CODE No. 27-23.

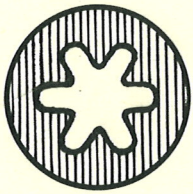
On Her Majesty's Service

WASC 64A/64A

24-6-1960

MINISTRY OF AVIATION
ERDE CHIEF SCIENTIST'S
CONFERENCE
BOOKLETS KE/1 INFORMATION
ON ERDE AND/2 PLAN FOR
TOURS

MINISTRY OF AVIATION



CHIEF SCIENTIST'S CONFERENCE

(SECOND DAY)

24 JUNE 1960

EXPLOSIVES RESEARCH AND
DEVELOPMENT ESTABLISHMENT,
WALTHAM ABBEY,
ESSEX.

CONTENTS

G E N E R A L

A R R A N G E M E N T S

Visitors will be received in Government House; see map on pages 8 and 9.

To facilitate the arrangements for tours of the Establishment visitors will be divided into five parties, details of which, together with identification badges, will be issued on arrival.

IT IS REGRETTED THAT THE CARRYING OF CIGARETTES, PIPES, LIGHTERS, MATCHES, ETC. CANNOT BE PERMITTED DURING THE TOURS OF THE ESTABLISHMENT; ENVELOPES WILL BE SUPPLIED IN WHICH VISITORS MAY LEAVE THEIR SMOKING MATERIALS IN GOVERNMENT HOUSE.

Lunch will be provided in a marquee in the garden of Government House. There will also be a bar. A charge of 12/6, to cover lunch, morning coffee, and afternoon tea, will be collected on arrival.

Anyone wishing to make special transport arrangements, telephone calls, etc. should apply at the Enquiry Desk in Government House.

TRANSPORT ARRANGEMENTS

Coaches will be provided to collect visitors staying overnight at hotels in the Aylesbury district. For those travelling from the London area a coach will leave Waterloo Station promptly at 9.55 a.m. and another from Oakwood Station (Piccadilly Line) at 10.30 a.m. (The journey by Tube from Piccadilly Circus takes 45 minutes).

Visitors arriving in private cars should use the Powdermill Lane car park or Walton Gardens (see inset map on page 9).

At the end of the day coaches will leave Powdermill Lane at the following times:-

	Departure	Arrival (approx.)
For Waterloo Station	4.30 p.m.	5.50 p.m.
For Turnpike Lane Station (Piccadilly Line)	4.30 p.m.	5.00 p.m.

P R O G R A M M E

Reception at Government House	11.00 a.m.
Coffee	
The Director, E.R.D.E.	11.15 a.m.
Tours of the Establishment	11.30 a.m.
North Site: Parties A, B and C	
South Site: Parties D and E	
Return to Government House for lunch ...	12.30 p.m.
Tours of the Establishment	1.50 p.m.
North Site: Parties D and E	
South Site: Parties A, B and C	
Tea at Government House	4.00 p.m.
Departure	4.30 p.m.

TOURS OF THE ESTABLISHMENT

E.R.D.E. is in two parts, North Site and South Site, each some 200 acres in extent, connection by road being through the town of Waltham Abbey. Nearly all of the research is carried out on North Site in old gunpowder factory buildings which have been converted into laboratories (See "An Account of E.R.D.E." in the accompanying booklet). Development work is done on South Site, and here likewise the buildings are well separated. Distances are therefore considerable.

The Conference will be divided into five coach parties, A. B, C, D and E, for which lettered badges will be issued on arrival. At some points of call sub-division of the parties will be necessary, indicated by the colours of the badges. Each coach will have guides.

