

# Meteorology in South Kensington

A brief overview 1900-1975

Joanna D. Haigh

before  
1900



## Background



Albert Memorial 1876

1851 The Great Exhibition in Hyde Park

1872 Royal College of Chemistry & Royal School of Mines move from central London to Exhibition Road

1881 Normal School of Science (renamed Royal College 1890)

1885 City & Guilds for technical education

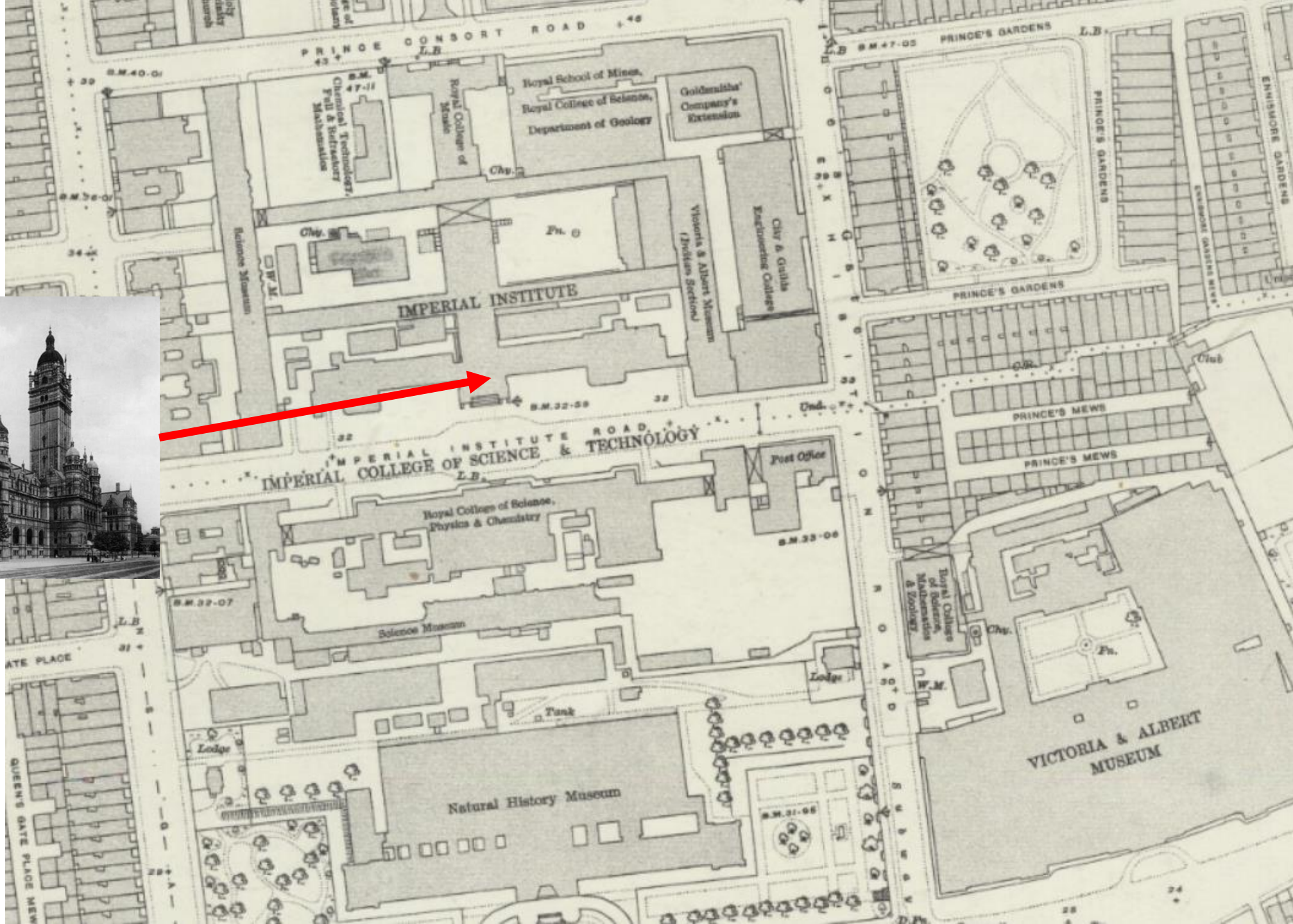
1887 Imperial Institute as museum & exhibition for the Empire





Imperial College South Kensington (map 1914)





