

programme

Douglas E. Hel

1st Affnerchie 1953



XIV



Glasgow 1965

**xiv international
apprentice
competition**

XIV
INTERNATIONAL
APPRENTICE
COMPETITION

COMPETITION OFFICE

110 Flemington Street,
Glasgow, N.1.

Telephone: SPRingburn 6052/3

IF IN DIFFICULTY TELEPHONE SPRingburn 6052
BETWEEN 09.00 HOURS AND 18.00 HOURS
OUTSIDE THESE HOURS TELEPHONE CITY 3407

*Any team member in need of medical or
dental treatment should consult his team
leader who will make suitable arrangements.*

RESIDENTIAL ACCOMMODATION

Teams

GERMANY · IRELAND · JAPAN
UNITED KINGDOM

Wolfson Hall

Garscube Estate,

Glasgow, N.W.

Telephone: MARYhill 5255

BELGIUM · HOLLAND

ITALY

PORTUGAL · SPAIN · SWITZERLAND

Queen Margaret Hall

Bellshaugh Road,

Glasgow, W.2.

Telephone: WEStern 1416

Secretariat, Official Representatives,
Technical Representatives,
Technical Assistants,
Official Observers and Ladies.

CENTRAL HOTEL

Gordon Street, Glasgow, C.1

Telephone: CENTral 9680

*Participants in
the competition
are easily
recognised by
the colour of
their lapel
badges, which
they must wear
at all times*

Headquarters staff	- Gold
Official Representatives	- Orange
Technical Representatives	- Purple
Technical Assistants	- Grey
Official Observers	- Black
Team Leaders	- Red
Competitors	- Blue
Interpreters	- Yellow/Brown
College Staff	- Green
Guides	- Charcoal/Pink

COMPETITION COLLEGES

STOW COLLEGE OF ENGINEERING

110 Flemington Street,

Glasgow, N.1.

Telephone: SPRingburn 9001

Fitting

Turning

Press Tool Making

Milling

Engineering Drawing

Jewellery

Silversmithing

Electric Welding

Gas Welding

Panel Beating

Sheet Metal Work

House Wiring

Industrial Wiring

Radio and Television Repair

BARMULLOCH COLLEGE

OF FURTHER EDUCATION

186 Rye Road, Glasgow, N.1.

Telephone: SPRingburn 9071

Foundry Moulding

Constructional Steelwork

Wood Patternmaking

GLASGOW COLLEGE OF BUILDING

60 North Hanover Street,

Glasgow, C.1.

Telephone: DOUglas 9321

Stone Cutting

Painting and Decorating

Cabinet Making

Joinery

Brick Laying

Plumbing

Carpentry

Plaster Work

PROGRAMME

Sunday 11th July—Friday 30th July

Sunday, 11th July

Arrival at Central Hotel of Secretariat, Technical Representatives, Technical Assistants, Official Observers and Ladies.

- 19.00** Dinner at Central Hotel followed by informal meeting.
Distribution of Programmes and Badges.
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Monday, 12th July

- 08.30** Buses leave Central Hotel for tour of Competition Centres.
- 10.30** Morning refreshments at Stow College.
- 10.45** 1st work session.
- 12.30** Lunch at Stow College.
- 13.45** 2nd work session.
- 15.15** Afternoon refreshments at Stow College.
- 15.30** 2nd work session continued.
- 17.30** Finish of 2nd work session.
- 17.45** Buses leave for Central Hotel.
- 19.00** Dinner at Central Hotel.
Evening free.
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Tuesday, 13th July

- 08.30** Buses leave Central Hotel for Stow College.
- 09.00** 3rd work session.
- 10.30** Morning refreshments at Stow College.
- 10.45** 3rd work session continued.
- 12.30** Lunch at Stow College.
- 13.45** 4th work session.
- 15.15** Afternoon refreshments at Stow College.
- 15.30** 4th work session continued.
- 17.30** Finish of 4th work session.
- 17.45** Buses leave for Central Hotel.
- 19.00** Dinner at Central Hotel.
Evening free.
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Wednesday, 14th July