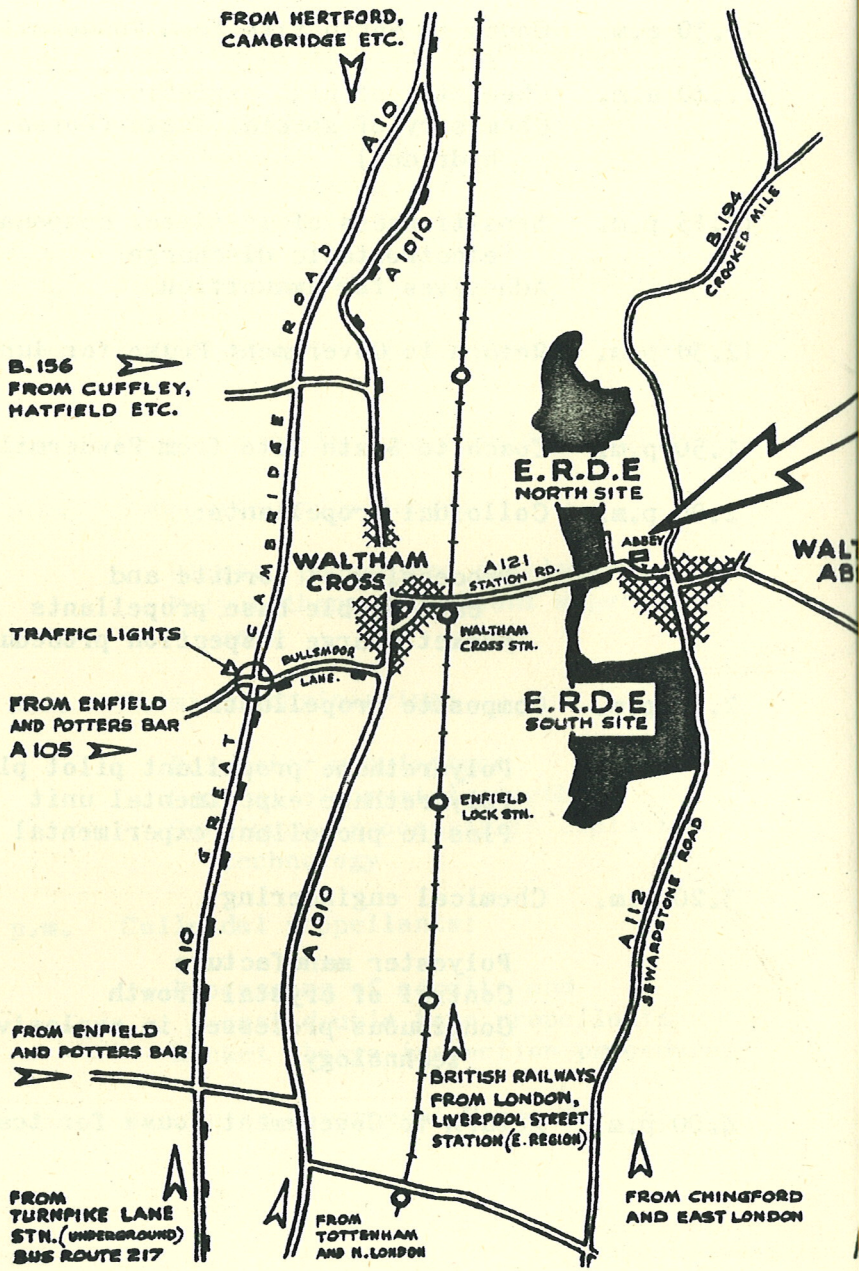
The tours have been planned with the intention of giving every visitor an idea of E.R.D.E.'s facilities (those for propellant development on South Site being in some respects unique) and a taste of the sort of work that goes on. In the time available much must be left out; the parties cannot be shown all the same things. We will try to meet the individual wishes of visitors in regard to seeing work in which they are especially interested if they apply at the Enquiry Desk in Government House.