1900

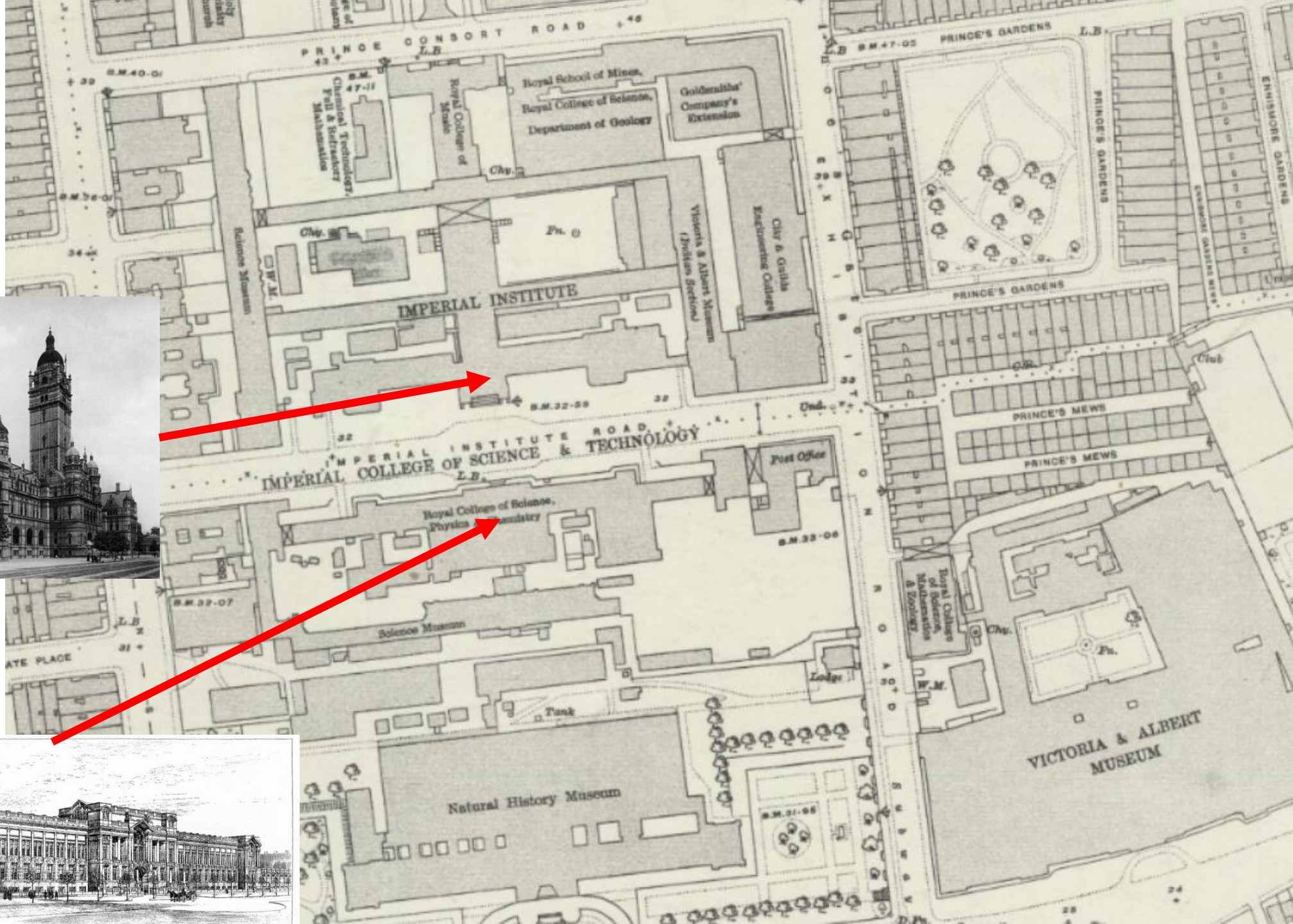
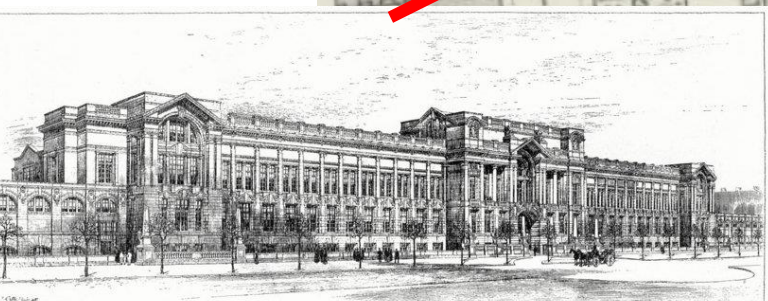
1920

