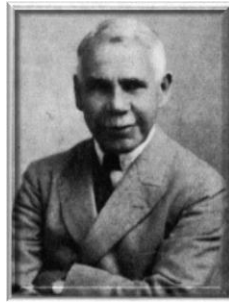


Hong Kong Rotarian Cades Alfred Middleton-Smith

The father of engineering education in Hong Kong

By Herbert K. Lau (劉敬恒) (Rotary China Historian)

15 November 2018



Professor Cades Alfred Middleton-Smith, *HonLLD (HKU)*, MSc (1879-1951), who died at his home in Guernsey, Channel Islands, on 31 July 1951, was the first Dean of Mechanical Engineering in the University of Hong Kong (香港大學) from 1912 until 1939. Before his retirement from the University, Alfred was an Active Member of the Rotary Club of Hong Kong (香港扶輪社) holding the Classification “Education – Engineering”. In recognition to his remarkable service to the engineering education, the University of Hong Kong, in 1939, conferred the Degree of Doctor of Laws *honoris causa* upon Professor Cades Alfred Middleton-Smith. During the congregation, Hong Kong Governor and The Chancellor Sir Geoffry Northcote (羅富國爵士), KCMG, the Public Orator of the University, wrote and delivered this Citation: “This Congregation of the University having assembled for the conferring of degrees, I will begin this address by speaking of one towards whom the University tonight will mark its appreciation for his long and valuable service by conferring on him the degree of Doctor of Laws. Mr. Middleton-Smith retired on February 9th, being then our most senior professor. It is a matter for regret that he cannot be here in person to receive his degree, but his need of a holiday in a more temperate climate justified his departure when his active service in the University came to an end. The University compound is a poorer place by the loss of his cheerful presence and the charm of Mrs. Middleton-Smith.”



Cades Alfred Middleton-Smith was born in 1879 in Portsmouth, England, and educated at Portsmouth Grammar School and the Royal Naval Engineering College, Keyham. His first appointment after completing his engineering training was as an assistant engineer, for a few months in 1900, with the Plymouth electricity supply undertaking. Later in that year

he joined the staff of Belliss and Morcom, Ltd., Birmingham, and for twelve months or so was chief assistant. After gaining experience in the works in the testing department, he began, in 1901, his long and distinguished career as a teacher of engineering with the post of demonstrator at Birmingham University. Three years later he came to London to carry out the same duties at King's College, and from 1907 to 1912 was Assistant Professor of Civil and Mechanical Engineering at the East London College.

He then accepted an invitation to go to the British Crown Colony Hong Kong as the first Taikoo Professor of Engineering in the University there. His work, which lasted for nearly thirty years was at first of a pioneering character, but owing to his wide outlook and great mental vigour he quickly developed the Department for which he was responsible.

During the 1914-18 First World War Middleton-Smith served as an engineer in the Hong Kong Defence Force. After his return to Great Britain in 1944 he was engaged on work for the Central Registry and for a period was attached to the Ministry of Labour, but he was hampered by ill health and in 1943 was obliged to give up active work. Middleton-Smith was elected an Associate Member of the Institution in 1904 and was transferred to Membership eight years later. He presented a paper in 1908 on 《Method of Detecting the Bending of Columns》 and another in 1909 on 《Compound Stress Experiments》. In the course of his career he had specialized in the strength of materials and prime movers this subject forming the basis of many of his lectures. In he contributed numerous papers embodying the results of his researches to other technical societies and journals and was the author of three publications: 《Section Gas Plants》, 《A Handbook on Testing Materials》, and 《The New Steam Tables》, this text-book being written in conjunction with Mr. A. G. Warren, B.Sc.

Centenary of professional recognition of engineering degree in Hong Kong

By Ir. Prof. Alfonso H. W. Ngan (February 2018)

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It is well-known that the earliest professional engineering education in Hong Kong was provided by the University of Hong Kong (HKU) before World War II, but pre-war records of the University were mostly lost. Fortunately, Prof. Cades Alfred Middleton-Smith, the first dean of engineering, was a prolific writer and his accounts of the early days of the University

have become increasingly available electronically. Using the names of Prof. Middleton-Smith and the University as keywords, the present author performed a search of sources such as the Institution of Mechanical Engineers (IMechE) archives and the Grace's Guide to British Industrial History and identified a wealth of interesting materials about this historic gap.

