

II.—Engineering Essay. Prize of £3 3s., given by Prof. Barraclough:—

1906—Flashman, H. W.	1910—Holloway, R. A.,
1907—Swain, H. J.;	B.Sc.
Thompson, H. L.	1912—Pike, W. E.
1908—Waterhouse, L. V.	

III.—Assaying. Prize of £2 2s. given by F. A. Eastaugh, Esq., A.R.S.M. 1910: Anderson, W. T.

IV.—Civil Engineering, 1914. Prize of £2 2s., given by G. E. Hall, Esq., B.E., for a Graduation Thesis, preferably on a Railway Engineering subject. The following are suggested:—
 (i.) railway location; (ii.) transition curves; (iii.) impact allowance for bridges; (iv.) comparison of steel v. reinforced concrete in bridgework; (v.) size of trucks for max. economy; (vi.) superheating and (vii.) internal combustion for locomotives; (viii.) comparison of turbines for power generation; (ix.) analysis of oils and (x) fuels; (xi.) comparison of valve gears; (xii.) railless traction; (xiii.) power signalling; (xiv.) signal wire compensation; (xv.) alloy best adapted to resist wear due to friction, impact, abrasion, etc., as in points, “frogs,” etc.

The object of this prize is “to encourage practical investigation into the questions arising in this important branch of Engineering, and by so doing to endeavour to bring the University and Railways into closer touch.”

V.—Engineering Matriculants, Special English and Geography Paper, 1914. Prize of £2 2s. given by G. E. Hall, Esq., B.E., for proficiency in this paper, preference being given to a boy from the Sydney Grammar School. The object of this prize is “to encourage culture and general reading among those whose studies are to become technical, and to a certain extent specialised.”

EXHIBITIONS. 1914. A proportion of the New South Wales Government Public Exhibitions are allotted to undergraduates entering the Department of Engineering.

APPOINTMENTS (Naval). 1911. Two graduates in Mechanical Engineering may be nominated by the School annually to commissions in the Royal Australian Navy under certain conditions.

From the foregoing it will be seen that the Engineering School has in the past been favoured by the generosity of munificent donors who wished to enable others to enjoy opportunities of obtaining the best modern education in Engineering, of which they themselves had not the benefit. It now remains for those who have reaped the benefit of these endowments to do something for the School which has so greatly enhanced the position of the Engineer and the standing of the profession. At the

same time, public generosity could not be more wisely directed than in providing endowments in Engineering and Science, which play the most important part in the making of a nation and the maintaining of the highest economic standard of commercial efficiency.

From the inception of the Engineering School to the present, Professor W. H. Warren, LL.D., M. Inst. C.E., M. Am. Soc., C.E., Wh.Sc., Challis Professor of Engineering, has presided over the institution, and its flourishing condition and the position occupied by the graduates to-day, not only in New South Wales, but even in England and America, is evidence of how well and soundly it has prospered under his able guidance. With the exception of *Professor Anderson Stuart, M.A., M.D., LL.D., our Professor now holds pride of place in the University for length of service; and the high esteem in which he is held by students and graduates is no less than the reputation he has earned amongst the leading Engineers abroad, who recognise him as an authority in engineering matters. We recognise, too, that had he chosen private practice he would have been the leader in the profession here to-day, yet the sacrifice in this respect has enabled him to devote unsparingly the best years of his life to the organising of an engineering school of the highest grade, of which he, the University and the State may well be proud.

The selection of Assistant Professor Barraclough, B.E., M.M.E., A.M. Inst. C.E., etc., to preside over the Mechanical Engineering Department, and Assistant Professor Madsen, B.E., D.Sc., over the Electrical Engineering Branch—two Sydney University graduates of conspicuous ability—is further testimony of the high standard attained by our graduates.

The staff connected with the P. N. Russell School of Engineering at present, in addition to the three Professors, are:—

Civil Engineering.—Lecturer: W. A. Miller, B.Sc. Demonstrator: J. T. McMahon, B.E.

Architecture.—Lecturer: J. F. Hennessy, B.Sc.A.

Geodesy.—Lecturer: T. F. Furber, F.R.A.S.

Surveying.—Lecturer: A. D. Craig, B.A., B.E., A.M.I.C.E., Demonstrator: D. M. Murray.