1906 Royal College of Science building

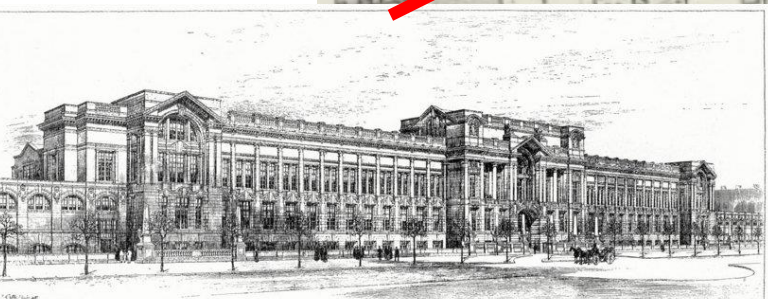
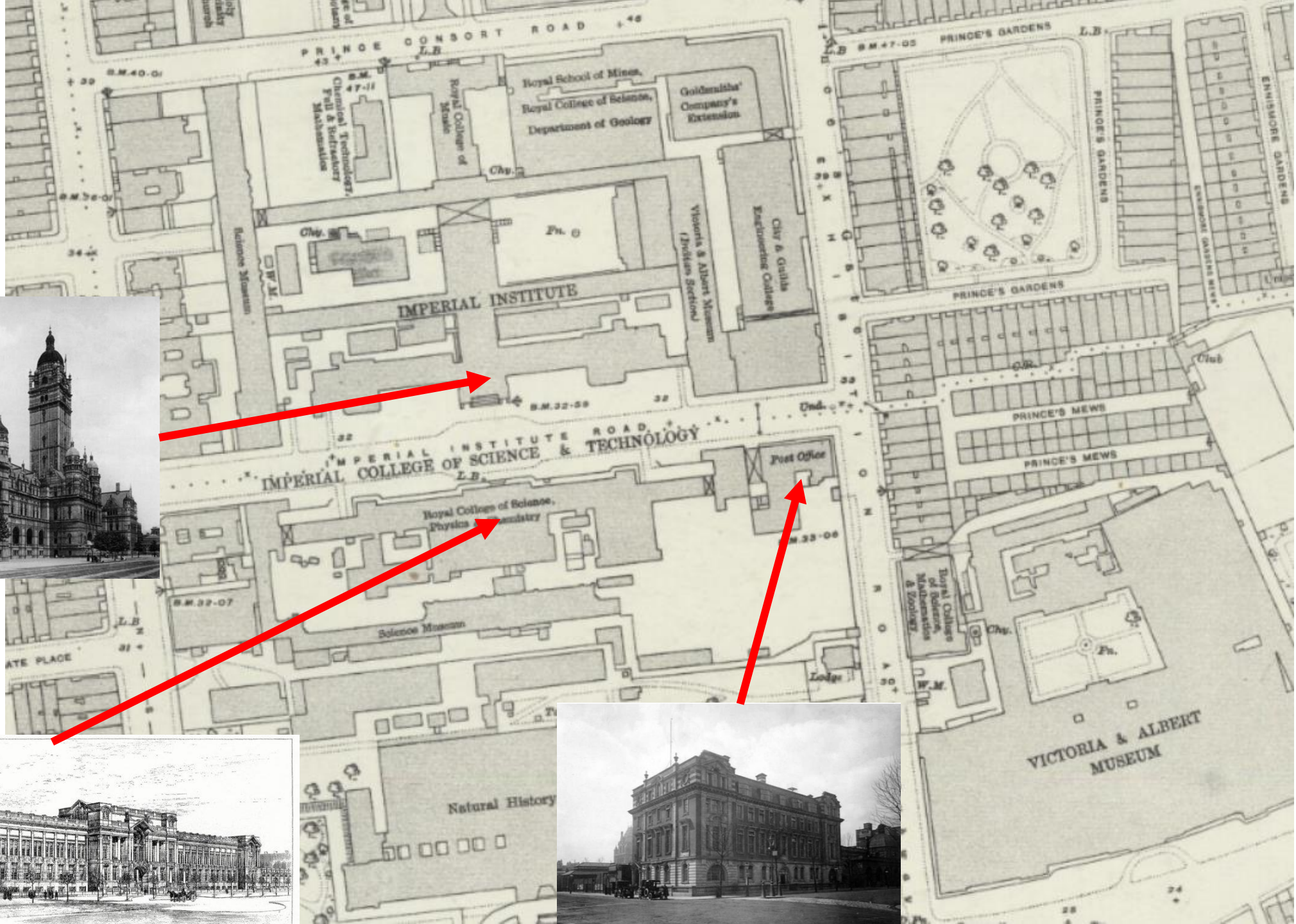
1907 Imperial College: royal charter, merging RCS, RSM & C&G.

1910 Post Office rebuilt to house Met Office on upper floors













Imperial College  
London

Dyson Building

↑ Accessible entrance to  
Dyson Building

→ Imperial College  
London Main Entrance

25

101

250  
H  
1







# Hugh Longbourne Callendar

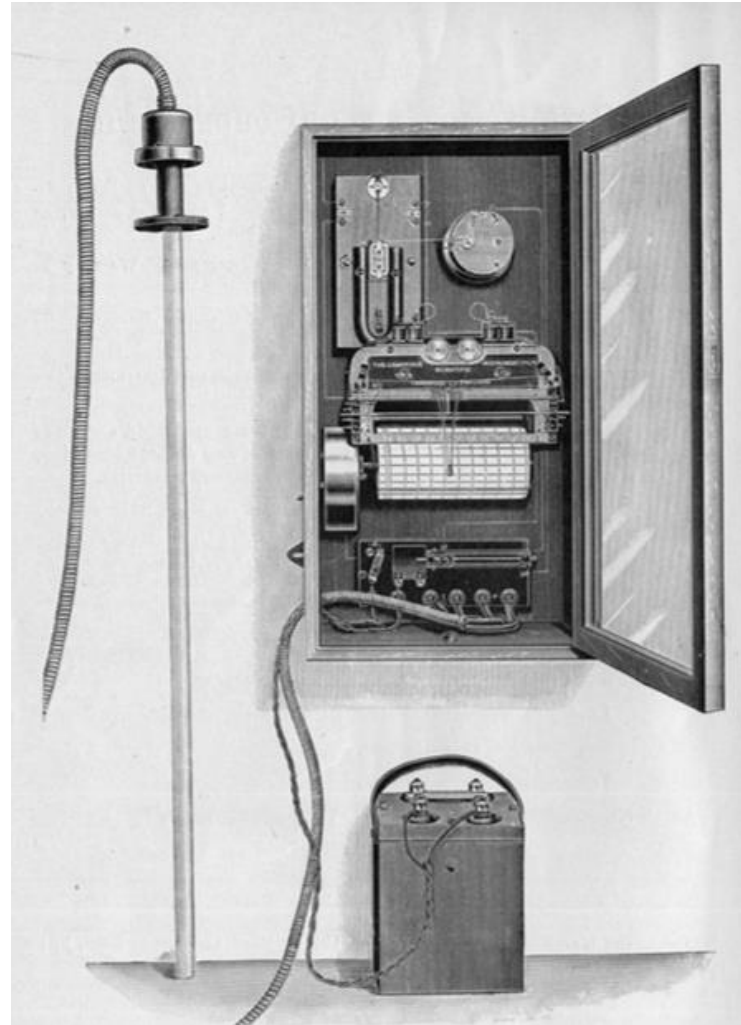
Head of IC Physics (1901-1930)

Inventor of:

electric recording thermometer  
sunshine recorder.