The beginning

In May 1912, Prof. Middleton-Smith, associate member of IMechE and assistant professor (equivalent to reader nowadays) of the East London College (nowadays Queen Mary College, London), was appointed dean of engineering of the newly opened HKU. On 22 July 1912, already using his new title 'Professor of Engineering, Hong Kong University', Prof. Middleton-Smith applied to IMechE for full membership (Figure 1). A remark, "Passed M 27/9/12" written on the application form suggests that on 27 September 1912 he was formally elected to MIMechE, the highest grade of membership of the institution at that time, which was also the only professional qualification he held throughout his career.

In October 1912, teaching began at the University (1). The Faculty of Engineering in those days offered the degree of BscEng in civil, mechanical or electrical engineering (2). Four years later, in June 1916, the first batch of engineering students graduated and their papers were sent to the Imperial College for assessment (3). Foo Ping-sheung (civil; he later became China's ambassador to Moscow) secured first class honours and two other graduates, one civil and one electrical, received second class honours. This was how honours degree classification was introduced to Hong Kong.

Earlier that year, in 1916, when the first batch of students were still studying in their final year, Prof. Middleton-Smith made an application to IMechE to seek recognition of HKU's mechanical engineering degree. Archived minutes of the IMechE Council Meeting on 14 April 1916, recorded the following entry (4): "(Min 75) That an application from the HKU, for their matriculation examination to be included in the list of examinations exempting from the graduateship examination (of IMechE), be declined."

That is, the attempt failed. A year later, in November 1917, Prof. Middleton-Smith made a renewed application, and the matter was referred to Sir Dr. William C. Unwin, past IMechE President of the preceding 1915-16 session, for assessment (minutes 147 of IMechE Council Meeting in 19175). The result of this assessment can be found in the Council Minutes a year later on 13 December 1918 (6): "(Min 192) That the matriculation and mechanical degree examinations of the HKU (Min 147, 1917) be recognised as exempting from the corresponding institution examinations."

This was the first record of recognition of an engineering degree in Hong Kong by a professional institution. In the same year, 1918, HKU also graduated its second first class honours graduate, Mr. Liu Chen-hua (7), who was also Mechanical's first. Mr. Liu later became a member of the Chinese Academy of Sciences, a highly respected scholar and educator in mechanical engineering and a vice-president of Tsinghua University.

Pre-war developments

Within the first few years of the University, various engineering laboratories had already occupied the most prominent parts of the Main Building (Figure 2) (1), (3), (8-11). As one walked into the Main Building from its central entrance in that era, the wing on the left was the Strength of Materials and Applied Mechanics Laboratories, and that on the right the Electrical Technology Laboratories. Ascending the central stairway leading to the Great Hall (today's Loke Yew Hall), the entire floor on both sides housed various engineering laboratories including those for mechanics, electrical machinery, chemistry and physics (part of the Engineering Faculty then), and a large drawing office facing Victoria Harbour for students to practise engineering design (Figure 2).

Walking towards the back of the Main Building on the same floor, there was also a machine workshop and a fully functioning power station that contained various gas and oil engines for supplying electricity to the entire university, and both facilities were manned by staff and students of the Engineering Faculty. Next to the Main Building, on a site where today's East Gate stands, there were a group of smaller buildings for steam and hydraulics laboratories, which were converted from a previous government pumping station. In 1925, to cater for the faculty's expansion, the Ho Tung Workshop was opened on Pokfulam Road, which housed a state-of-the-art machine-shop training facility for engineering students (12). Another engineering building erected pre-war was the Peel Laboratory in 1934 (13).

