each workman under his control.

APPEAL.

85. Workmen shall have the right of appeal under the General Regulations of the Public Service Commissioner issued on the 31st March, 1913.

GENERAL.

86. In the event of any dispute or question arising as to the meaning of these Regulations, or any portion thereof, or as to anything done or alleged to have been done thereunder or contrary thereto, it shall be referred to the Permanent Head.

As witness my hand, this 25th day of March, one thousand nine hundred and fourteen.

D. ROBERTSON,
Public Service Commissioner.

In pursuance of the provisions of the Public Service Act, 1912, His Excellency the Governor of the Dominion of New Zealand, with the advice and consent of the Executive Council of the said Dominion, approves of the foregoing regulations.

LIVERPOOL, Governor.

Approved in Council, this 3rd day of April, one thousand nine hundred and fourteen.

J. F. ANDREWS,
Clerk of the Executive Council.

By Authority: JOHN MACKAY, Government Printer, Wellington.