Mechanical Engineering.—Lecturer: G. F. Sutherland, A.R.C.S. Demonstrator: J. Y. McKinnon, B.E. Honorary Lecturers: J. G. Burnell, B.E., G. A. Julius, B.Sc., M.I.M.E.

Electrical Engineering.—Demonstrator: F. A. Tidswell, B.E.

Mining.—Lecturer: F. D. Power, F.G.S. Assistant Lecturer: J. B. Wilson, B.E.

Metallurgy.—Lecturer: B. W. Turner, A.R.S.M.

Assaying.—Lecturer: F. A. Eastaugh, A.R.S.M., F.C.S.

* Now Sir Thomas Anderson Stuart, K.B.

Examiners: The Professors, Lecturers, Prof. A. J. Gibson, A.M.I.C.E., and J. Vicars, M.E.

Research Scholars: C. A. Bourne, B.Sc., B.E.; W. E. Pike, B.E.; J. Y. McKinnon, B.E.

Workshop Foreman: R. Hay.

Bedell: John Hufton.

The first engineering student was Phillip W. Rygate, M.A., B.E., and the first three engineering graduates were E. A. Meredith, B.E., P. W. Rygate, B.E., and Clarence Wood, B.E., who graduated in 1885.

The number of undergraduates in the school for each year is:—

Number of Engineering Undergraduates in

1883	..	3	1894	..	28	1905	..	80
1884	..	7	1895	..	30	1906	..	79
1885	..	2	1896	..	34	1907	..	92
1886	..	3	1897	..	27	1908	..	92
1887	..	8	1898	..	38	1909	..	85
1888	..	9	1899	..	66	1910	..	84
1889	..	6	1900	..	90	1911	..	80
1890	..	15	1901	..	99	1912	..	110
1891	..	15	1902	..	95	1913	..	108
1892	..	20	1903	..	89	1914	..	96
1893	..	24	1904	..	86			

The number of graduates up to 1914 inclusive is:—M.E., 6; B.E., 266.

Among graduates who occupy high positions in the profession, I might mention the names of Mr. J. J. C. Bradfield, M.E., M. Inst. C.E., etc., Chief Engineer for Metropolitan Railway Construction, who is now visiting Europe and America on behalf of the Government; Mr. H. H. Dare, M.E., M. Inst. C.E., etc., Chief Engineer to the Water Conservation and Irrigation Commission; Mr. Strickland, B.E., M.Sc., M.I.F.E., Chief Assistant Electrical Engineer to the N.S.W. Government Railways; and Mr. J. W. Roberts, B.E., M. Inst. C.E., Designing Engineer to the Railway Construction Department; Mr. A. Boyd, B.Sc., B.E., Chief Assistant Engineer to the East India Railway; Mr. H. J. Deane, B.E., M. Inst. C.E., Chief Assistant Engineer to the Port of London; Mr. Flashman, B.E., Foreign Manager for Westinghouse Co.; Mr. J. G. Burnell, B.E., Engineer to the Victorian Water Supply and Irrigation Commission; and Professor H. E. Whitfeld, B.A., B.E., of Engineering School, Perth University. Many others occupy leading positions in private concerns and companies, also in private practice; but I have instanced sufficient to show the high standard attained by the P. N. Russell School of Engineering, and what are the possibilities before the graduates.

Of course, the graduates cannot expect to start on the highest rung, and I do not know a case where a graduate, who has started in a junior position, has not ultimately made good; and more than this cannot be expected.

Seeing now that such a high standard of training has been attained, there should be no valid reason why the services of the State should not give graduates a preference. I am aware that in some Departments this course is adopted, but in the New South Wales Government Railway Service, of which there are many branches under the Commissioners, we so far have practically no graduates on the staff. Recently, however, the Chief Commissioner has granted facilities for our undergraduates to gain practical experience by permitting them to be attached to the Loco, Interlocking and Signalling, and Electrical branches for their six months' field and shop work at the end of their third year. I may, in passing, say that this privilege is gratefully appreciated; as is also the kindness of the various Engineers of these branches for the kindly way in which they have treated our men and the interest they have shown in them. The furtherance of this scheme will, I have no doubt, lead to the appointment of our men in the near future. While I recognise that in the past there has been necessity to import special men from abroad, and occasionally it may be deemed advisable to do so again under very special circumstances, yet it does not seem to me just or logical for the State to provide engineers with the highest specialised education and not make provision for employing them when thus specially trained for the work. Neither does it seem just to expect or encourage men to devote four years to specialised study—and in some cases an additional two years abroad—without some preference in the employment of their country. At the present time, too, let us not forget that all our Railway Commissioners are local men with local training; and I have no doubt they will manage affairs equally as well as any imported men could, and, having the knowledge of local conditions, possibly better.