- 08.30** Buses leave Central Hotel for Stow College.
- 09.00** 5th work session.
- 10.30** Morning refreshments at Stow College.
- 10.45** 5th work session continued.
- 12.30** Lunch at Stow College.
- 13.45** 6th work session.
- 15.15** Afternoon refreshments at Stow College.
- 15.30** 6th work session continued.
- 17.30** Finish of 6th work session.
- 17.45** Buses leave for Central Hotel.
- 19.00** Dinner at Central Hotel.
Evening free.
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Thursday, 15th July

- 08.30** Buses leave Central Hotel for Stow College.
09.00 7th work session.
10.30 Morning refreshments at Stow College.
10.45 7th work session continued.
12.30 Lunch at Stow College.
13.45 8th work session.
15.15 Afternoon refreshments at Stow College.
15.30 8th work session continued.
17.30 Finish of 8th work session.
17.45 Buses leave for Central Hotel.
19.00 Dinner at Central Hotel.
Evening free.
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Friday, 16th July

EXCURSION 1. *Technical Representatives, Technical Assistants, Official Observers and Ladies.*

- 07.20** Buses leave Central Hotel for Queen St. Station.
07.40 Train leaves Queen St. Station for Fort William.
11.50 Arrive in Fort William.
12.05 Buses leave Fort William for Croit Anna Motel.
12.30 Lunch at Motel.
13.30 Buses leave Motel for Ben Nevis Distillery.
13.50 Arrive Ben Nevis Distillery.
15.45 Buses leave Ben Nevis Distillery for Croit Anna Motel via Spean Bridge, Commando Memorial and Corpach.
17.30 Arrive at Motel.
17.45 High Tea at Motel.
18.45 Buses leave Motel for Fort William.
19.00 Train leaves Fort William for Queen St. Station, Glasgow.
23.00 Arrive Queen St. Station.
23.10 Buses leave Queen St. Station for Central Hotel.
23.30 Arrive Central Hotel.
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Saturday, 17th July

DAY FREE for Technical Representatives, Technical Assistants, Official Observers and Ladies.

Arrival of Competitors, Official Representatives and Ladies.

Transfer of Competitors from Airport to Hostels.

Transfer of Official Representatives and Ladies to Central Hotel.

Distribution of Programmes and Badges.

- 18.30** Dinner at Hostels.
19.00 Dinner at Hotel.
Evening free.
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Sunday, 18th July

Religious Services at Hostels.

- 08.00** Breakfast at Hostels.
08.30 Buses leave Hostels for Colleges.
Buses leave Central Hotel for Colleges.
09.00 Familiarisation session at Colleges.
10.15 Morning refreshments.
11.45 Finish of Familiarisation session.
12.00 Lunch at Colleges.

EXCURSION 2. *All Participants.*

- 13.00** Buses leave Colleges for Bridge Wharf.
13.10 Buses leave Central Hotel for Bridge Wharf.
13.30 Boat leaves Bridge Wharf for Clyde Cruise.
18.15 Arrive Dunoon.
Dinner at Dunoon Grammar School.
20.15 Boat leaves Dunoon for Craigendoran.
21.00 Arrive at Craigendoran.
21.15 Train leaves Craigendoran for Anniesland Station and Queen St. Station.
21.49 Arrive at Anniesland Station. Competitors and other Hostel Residents leave the train at this station.
Buses leave for Hostels.
21.59 Arrive at Queen St. Station.
Buses leave for Central Hotel.
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Monday, 19th July

- 08.00** Breakfast at Hostels.
09.30 Buses leave Hostels for City Chambers.
10.00 Buses leave Central Hotel for City Chambers.
11.00 Opening Ceremony. By Secretary of State for Scotland.
12.15 Buses leave City Chambers for Colleges.
12.45 Lunch at Colleges.
13.30 Competition, 1st period.
15.00 Afternoon refreshments.
15.15 1st period continued.
17.30 Finish of work.
17.45 Buses leave for Hostels and Central Hotel.
18.30 Dinner at Hostels.
19.15 Buses leave Central Hotel for City Chambers.
19.30 Opening Banquet. Invited guests.
22.15 Buses leave City Chambers for Central Hotel.
Evening free for competitors.
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Tuesday, 20th July