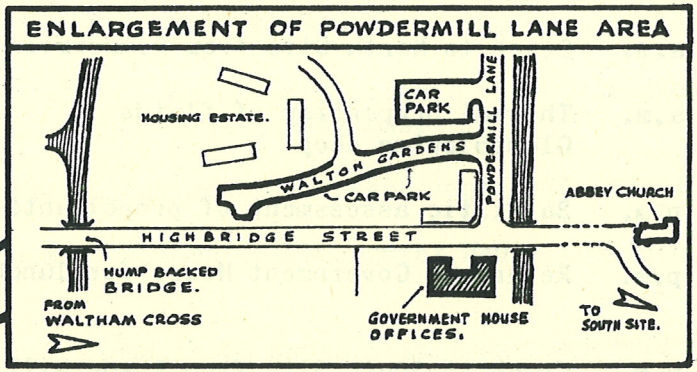
PARTY A

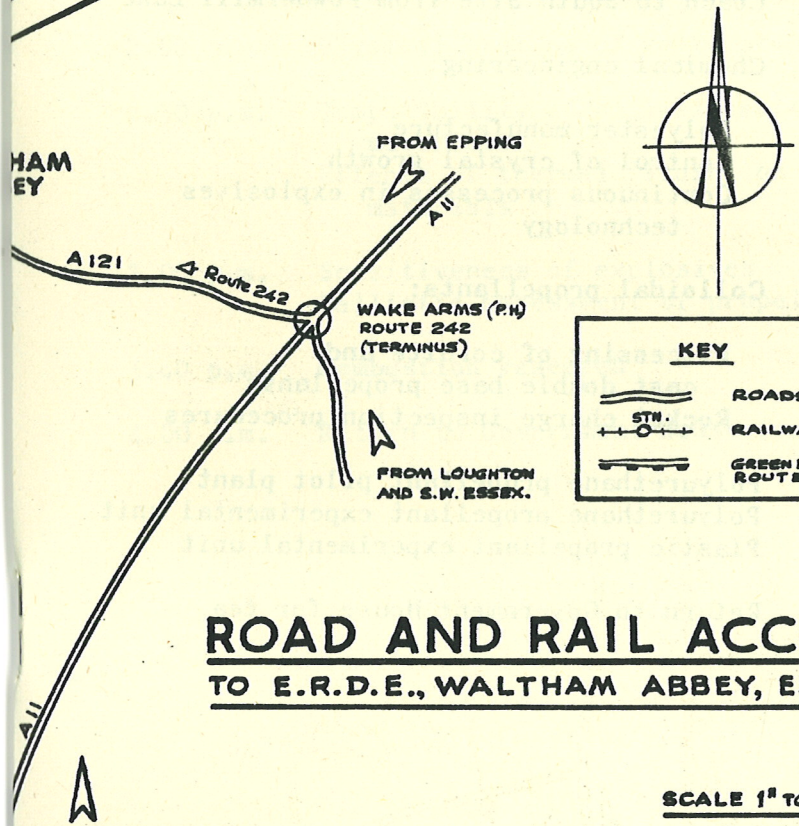
11.30 a.m.	Coach to North Site from Powdermill Lane
11.40 a.m.	Compatibility of explosives with materials Effects of thermal 'flash' on materials
12.15 p.m.	Physical testing of solid propellants
12.30 p.m.	Return to Government House for lunch
1.50 p.m.	Coach to South Site from Powdermill Lane
2.00 p.m.	Composite propellants: Plastic propellant development Polyurethane propellant experimental unit
2.40 p.m.	Chemical engineering: Polyester manufacture Control of crystal growth Continuous processes in explosives technology
3.20 p.m.	Colloidal propellants: Processing of cordite and cast double base propellants Rocket charge inspection procedures
4.00 p.m.	Return to Government House for tea

PARTY B

11.30 a.m.	Coach to North Site from Powdermill Lane
11.40 a.m.	Chemistry of high explosives Chemistry of special fuels (boron hydrides)
12.15 p.m.	Sensitiveness of initiator compounds to electrostatic discharge Adhesives for ammunition
12.30 p.m.	Return to Government House for lunch
1.50 p.m.	Coach to South Site from Powdermill Lane
2.00 p.m.	Colloidal propellants: Processing of cordite and cast double base propellants Rocket charge inspection procedures
2.40 p.m.	Composite propellants: Polyurethane propellant pilot plant Polyurethane experimental unit Plastic propellant experimental unit
3.20 p.m.	Chemical engineering: Polyester manufacture Control of crystal growth Continuous processes in explosives technology
4.00 p.m.	Return to Government House for tea