Research in thermal physics (steam  
tables).

Father of Guy Stewart Callendar.





# Aeronautics syllabus 1916

Extract from "A history of  
Meteorology at Imperial College  
1920-1952" by PA Sheppard

Third Year. - The Course of instruction in the Third Year  
includes -

Thermodynamics. - The general theory of the thermodynamics  
of gases, air engines, gas, oil and petrol motors.  
Indicating petrol motors, mixture strength and the effect  
of various methods of working upon efficiency.

More advanced problems in the Balancing of engines.

Mathematics. - Differential equations with applications.  
The principles of Flight and Stability.

Physics. - Meteorology, Aerial Instruments, Aerostatics,  
Instruments for Navigation of Air Ships, Locating Position.

Electrical Engineering. - Wireless Telegraphy, Transmitting  
and Receiving Apparatus.

Strength of Materials. - The testing of materials used in  
Aeronautical Engineering, testing of struts axially and  
non-axially loaded, the construction of aeroplanes.

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1920

Air Ministry supported new school of Meteorology as a sub-dept  
of Aeronautics.

1930

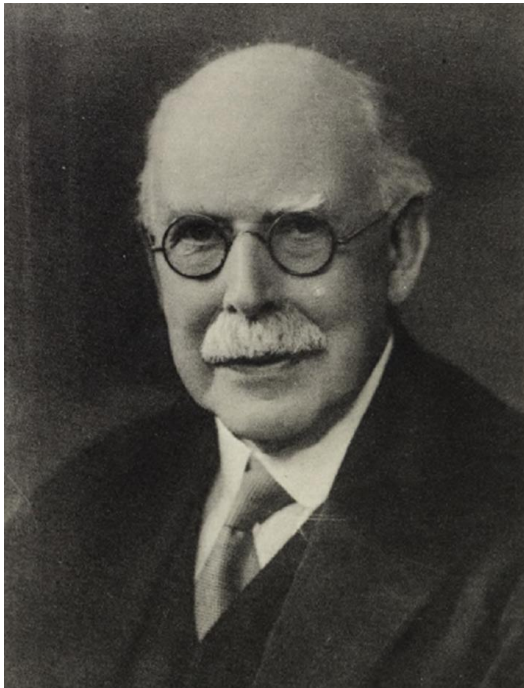
Napier Shaw first Professor

“only professorship of meteorology in the British Empire”

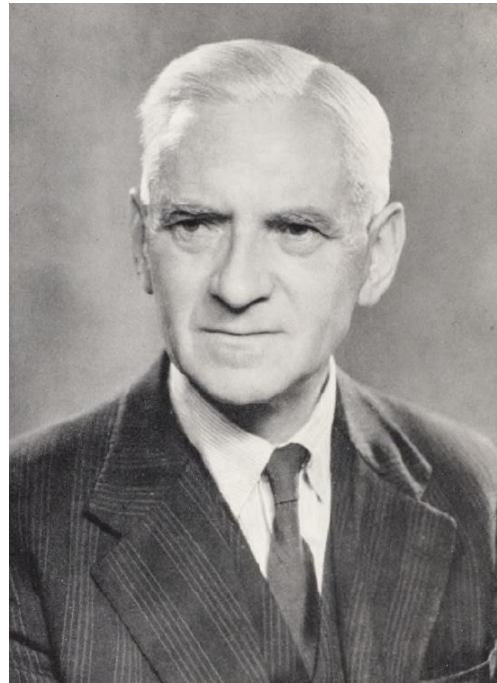
Elaine Austin

David Brunt (Met.O) & CTR Wilson (Cambridge) visiting lecturers

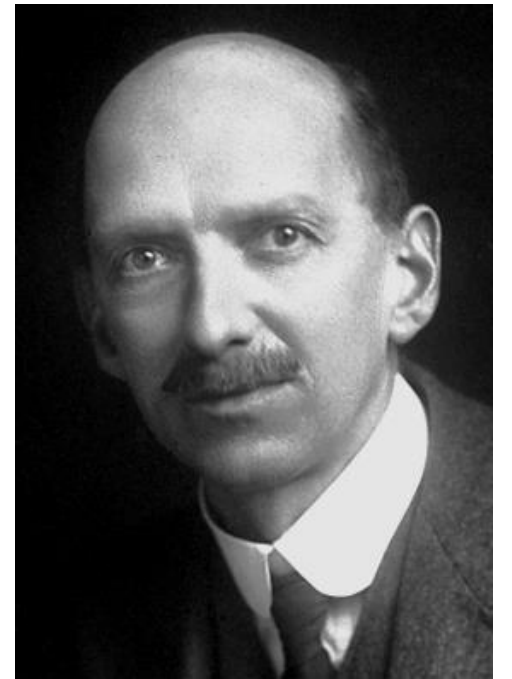
Napier Shaw



David Brunt



CTR Wilson



# Meteorology syllabus 1920-21

PG students from

- Department of Aeronautics
- Department of Physics
- Met Office

Instruments and methods of observation - Sir Napier Shaw and  
Miss Austin

Methods in meteorology (weather maps, forecasts)

- Sir Napier Shaw and  
Miss Austin

Physical and dynamical meteorology - Mr. D. Brunt

Atmospheric electricity - Mr. C. T. R. Wilson

General circulation of the atmosphere - Sir Napier Shaw

Historical review of meteorological theory - Sir Napier Shaw.

had been in the hands of the very first of the world.



1920

1930

1924 Shaw retired

Austin back to Met.O.

