

(n) The construction of a lamp for the determination of the sulphur content of fuels used for earthenware and crockery kilns.

(o) The engraving of graticule lines on drift-recorders for Tasman Empire Airways flying-boats.

(p) The design and manufacture of a 500-cycle amplifier for geophysical survey work, Thames goldfields.

(q) The design, construction, and installation of safety clutches for the catching rollers of ring spinning frames. This piece of subsidiary equipment, which was requested as the result of an accident, allows the operators to clear the rollers of wool without danger to their fingers.

(r) Design of limit and check screw gauges for various repetition production processes, their manufacture being arranged with the Dominion Physical Laboratory.

(s) The calibration of substandard test equipment for Tasman Empire Airways.

(t) Examination and report on locally manufactured plastic contact lenses.

(u) The repair and remaking of surgical instruments, mainly with respect to their optical components.

(v) Experimental work on refractory tiles and low-temperature silver solders for use in furnace brazing of jewellery.

(w) The production of a prototype train-control unit in which the operation is voice controlled, allowing duplex working on a single telephone line using microphone and loud-speaker, without interaction between the two channels.

(x) Some twenty small servicing jobs entailing physical or engineering assistance.

WORK AT PRESENT IN HAND

The following excerpts from the work at present in hand will also serve to illustrate the wide field in which assistance has been requested:—

(a) The design and installation of a heating system for the newly formed volcanological laboratory at Rotorua, using a steam bore.

(b) The design of heated platens for an experimental press in the Dominion Laboratory.

(c) The design and construction of a phase difference indicator for automatic signalling systems (New Zealand Railways) embodying a cathode-ray oscilloscope.

(d) Assistance in the design of a cooling stage in a plant producing zinc oxide.

(e) The construction of an electronic titrometer for the Government Analyst for use in volumetric analysis work.

(f) An investigation into the machine performance, fibre stresses, uniformity, and quality of the final product in a variable speed ring spinning frame for woollen fibre. This is a most important project, connecting, as it does, increased production with the quality of the final yarn. Special continuous recording equipment has been developed and manufactured so that the complete cycle of operations in the spinning of a “cop” can be interpreted graphically.

(g) The design and construction of a prototype unit for the cooling and humidification of glasshouses during the summer months, and their heating during the winter.

(h) The design of a hydraulically operated machine for the stretching of wire mattresses.

(i) The production of a prototype mechanism to allow for “unit” parking of cars in congested areas.

(j) The design and production of a supersonic transmitter, intended to prevent pollution of reservoirs by seagulls, and interference with high-tension electrical equipment by nesting birds.

A total of 200 jobs have been undertaken during the year. Of these, 126 have been completed.