- 07.30** Breakfast at Hostels.
08.00 Buses leave Hostels for Centres.
Buses leave Central Hotel for Centres.
08.30 Competition, 2nd period.
10.15 Morning refreshments.
10.30 2nd period continued.
12.30 Finish of work.
Lunch at Centres.
13.30 Competition, 3rd period.
15.00 Afternoon refreshments.
15.15 3rd period continued.
17.30 Finish of work.
17.45 Buses leave for Hostels and Central Hotel.
18.30 Dinner at Hostels.
Evening free.
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Wednesday, 21st July

- 07.30** Breakfast at Hostels.
08.00 Buses leave Hostels for Centres.
Buses leave Central Hotel for Centres.
08.30 Competition, 4th period.
10.15 Morning refreshments.
10.30 4th period continued.
12.30 Finish of work.
Lunch at Centres.
13.30 Competition, 5th period.
15.00 Afternoon refreshments.
15.15 5th period continued.
17.30 Finish of work.
17.45 Buses leave for Hostels and Central Hotel.
18.30 Dinner at Hostels.
COMPETITORS—FAIR GROUND, GLASGOW GREEN.
19.30 Buses leave Hostels for Glasgow Green.
21.30 Buses leave Glasgow Green for Hostels.
Evening free for all others.
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Thursday, 22nd July

- 07.30** Breakfast at Hostels.
08.00 Buses leave Hostels for Centres.
Buses leave Central Hotel for Centres.
08.30 Competition, 6th period.
10.15 Morning refreshments.
10.30 6th period continued.
12.30 Finish of work.
Lunch at Centres.
13.30 Competition, 7th period.
15.00 Afternoon refreshments.
15.15 7th period continued.
17.30 Finish of work.
17.45 Buses leave for Hostels and Central Hotel.
18.30 Dinner at Hostels.
COMPETITORS—FIVE-A-SIDE FOOTBALL.
19.30 Buses to Sports ground.
Evening free for all others.
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Friday, 23rd July

- 07.30** Breakfast at Hostels.
08.00 Buses leave Hostels for Centres.
Buses leave Central Hotel for Centres.
08.30 Competition, 8th period.
10.15 Morning refreshments.
10.30 8th period continued.
12.30 Finish of work.
Lunch at Centres.
13.30 Competition, 9th period.
15.00 Afternoon refreshments.
15.15 9th period continued.
17.30 Finish of work.
17.45 Buses leave for Hostels and Central Hotel.
19.00 Buses leave Hostels for University of Strathclyde.
19.30 Informal Dinner for Competitors and Invited Guests.
22.15 Buses leave University of Strathclyde.
Evening free for all others.
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Saturday, 24th July

EXCURSION 3. *Competitors, Official Representatives and Ladies.*

First Party:

- 08.45** Buses leave Glasgow via Loch Long.
10.15 Morning refreshments at Arrochar.
12.00 Arrive Killin. Lunch in Hall.
13.30 Buses leave Killin for Breadalbane Hydro-electric Scheme.
15.30 Buses leave Scheme, for Callander.
16.30 Arrive Callander.
17.30 Dinner.
20.00 Buses leave Callander via Trossachs.
22.00 Arrive Glasgow.

Second Party:

- 08.45** Buses leave Glasgow via Trossachs.
10.15 Morning refreshments at Aberfoyle.
11.30 Arrive Callander.
12.00 Lunch.
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- 14.30** Buses leave Callander for Breadalbane Hydro-electric Scheme.

- 15.30** Arrive Breadalbane Scheme.
17.30 Buses leave Scheme for Killin.
18.00 Arrive Killin. Dinner in Hall.
19.30 Buses leave Killin via Loch Long.
22.30 Arrive Glasgow.

Technical Representatives, Technical Assistants and Official Observers.

- 08.00** Breakfast at Hostels.
08.30 Buses leave Central Hotel for Colleges.
09.00 Assessment of Test Pieces.
10.30 Morning refreshments at Colleges.
10.45 Assessment continued.
12.30 Lunch at Colleges.
13.45 Assessment continued.
15.15 Afternoon refreshments at Colleges.
15.30 Assessment continued.
17.30 Finish of assessment.
17.45 Buses leave for Central Hotel.
19.00 Dinner at Central Hotel.
Evening free.
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Sunday, 25th July

- 08.30** Breakfast at Hostels.
Morning Free.
12.30 Lunch at Hostels.