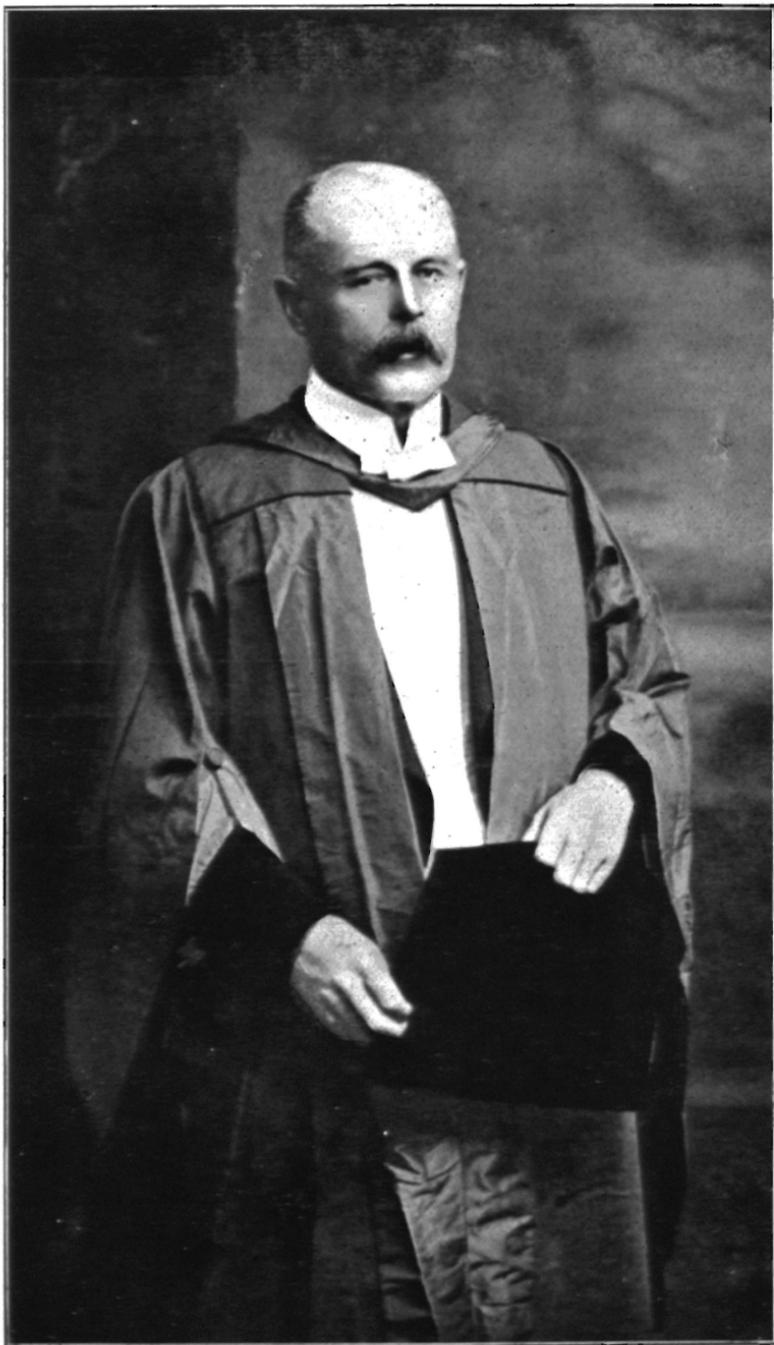
I do not wish to be misunderstood. Froude says:—"Australians! do not boast!" I am not boasting, for I fully recognise the many good and capable imported men who have in the past put our feet in the stirrups, and I would be the last to ride away from such fine men; and we have many here to-day. But these capable men have taught us their art, and so equipped, and having full knowledge of local conditions, we should now be at least as good as a new man from abroad, who cannot know or appreciate our conditions as we intimately know them. At any rate, given the opportunity, I have no misgivings about the future for our men.