From the beginning in 1912 to the outbreak of war in 1941, the Faculty of Engineering produced 340 graduates, of whom around two-thirds were civil and one-sixth each were mechanical and electrical. As for IMechE recognition, it is not apparent that regular checks needed to be conducted as in today for the recognised status of a degree to continue, and searching of the pre-war IMechE archives revealed one further record of continued recognition in 1924 (14). A surviving University report in the late 1930's (15) indicates continued recognised status of the mechanical engineering degree as exempted from the entrance examinations of IMechE and, in addition, the electrical engineering Degree was similarly accepted by the Institution of Electrical Engineers, probably due to the MIEE qualification of Prof. M. H. Roffey, professor of electrical engineering during 1921-41. In the pre-war era, no ICE or IStructE qualifications could be noted on the staff list of the faculty and the programme in civil engineering was not on the accredited list of these two UK institutions (16).

Interruption by war

The University's premises were badly looted during the war and all the engineering equipment that Prof. Middleton-Smith acquired were seized by the Japanese. After the war, civil engineering was restarted as soon as 1947 as a combined school with architecture, housed in a cluster of buildings along Pokfulam Road comprising the pre-war Ho Tung Workshop and the Peel Laboratory; and a Duncun Sloss School opened in 1950. The civil

programme gained accreditation status, for the first time, from the Institution of Civil Engineers in 1955 and the Institution of Structural Engineers in 1956. In 1958, P. S. K. Fang (uncle of Anson Chan) was appointed lecturer to assist in the revival of mechanical engineering (17), and in the University's Golden Jubilee in 1961, the Department of Mechanical Engineering was formally re-established with Mr. Fang being the first head (18). In June 1962, full accreditation status was once again given to the degree in mechanical engineering by IMechE.

The father of engineering education in Hong Kong

Prof. Middleton-Smith was undoubtedly the “father of engineering education” in Hong Kong. As mentioned above, he built the first engineering faculty in Hong Kong and introduced the systems of honours classification and professional recognition a century ago. Shortly after arrival in 1913, he also produced what was certainly the first scholarly publication of the University, a book titled 《The New Steam Tables》 with full derivation of the relevant thermodynamics equations (19).

During his tenure he remained productive in both engineering and non-engineering writings. He served twice as the President of the Hong Kong Institute of Engineers & Shipbuilders, the forerunner of HKIE (20). In the 1930s, he was also a key figure behind the setting up of the Hong Kong Trade School, the forerunner of the Hong Kong Polytechnic (21, 22).

He was conferred an LLD by the University on his retirement in 1939, and he died in England in 1951 (20). The only place within the University that bears his name nowadays is the staff quarters, Middleton Towers, but few people know the origin. The early engineering buildings along Pokfulam Road have long been demolished, but fortunately, the Main Building, which once housed Hong Kong's earliest engineering faculty, is a declared monument protected by law.

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12340

Date received 22 July 1912

[FORM C.] PROPOSAL FOR TRANSFERENCE.

12340 The Institution of Mechanical Engineers.

ESTABLISHED 1847.

AM March 1904
no motion 19/10/09
Passed M 27/9/12

Name in full Cades Alfred Middleton Smith

Designation or Occupation Professor of Engineering Hong Kong University

Business Address The University Hong Kong China

being 33 years of age,* and desirous of being transferred into the class of Member

of The Institution of Mechanical Engineers, we, the undersigned, from our personal knowledge recommend him as a proper person to be so transferred by the Council.

Witness our hands, this 22nd day of July 1912

FIVE Members' or Associate Members' Signatures are required, from personal knowledge.
(Members of the Council do not sign this form.)

Proposed by D. Shaw

Seconded by J. A. Ewing

W. Rypper

Harry M. Waymouth

Stephen - Darling - Jones

These who sign this form are deemed to append their initials to the statement of which they have personal knowledge.
(See back.)

*Extract from the Rules of the Institution,
RESPECTING AGE, QUALIFICATION, AND TRANSFERENCE.

AGE AND QUALIFICATION. By-Law 2.