Advisory Committee reviewed Meteorology

# Advisory committee 1923

incl. Shaw, Callendar (Physics), Glazebrook (Aeronautics), Simpson (Met.O.)

## Recommendations:

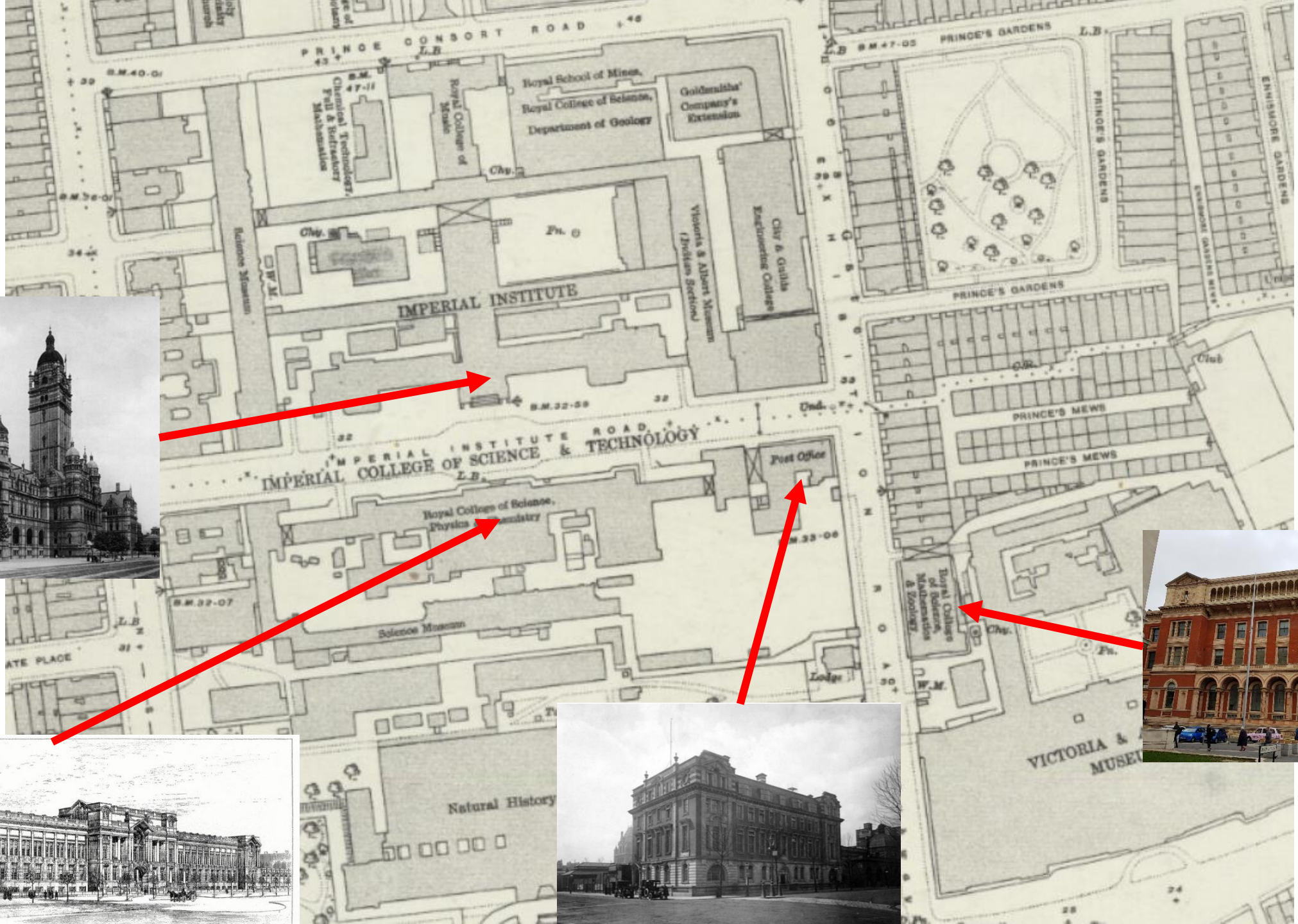
- Continuation of meteorology as PG subject but some UG teaching in Aero and Physics.
- Met. lab in physics, obs. from roof.
- Met.O staff could attend lectures w/o fee.
- Annual expenditure:

That the required annual expenditure ought to be approximately as follows:

	£	
1 Assistant Professor	594	(including Superannuation)
1 Demonstrator	330	do.
Special clerical help	150	
Upkeep of special Library	50	
Special Lectures and contingent expenditure	126	
	<hr/>	
	£1250	
	=====	

Dept Aero & Sub-Dept Met moved to Huxley building with Maths





1924  
1932

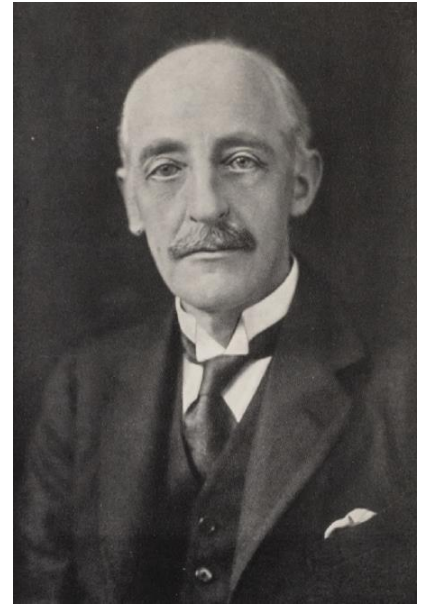
1924 Gilbert Walker (from Indian Meteorological Dept)  
as Professor  
c.10 PhD students p.a.