A suggestion, which I think a good one and worthy of adoption, was made to me last year by a fourth year student. It was the establishment of an information bureau in

connection with the Engineering School. It would comprise the listing of the names and addresses of all graduates, with information regarding positions held; also information regarding positions and employment available, and other particulars of service to new graduates. Such a scheme would be of great service to all graduates and undergraduates, whether seeking situations or specialised information, or professional advice; and I trust the initiation of this worthy scheme will not be delayed.

In conclusion, I wish to cordially thank the Council and honorary officers for their generous assistance during my year of office, to those who have read contributed papers, and the members of the Society for the way in which meetings have been attended.





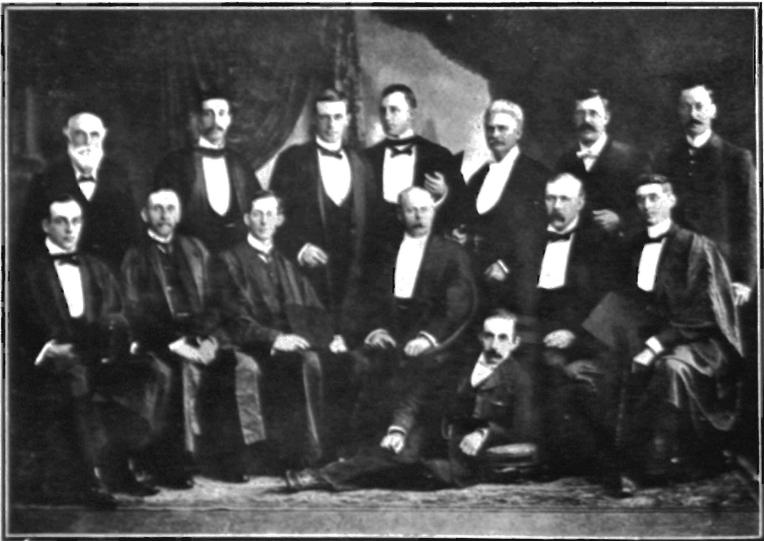
PROFESSOR WILLIAM H. WARREN, LL.D., M. INST. C.E., WH. SC., M.A.M. SOC. C.E.
Challis Professor of Engineering.



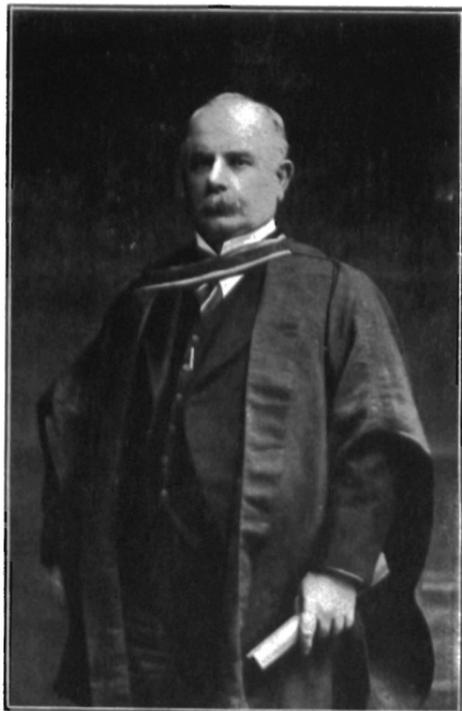
ASST. PROFESSOR BARRACLOUGH, B.K., M.M.K.,
M.I.M.E., A.M.I.C.E.



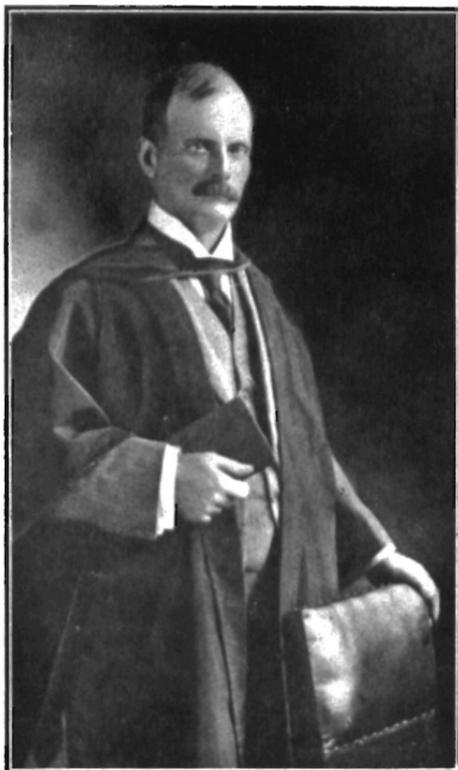
ASST. PROFESSOR J. P. V. MADSEN, B.K., D.SC.



