

are now looking well, and comprise 1,220 sheep, 73 head of cattle, 97 pigs and 13 horses. The above numbers have been carried during the year. A good deal of culling has been done; yet there is need for improvement, and especially in the sheep, for it would be of great advantage if many of the latter could be replaced by stud stock. This would have a splendid effect financially, as may be seen from the returns of the little flock of Eorder Leicesters now upon the farm. A good deal of additional expense has been incurred during the year by a determination to rid the farm of all weeds; and we may now say, to the best of our knowledge, not one single weed has seeded upon the farm during the past season. The work of changing the water-race courses from the north-west to the south-west side of the fences has received a good deal of attention. A great improvement has been effected in the cow and pig-yard by having the same paved with brick and grouted with cement; and the proper storage of all liquid manure from the above yard and stable provided for by the building of a very large concrete reservoir. The liquid from here will be made use of by either the water-cart upon the grass land, or through the water-drill for root-growing. The annual valuation of the stock and plant upon the farm has been again done by Messrs. McMillan, Boag and H. Overton, in the presence of all the second-year students. The result has shown an increased value, owing chiefly to the improvement in cattle and sheep. During the year the farm has had to be worked to considerable disadvantage owing to the fact that no permanent employment of hands could take place, as it was considered most desirable that the incoming Director should in no way have his hands tied by not being able to make any changes he might think necessary upon his arrival.

II.—REPORT OF THE LECTURER IN CHARGE OF THE SCHOOL OF ENGINEERING AND TECHNICAL SCIENCE.

SIR,—

I have the honour to report on the work of the School of Engineering and Technical Science.

Lectures are at present delivered and instruction given in the following subjects: Freehand mechanical drawing and dimension sketching, practical geometry, mechanical drawing, steam and the steam engine, applied mechanics, the mechanics of machinery, advanced geometrical drawing, advanced mechanical drawing and designing; the strength of materials and design of bridges, roofs, and other structures; advanced steam engine, engineering, laboratory. The number of students attending lectures is fifty-three, eight being matriculated, and forty-five non-matriculated or "extra." The number of hour attendances per week is 219. The majority of the "extra" students are either mechanics or apprentices who are engaged in practical work during the day, and in the evening attend the lectures which are now delivered every night with the exception of Saturday.

A diminution in the number of matriculated students has been caused by the impracticable nature of the course of engineering at first decided on by the University Senate, the reward for the completion of which was to have been a certificate only. The Senate, however, has been prevailed on to reconsider its decision; and the course, as now laid down, is an excellent one. The degree of "Bachelor of Science and Engineering" will be granted on its completion, terms having been kept by the student at the School of Engineering, Canterbury College. The effect of this temporary check is therefore far more than compensated by the great advantages of a university course, and the official recognition of the School.

The engagement of a Demonstrator has allowed arrangements to be made for the extension of technical classes. Mr. A. F. Morrison, a former student and exhibition holder of the school, has received the appointment.

An "experimental" engine has been ordered for the laboratory, and should be in position early next year. The presence of this engine will be of the greatest advantage, enabling much of the theory of the steam-engine to be verified experimentally by the students themselves; whilst much important information concerning the most suitable conditions for the combustion of New Zealand fuels will doubtless be obtained.

I would now bring under your attention the fact that the School of Engineering has to fulfil the two-fold function of a department of the University and a technical school. To do this successfully, a considerable expenditure must be incurred. Engineering cannot be taught without practical illustration. The examples which abound in the older countries are not to be found here, a fact which renders doubly necessary the presence of the well equipped laboratory which forms so important a part of engineering colleges and technical schools throughout the world. The University Senate, too, insist on a large amount of experimental work, and their examiners are to be "English engineering professors of standing," accustomed to this method of instruction. The New Zealand student, if without such advantages, must therefore be heavily handicapped. That early action is required is evident from the fact that a third-year student sits for his University examination in November next. He will then be required to pass in the "practical testing of materials," and to carry out experiments on the "calorific powers of fuels," "efficiency of steam boilers and engines," "determination of frictional and fluid resistances," &c. In none of these subjects, owing to the want of facilities, has he received practical instruction. The same student desires to take electrical engineering as his fourth-year subject. No electrical plant exists at the school. Finally, I am convinced that it now requires only the thorough equipment of the school to insure its complete success. The advantages of the present course are so great that students will be drawn from all parts of the colony. It will also have the support of all members of the profession, some of whom regard with natural doubt the absence of practical illustration.