1925 U. London accepts Meteorology (plus other  
subjects...) as eligible for BSc

1926 Manual of Meteorology (Shaw and Austin, started  
during war)

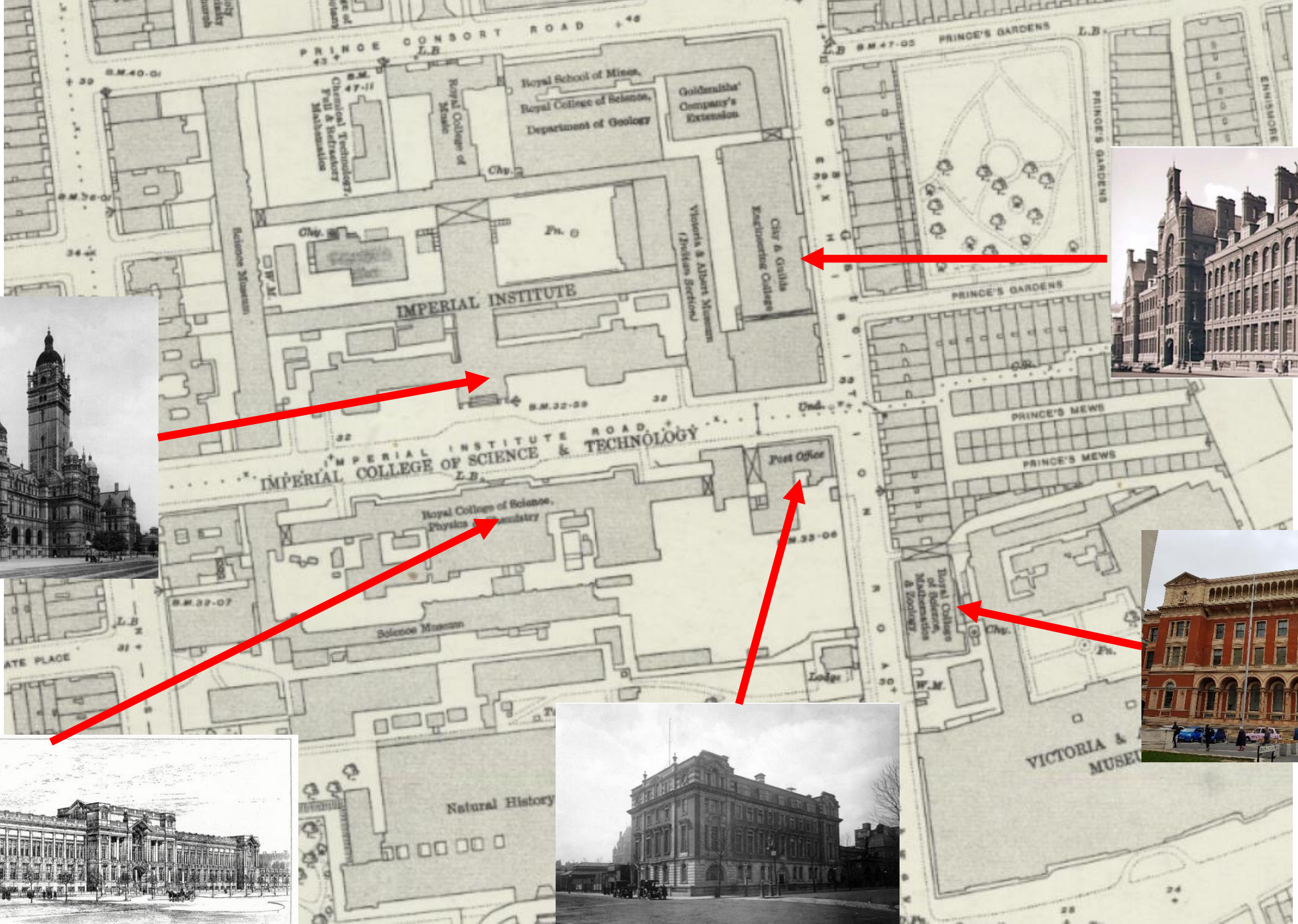
1932 Met.Office close S.Ken. office  
Aeronautics to C&G

Meteorology stays in RCS (sub-dept of Physics)



Gilbert Walker









International  
Commission  
on the  
Upper  
Atmosphere

Leipzig 1927

4.  
Austin  
16.  
Walker  
18.  
Shaw

19.  
Richardson  
25.  
Bjerknes

**Comisión internacional para la exploración de la alta atmósfera. Leipzig 1927 (29 agosto-3 septiembre)**

1. Arctowski. — 2. Marzell. — 3. Lempfert. — 4. Miss Austin. — 5. Peppler. — 6. Doctora Lammer. — 7. Rinne. — 8. Zeissler. — 9. Hergesell. — 10. Moltschanoff. — 11. Bruhns. — 12. Hesselberg. — 13. Exner. — 14. Fontseré. — 15. Sra. Wallén. — 16. Sir G. Walker. — 17. Mariolopoulos. — 18. Sir Apier Shaw. — 19. Richardson. — 20. Meseguer. — 21. Sra. Hesselberg. — 22. La Cour. — 23. Enge. — 24. Eredia. — 25. Bjerknes. — 26. Mildner. — 27. Schmauss. — 28. Van Everdingen. — 29. Keil. — 30. Linke. — 31. Oishi. — 32. Weickmann. — 33. Hermann. — 34. Wallén. — 35. Roná. — 36. Cannegieter