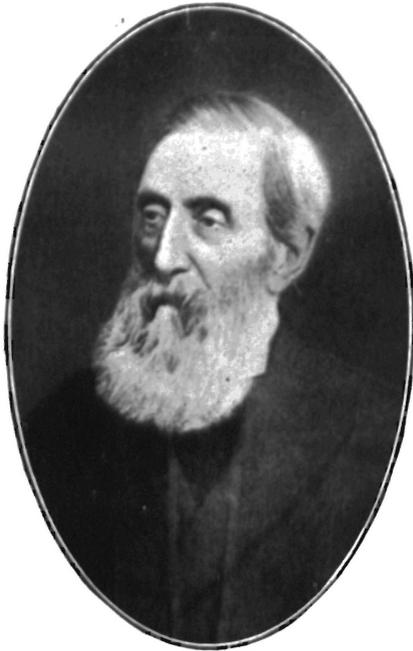
The Teaching Staff, Department of Engineering.



P. W. RYGATE, ESQ., M.A., B.E.
The First Undergraduate in Engineering.



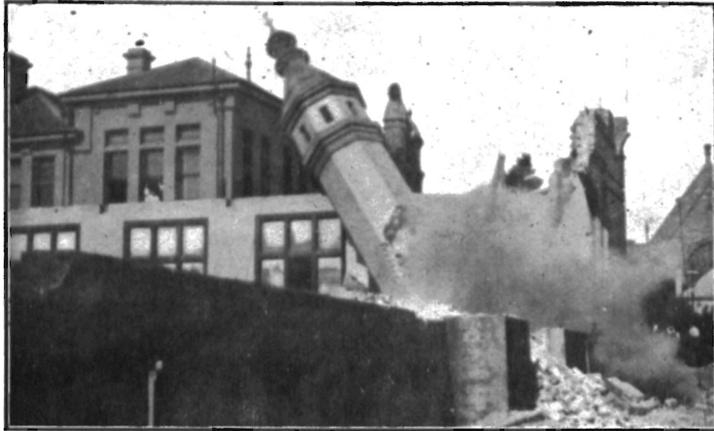
J. J. C. BRADFELD, ESQ., M.E., M. INST. C.E.
First Engineering Fellow of the Senate.



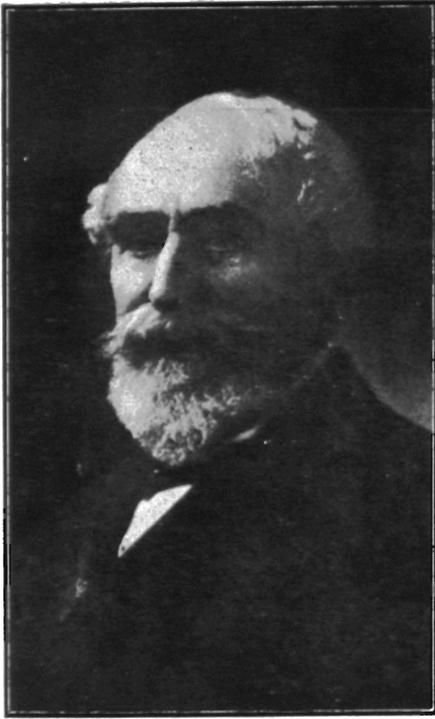
JOHN HENRY CHALLIS, ESQ.



Old Engineering School(erected, 1891).



Demolition of Old Engineering School, 1910.



SIR PETER NICOL RUSSELL.