EXCURSION 4. *All Participants.*

- 13.15** Buses leave Central Hotel for Queen St. Station.
Buses leave Hostels for Anniesland Station.
13.36 Train leaves Queen St. Station for Anniesland Station.
13.48 Train leaves Anniesland Station for Balloch Pier.
14.30 Boat departs for Loch Lomond Cruise.
Afternoon tea on board.
19.15 Arrive Balloch Pier.
19.40 Train leaves Balloch Pier.
20.19 Arrive Anniesland Station.
Competitors and other Hostel Residents leave the train at this station.
Buses leave for Hostels.
20.30 Arrive Queen St. Station.
Buses leave for Central Hotel.
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Monday, 26th July

08.00 Breakfast at Hostels.

EXCURSION 5. *Competitors, Official Representatives and Ladies.*

08.45 Buses leave Hostels and Central Hotel for Edinburgh, via Stirling, Dollar, Forth Bridge.

10.15 Morning refreshments at Devonvale Hall, Tillicoultry.

12.30 Arrive Edinburgh.

13.00 Civic Reception, Buffet Luncheon.
Afternoon Free.

18.00 Dinner at University Union.

20.00 Government Reception at Edinburgh Castle.

22.00 Buses leave for Glasgow.

23.00 Arrive Glasgow.

Technical Representatives, Technical Assistants and Official Observers.

08.30 Buses leave Central Hotel for Colleges.

09.00 Assessment of Test Pieces.

10.30 Morning refreshments at Colleges.

10.45 Assessment continued.

12.30 Lunch at Stow College.

13.45 Assessment continued.

15.15 Afternoon refreshments at Colleges.

15.30 Assessment continued.

17.30 Finish of assessment.

17.45 Buses leave for Central Hotel.

19.00 Dinner at Central Hotel.
Evening free.

Tuesday, 27th July

08.00 Breakfast at Hostels

EXCURSION 6. INDUSTRIAL VISITS.

Visit 1. British Hydrocarbon Chemicals Ltd., Party of 20
Grangemouth,
Stirlingshire.

The Grangemouth factory of British Hydrocarbon Chemicals Limited is one of the largest centres of petroleum chemicals manufacture in Western Europe. The operations are based on the thermal cracking of light petroleum distillate to yield a variety of products, such as alcohols used in the manufacture of plastics, paints, inks, etc.; phenol for resins; alkylate for household and synthetic detergents; isobutylene for the manufacture of butyl rubbers; high density polyethylene; Rigidex for plastics; and so on.

Most of the processes are highly automated and modern control instrumentation is a special feature of the factory. There are works laboratories for quality control, research laboratories, and extensive instrument and maintenance workshops.

Buses leave Hostels for Grangemouth.

Buses leave Hotel for Grangemouth.

Arrive at British Hydrocarbon Chemicals Ltd.

Lunch.

Visit.

Buses leave for Bo'ness Road, Grangemouth.

High Tea.

Buses leave for Glasgow.

Visit 2. South of Scotland Electricity Board, Party of 20
Kincardine Generating Station,
Kincardine-on-Forth,
Fife.

Kincardine is a small town on the north bank of the River Forth. Sir John Dewar, inventor of the vacuum flask, was born here in 1842. In the background lies the Forest of Tulliallan.

The station, completed in 1963, is the largest in the South of Scotland Electricity Board with a capacity of 760,000 kilowatts. The main and ancillary buildings are steel framed, with a light cladding of aluminium, glass and

brickwork. The twin chimneys are 400 feet high and the station uses $2\frac{1}{4}$ million tons of coal a year. The ash from the station is being used to reclaim land south of the station. Partly on this reclaimed land the Board is at present building Longannet Station which, when completed in 1971, will be over three times the size of Kincardine.

Buses leave Hostels for Kincardine.

Buses leave Hotel for Kincardine.

Arrive at South of Scotland Electricity Board.

Lunch.

Visit.

Buses leave for Bo'ness Road, Grangemouth.

High Tea.

Buses leave for Glasgow.