1934 Walker retired

Brunt from Met.O. as Professor

Brunt's proposal for Institute of Met. (supported by Tizard, HoD Physics) but rejected by Senate ("no academic merit")

1938 College investment (expand UK provision + war met)

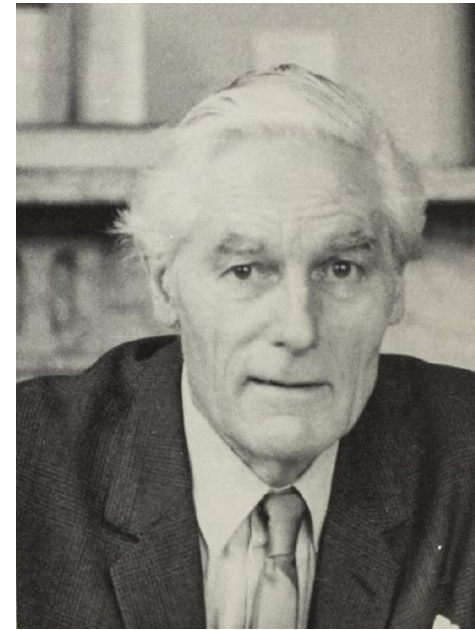
1939 Independent Department of Meteorology

PA Sheppard as Reader

Experimental hut Harlington

IC+RMetS+Air Min bid to UGC, succeeded with more funding.

1930  
1940



PA Sheppard

War: Brunt & Sheppard to War Ministry, open MetO training school

1946 Silwood Park as IC Field Station; mainly biology but also met. observing.

1946 Eric Eady student in Maths, 1948 Lecturer in Met, 1949 Reader

1948 BJ Mason lecturer, 1960 Chair, 1965 to MetO

1949 Dick Scorer lecturer, 1962 Prof (Maths)

1951 Frank Ludlam lecturer, 1965? Prof



BJ Mason

Frank Ludlam Richard Scorer



1940  
1950



1952 Brunt retires, Sheppard HoD Meteorology (until 1974)

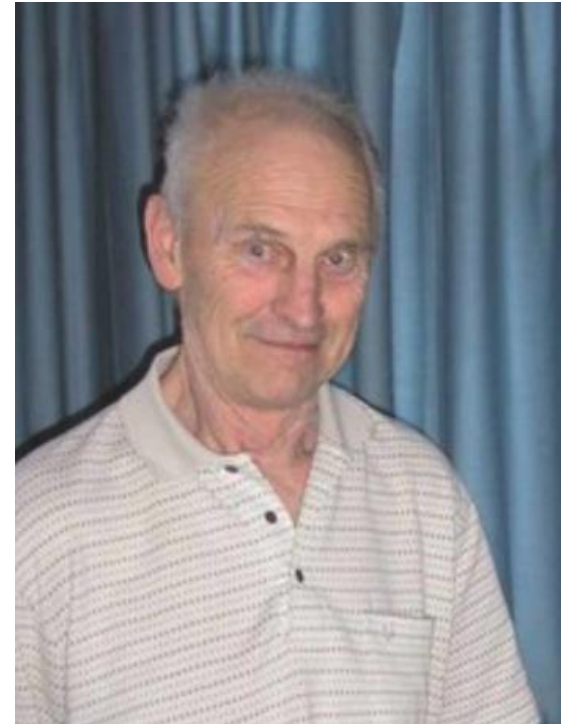
1958 John Green student, 1961 lecturer, reader, 1986 to UEA