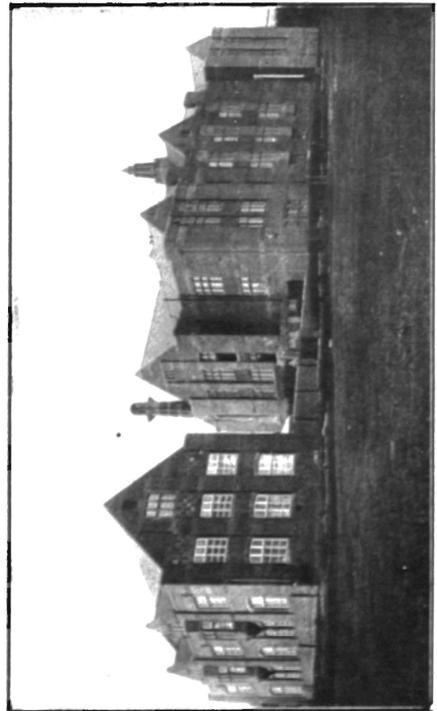


These Royal Arms

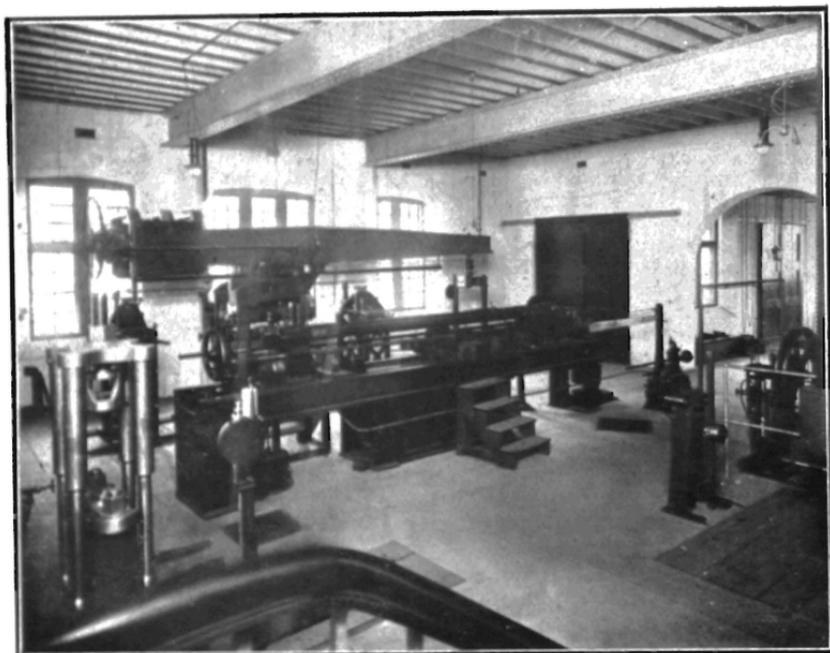
were cast at Messrs. P. N. Russell's Works in Sydney, with iron manufactured from ore obtained at the Fitzroy Iron Mines, and exhibited at the International Exhibition, held in Hyde Park, London, in the year 1851.



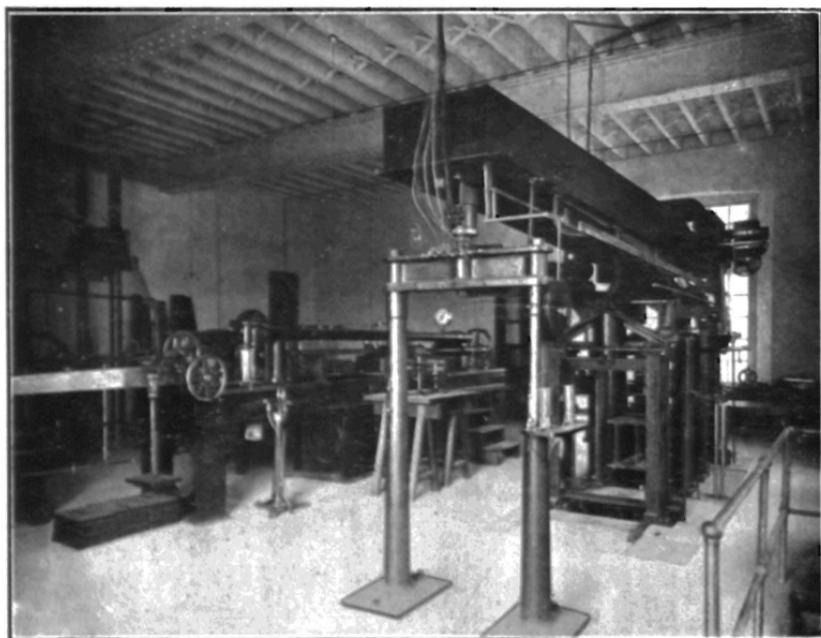
P. N. Russell School of Engineering (erected, 1900)