Visit 3. Bruce Peebles & Co. Ltd., Party of 20
East Pilton Drive,
Edinburgh, 5.

Bruce Peebles' main works and research laboratories are located at East Pilton, some two miles from the centre of Edinburgh. Here the Company has recently completed one of the largest and most modern extra high-voltage transformer factories in Europe.

The new building has an area of 100,000 sq. ft. and is designed to permit the assembly and testing of double-wound transformers of up to approximately 1,000 MVA at 750 kV. Contracts are currently in hand for 400 kV units of 570 MVA and 500 MVA, and the Company has recently received an order for four 690 MVA generator transformers—the largest to be ordered from a United Kingdom manufacturer and among the largest in the world.

Also situated at East Pilton is the Company's rotating plant factory where a wide range of machines from small flameproof induction motors up to large hydro-electric generators is produced. A.C. motors with outputs of up to 6,000 h.p. are at present under construction for power stations, oil refineries, chemical plants, pumping stations, steelworks, coal mines, and other industrial applications in the United Kingdom and many overseas countries.

Buses leave Hostels for Edinburgh.

Buses leave Hotel for Edinburgh.

Arrive at Bruce Peebles & Co. Ltd.

Lunch.

Visit.

Buses leave for Napier College.

High Tea.

Buses leave for Glasgow.

Visit 4. Ferranti Limited, Party of 20
Ferry Road,
Edinburgh, 5.

The activities of the Company in Scotland include the design, development and manufacture of a large range of precision gyroscopes; the design and manufacture of automatic control equipment for machine tools; the design and manufacture of specialised electronic components. Various aspects of the manufacturing processes will be shown in a tour lasting approximately two hours. A group of electronically controlled milling machines and an inspection machine of Ferranti design and manufacture, form points of special interest.

Buses leave Hostels for Edinburgh.

Buses leave Hotel for Edinburgh.

Arrive at Ferranti Limited.

Lunch.

Visit.

Buses leave for Napier College.

High Tea.

Buses leave for Glasgow.

Visit 5. James Dougall & Sons Ltd., Party of 20
Bonnybridge Firebrick Works,
Bonnybridge,
Stirlingshire.

James Dougall & Sons Ltd. are manufacturers of Refractory Products. Founded in 1887, the Company became associated with the Dyson group of Companies in 1962.

The party will see both Dry Pressing and Plastic Moulding of Refractory Shapes in the range of 36% Alumina to 60% Alumina, together with a small quantity of Silicon Carbide. The Company is well known for the production of Special Shapes. After drying the goods are fired in kilns of different types including Intermittent, Belgian, Mendheim and a Tunnel Kiln, which is part of a new modern works.

road and rail to home and overseas markets. Finally, they will see the Apprentice Training School and a short film.

Buses leave Hostels for Kilmarnock.

Buses leave Hotel for Kilmarnock.

Arrive at Massey-Ferguson Manufacturing Co.

Lunch.

Visit.

Buses leave for Civic Reception.

High Tea.

Buses leave for Glasgow.

Visit 9. J. & P. Coats Ltd., Party of 25
Paisley,
Renfrewshire.

J. & P. Coats Limited are the world's largest thread producers. In this factory the whole process of the manufacture of cotton thread can be seen. It falls into three main parts.

Firstly, there is the Spinning of the yarn and the Twisting of it into thread. Secondly, there is the Dyeing of the thread to the required shades. Thirdly, there comes the Winding of the thread on to spools, cones, cops or into balls as a finished article.

The party will be divided into two sections. One section will be shown the Spinning and Twisting processes, and the other the Finishing.

Buses leave Hostels for Paisley.

Buses leave Hotel for Paisley.

Arrive at J. & P. Coats Ltd.

Lunch.

Visit.

Buses leave for Civic Reception.

High Tea.

Buses leave for Glasgow.

Visit 10. National Engineering Laboratory, Party of 40
East Kilbride,
Lanarkshire.

N.E.L. is a Government Laboratory which carries out basic and applied research in mechanical engineering to help the engineering industries improve their products and processes.