1958 Henry Charnock

1950

1960

John Green



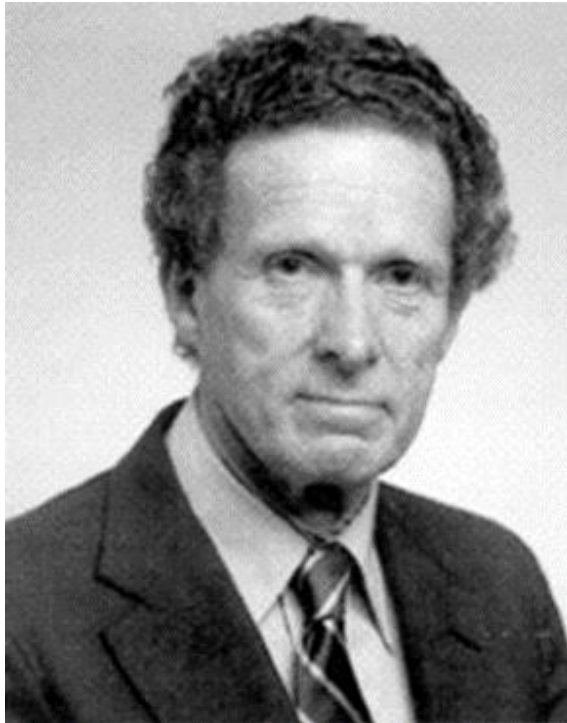
## Radiation work

1954 Richard Goody (until 1958, to Harvard)

1960s Bill Roach

1962 Ken Bignell, Assistant Lecturer, 1964 Lecturer

1960  
1970

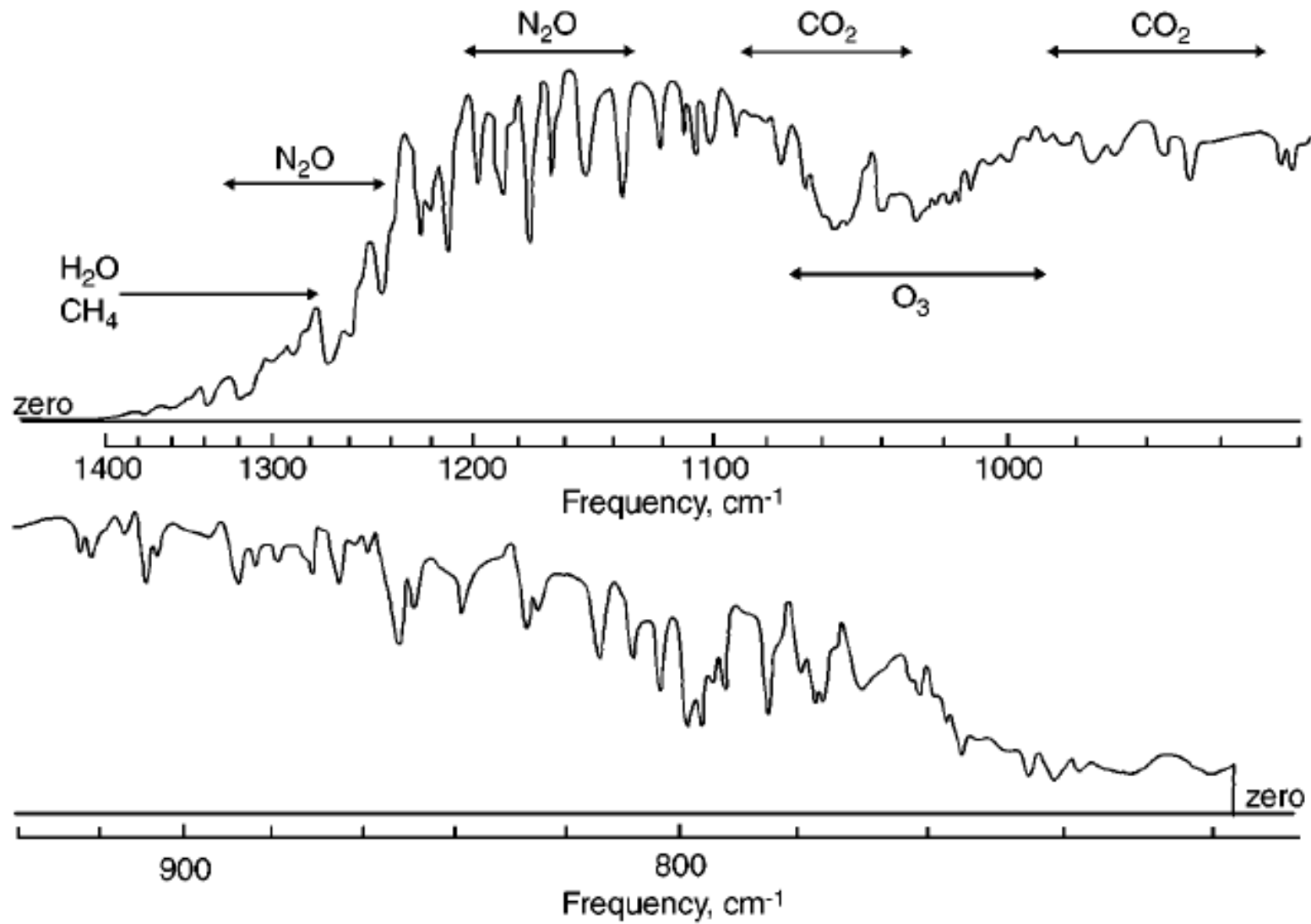


Richard Goody

Ken Bignell







Atmospheric  
spectral  
transmittance  
near 10 $\mu$ m  
“window”

Goody 1957

**Figure 3** Spectrum of the thermal radiation balance between sky and spectrometer, recorded at Silwood Park in 1957 (24). The spectral resolution is approximately 1 cm<sup>-1</sup>.

THE ATMOSPHERIC INFRARED CONTINUUM

by

K. J. Bignell, B.Sc., A.R.C.S.

Department of Meteorology,  
Imperial College of Science and Technology

May 1965

A Thesis submitted for the Degree of Doctor of Philosophy  
at the University of London

Abstract

This thesis is an account of two major experiments to study the atmospheric infrared continuum in the region 4 to 21  $\mu$ , using a high resolution ( $1.0 \text{ cm}^{-1}$  at 20  $\mu$ ) grating spectrometer with Golay cell detector and Nernst source.

Using open horizontal atmosphere paths of 10, 200 and 400 m, extinction coefficients were measured in 7 windows between 14.0 and 20.9  $\mu$ . An extremely high correlation was found with the amount of water vapour in the path; aerosol seemed to have very little effect except under extremely hazy or foggy conditions. The absorption coefficients increased with the partial pressure of water vapour, suggesting a self-to-foreign broadening factor much greater than the value of 6 observed for line centres. However, because of the strong



1963 Linstead Review for Robbins report, Imperial graded:

A: civil engineering, meteorology, geology, mining,  
metallurgy

B: all others except history (C)

Recommended expansion of IC.

1960

1970

1960s Some impressive PhD students e.g.....

1967

1973



1960  
1975



1975 Met. Dept. closed,  
group to Atmospheric  
Physics in new Huxley





# Acknowledgements/ references

Anne Barrett, Imperial College Archivist.

Ken Bignell “Meteorology at Imperial College 1920-1975”

<https://www.imperial.ac.uk/space-and-atmospheric-physics/history/>  
and many personal reflections.

Hannah Gay “History of Imperial College 1907-2007”

PA Sheppard “A history of the department of meteorology 1920-1952”