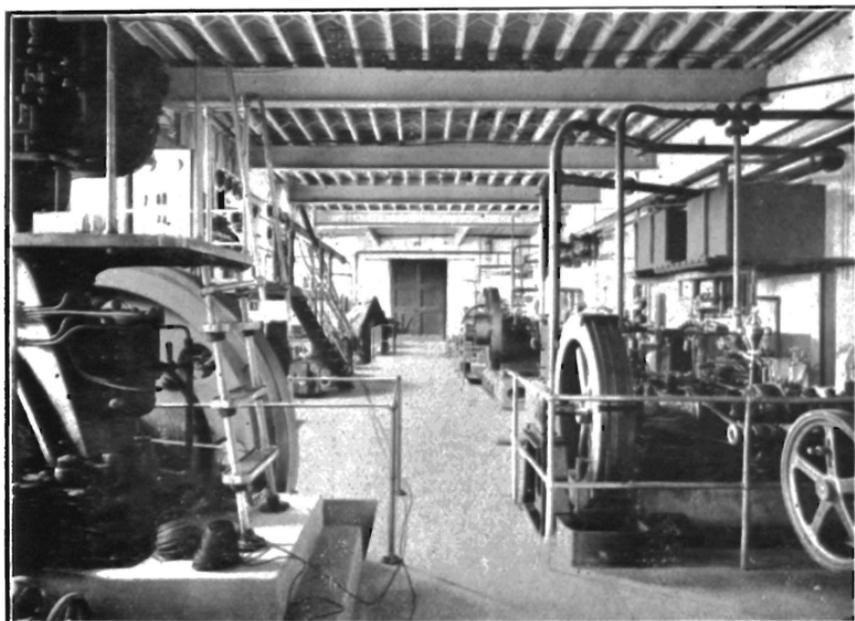
P. N. Russell School of Engineering, from the Colleges.



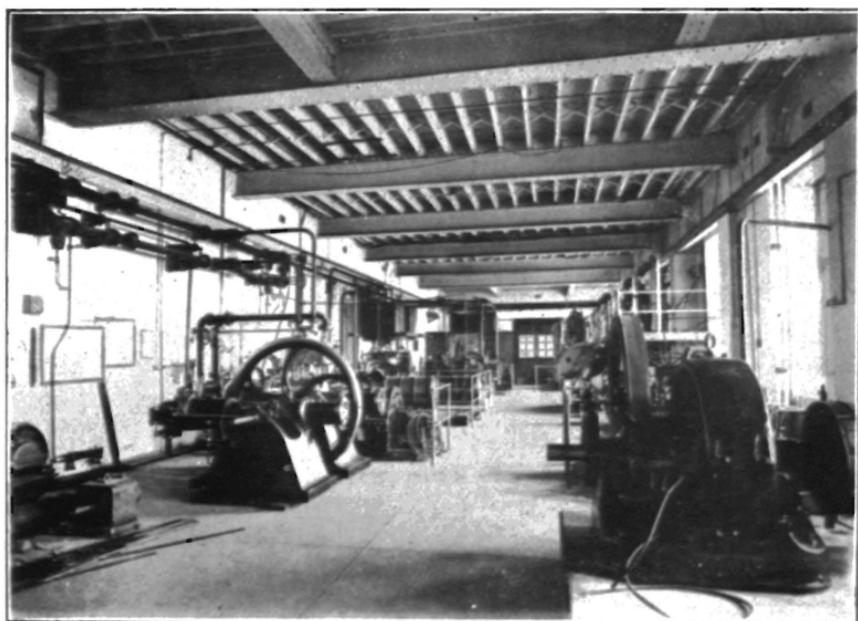
Testing Machines.



Testing Machines (End View).



Engine Room, looking West.



Engine Room, looking East.



Electrical
Engineering
Laboratory.

Drawing Office.



P. N. RUSSELL
Lecture Theatre.