No Candidate shall be received as Associate Member

Figure 1:

IMechE membership transference form of Prof. Cades Alfred Middleton-Smith in 1912 (courtesy of IMechE)

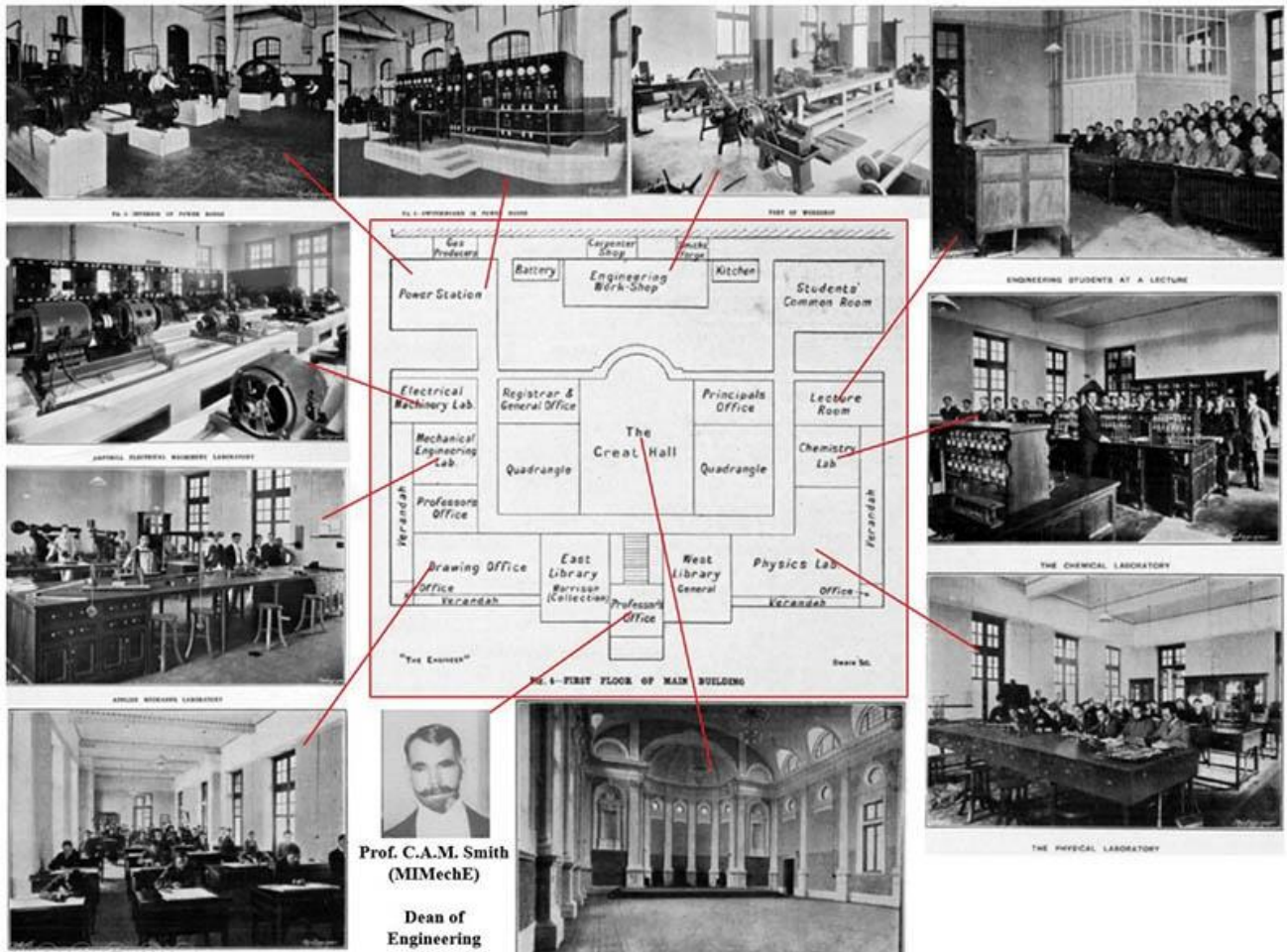


Figure 2:

Engineering laboratories in HKU's Main Building ca 1912-18, composed from images in references 1, 3, 9 and 10, available at Grace's Guide to British Industrial History (gracesguide.co.uk). Image of Prof. Middleton-Smith, aged 33 in 1912, is by courtesy of the University Archives, University of Hong Kong.