The work includes research on the strength of engineering

materials at normal and high temperatures; the development of new methods for shaping metal products; research to improve the design of machine tools; investigations of noise and vibrations in gears and other mechanisms; the development of high pressure oil systems for transmitting power and movement in vehicles and ships, machine tools and other industrial equipment; investigations of the design and performance of fans, pumps, water turbines and other hydraulic machinery; improvements in the performance of heat exchangers and experimental and theoretical investigations of the physical properties of gases and liquids.

Buses leave Hostels for East Kilbride.

Buses leave Hotel for East Kilbride.

Arrive at National Engineering Laboratory.

Lunch.

Visit.

Buses leave for Civic Reception.

High Tea.

Buses leave for Glasgow.

Visit 11. The Singer Manufacturing Co. Ltd., Party of 40
Singer,
Clydebank,
Dunbartonshire.

Singer, Clydebank, is the British Manufacturing Unit of the Singer world-wide organisation and employs some 10,000 persons in the batch and flow manufacture of various classes of sewing machines.

The visitors will be shown the manufacture of the Domestic Sewing Machine from the casting through to the completely assembled and inspected article.

Buses leave Hostels for Clydebank.

Buses leave Hotel for Clydebank.

Arrive at The Singer Manufacturing Co. Ltd.

Lunch.

Visit.

Buses leave for Civic Reception.

High Tea.

Buses leave for Glasgow.

Scotland, where two computers control factory production.

09.30 Buses leave Central Hotel.

10.45 Arrive at I.B.M. United Kingdom Ltd.

Visit.

Lunch.

Buses leave for Burns Country tour.

18.30 Arrive Largs.

20.30 Dinner at Marine and Curlinghall Hotel.

21.30 Buses leave Largs for Central Hotel.

23.00 Arrive Central Hotel.

Visit B. Lithgows Limited, Party of 40
Kingston Shipbuilding Yard,
Port Glasgow,
Renfrewshire.

Lithgows Limited have been building first-class ships for ninety years. Today these include cargo liners of the highest specification, super tankers, bulk carriers, ore carriers and refrigerated vessels, as well as ships designed to meet owners' particular requirements. Their designers continually strive to achieve greater economy of design and efficiency as well as to develop new types of ships. Lithgows' ownership of vessels and their policy of studying the operating experience of their international clientele give the design department a remarkable strength.

At the Kingston Yard the larger ships are built and fitted out. These include vessels up to about 100,000 tons deadweight. The latest production techniques are employed, and this very modern shipyard is laid out like a streamlined factory.

09.45 Buses leave Central Hotel.

10.45 Arrive at Lithgows Limited.

Visit.

Lunch.

Buses leave for Burns Country tour.

18.30 Arrive Largs.

20.30 Dinner at Marine and Curlinghall Hotel.

21.30 Buses leave Largs for Central Hotel.

23.00 Arrive Central Hotel.

Visit C. South of Scotland Electricity Board, Party of 80
Hunterston Generating Station,
West Kilbride,
Ayrshire.

Hunterston, the South of Scotland Electricity Board's nuclear generating station, occupies a magnificent site on the Ayrshire coast. It is sheltered by Goldenberry Hill and faces out across the Firth of Clyde to the island of Great Cumbrae and the peaks of Arran.

The station was begun in August 1957 and in February 1964 the first reactor was feeding electricity into the grid. The second started in July. They produce enough electricity to supply a city the size of Edinburgh and each is housed in a building more than 200 feet high and weighing 75,000 tons.

Despite its size the station blends with its magnificent surroundings like a sundial in a country garden. On this famous stretch of the Clyde it has become something of a tourist attraction.

09.00 Buses leave Central Hotel.

10.30 Arrive at Hunterston Generating Station.

Visit.

Lunch.

Buses leave for Burns Country tour.

18.30 Arrive Largs.

20.30 Dinner at Marine and Curlinghall Hotel.

21.30 Buses leave Largs for Central Hotel.

23.00 Arrive Central Hotel.

Thursday, 29th July

08.30 Breakfast at Hostels.

Morning Free.

12.30 Lunch in Hostels.

Lunch in Central Hotel.