FROM HERTFORD, CAMBRIDGE ETC.
A10
GREAT CAMBRIDGE ROAD
A1010
B.156 FROM CUFFLEY, HATFIELD ETC.
B.194 CROOKED MILE
E.R.D.E NORTH SITE
ABBEY
WALTHAM CROSS
A121 STATION RD.
WALTHAM CROSS STN.
TRAFFIC LIGHTS
BULLSMOOR LANE.
FROM ENFIELD AND POTTERS BAR A105
E.R.D.E SOUTH SITE
ENFIELD LOCK STN.
A10
A1010
A112 SEWARDSTONE ROAD
FROM ENFIELD AND POTTERS BAR
BRITISH RAILWAYS FROM LONDON, LIVERPOOL STREET STATION (E. REGION)
FROM TURNPIKE LANE STN. (UNDERGROUND) BUS ROUTE 217
FROM TOTTENHAM AND N. LONDON
FROM CHINGFORD AND EAST LONDON





ROAD AND RAIL ACCESS

TO E.R.D.E., WALTHAM ABBEY, ESSEX.

SCALE 1" TO 1 MILE

PARTY E

11.30 a.m.	Coach to South Site from Powdermill Lane
11.40 a.m.	Plastic propellant experimental unit Polyurethane propellant experimental unit
12.15 p.m.	Chemical engineering
12.30 p.m.	Return to Government House for lunch
1.50 p.m.	Coach to North Site from Powdermill Lane
2.00 p.m.	Stabilisation of hydrogen peroxide (H.T.P.) Chemistry of special fuels (boron hydrides)
2.40 p.m.	Sensitiveness of initiator compounds to electrostatic discharge
3.00 p.m.	Combustion research
3.20 p.m.	Thermal properties of fluids Glassblowing shop
4.00 p.m.	Return to Government House for tea

E.R.D.E. B R A N C H E S

PROPELLANTS RESEARCH I (DR. G.H.S. YOUNG)

Research and development on composite propellants (plastic and polyurethane). Rheology of solid propellants; mechanical testing and study of methods of testing. Chemical investigation of polymers for use in propellants. Development of pyrotechnic compositions having improved physical properties and capable of extrusion as cylindrical charges.

PROPELLANTS RESEARCH II (MR. G.K. ADAMS)

Theoretical assessment of propellant performance. Reaction kinetics applied to flame propagation and burning of propellants. Ballistic measurements on propellants. Investigations on sensitiveness of explosives, propellants and initiator compounds. Responsibility for common services:- glass fabrication; electronics and instrument workshops.

PROPELLANTS RESEARCH III (DR. W.G. WILLIAMS)

Research and development on colloidal propellants (extruded and cast double base). Examination of all types of solid propellant charges by X-ray and ultrasonics. Propellants for ordnance, small arms, starter cartridges, etc.

EXPLOSIVES AND INTERMEDIATES (DR. A.L. LOVECY)

General chemical research on substances having actual or potential use in high explosives or propellant technology, e.g. research into preparation and properties of boranes, nitrocellulose and initiating explosives.

ANALYTICAL SERVICES (DR. L.J. BELLAMY)

Applications of ultra-violet and infra-red spectroscopy to chemical analysis and structural investigations. Development of new analytical methods. X-ray crystallography. Investigation of the stability and "life" of propellants and high explosives; climatic testing facilities. Compatibility of explosives with materials.

CHEMICAL ENGINEERING (MR. R.G. ROSS)

Chemical engineering techniques applied to manufacture of explosives and their ingredients; investigations on pilot scale plant; design of continuous processes. Production of special chemicals in experimental quantities. Measurement of thermal properties of fluids at extremes of temperature.

MATERIALS RESEARCH (MR. H. WARBURTON HALL)

Development of sealing compounds, lutings and adhesives for Service use. Study of physico-mechanical behaviour of rubbers and plastics under stress. Measurement of degree of cure in polymers; investigation of new polymers. Effects of thermal 'flash' on non-metallic materials. Compatibility of materials with explosives.

MEMORANDA