13.45 Buses leave Hostels for City Chambers.

14.00 Buses leave Central Hotel for City Chambers.

14.30 Presentation of Awards, City Chambers.
By The Minister of Labour.

15.45 Buses leave City Chambers for Hostels.
Buses leave City Chambers for Central Hotel.

18.00 Dinner at Hostels.

18.40 Buses leave Hostels for City Chambers.

- 18.50 Buses leave Central Hotel for City Chambers.
19.00
for
19.30 CIVIC RECEPTION, City Chambers.
23.10 Buses leave City Chambers for Hostels.
Buses leave City Chambers for Central Hotel.
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Friday, 30th July

- 08.00 Breakfast at Hostels.
Departure.

We gratefully acknowledge the help and assistance given by the following contributors.

LIST OF CONTRIBUTORS

Abwood Machine Tools Ltd.
Admel International Ltd.
Aircraft Marine Products Ltd.
Airmec Ltd.
Allen West & Co., Ltd.
Allied Ironfounders Limited.
Allied Ironfounders Limited, Scottish Group.
Alloa Town Council.
Amalgamated Electric Services Ltd.
Argyll County Council—Education Committee.
8th Battalion Argyll & Sutherland Highlanders.
Arrow Electric Switches Ltd.

Babcock & Wilcox Ltd.
Mr. D. S. Baddeley.
Balding Engineering Limited.
Barr & Stroud Limited.
William Beardmore & Co., Limited.
Belmos Company Limited.
B.M.C. (Scotland) Limited.
Ben Nevis Distillery.
Bonnington Castings Limited.
Anderson Boyes & Co., Ltd.
British Aircraft Corporation (Operating) Ltd.
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British Gypsum Limited.
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Burgh of East Kilbride.
John Burn & Company (Birmingham) Ltd.
Montague Burton Limited.
1st Battalion Cameronians (Scottish Rifles).

Carron Company.
Caterpillar Tractor Co., Ltd.
Cleveland Twist Drill Limited.
Clyde Shipbuilders' Association.
Clydebank Town Council.
Clydesdale Bank Limited.
J. & P. Coats, Limited.

The Royal Bank of Scotland.
John Rutherford & Sons Ltd.

The Scottish Construction Company Ltd.
Scottish Co-operative Wholesale Society Limited. Engineering
and Allied Services Division.
Scottish Engineering Employers Association.
Scottish Tar Distillers Ltd.
Sellotape Products Ltd.
Shanks & Co. Ltd.
The Singer Manufacturing Co., Ltd.
The Skefko Ball Bearing Company Ltd.
A. & W. Smith & Company Limited.
S. Smith & Sons (England) Ltd.
The Society of British Aerospace Companies Ltd.
South of Scotland Electricity Board.
Stewarts and Lloyds Limited.
Stirlingshire County Council.
The Stone Firms Ltd.
Strathclyde University, Students' Association.

Telephone Manufacturing Company Ltd.
Telequipment Ltd.
Thermotank Limited.
Thorn Electrical Industries Ltd.
Toffolo Jackson & Co., Ltd.

Verdict Sales Company Ltd.
Vickers Limited loco.

James Walker & Co., Ltd.
Westclox Limited.
Thomas White and Sons Limited.
Edward Wilcox & Co., Ltd.
John Williams (Wishaw) Ltd.

Barmulloch College of Further Education.
City of Bath Technical College.
Bristol Technical College.
Brixton School of Building.
Brooklyn Technical College, Birmingham.

Central School of Arts & Crafts.
Charles Trevelyan College, Newcastle upon Tyne.
Craft Training Centre for the Foundry Industry, West Bromwich.

Dunstable College of Further Education.

East Ham Technical College.

Falkirk Technical College.

Garett's Green Technical College, Birmingham.

Glasgow College of Building.

Hammersmith College of Art & Building.

Leicester College of Art, Faculty of Building.
Letchworth College of Technology.
Liverpool College of Art.
Liverpool College of Building.
Longlands College of Further Education, Middlesbrough.
Luton College of Technology.

Manchester College of Building.
Mid-Herts College of Further Education, Welwyn.

National Foundry College, Wolverhampton.

Poplar Technical College.

Reid Kerr College, Paisley.

St. Helen's Technical College.
Stow College of Engineering, Glasgow.

Twickenham College of Technology.

Willesden Technical College.

