

Fairway

SURVEYS LIMITED

Land is the raw material of nearly all wealth. But neither the development nor the administration of any plot of land can be planned economically, or carried out efficiently, without a complete and accurate knowledge of its size, its boundaries, and the various natural and artificial features it contains.



In this booklet, we at Fairey Surveys explain how this vital knowledge of land is obtained – in order that this knowledge can be used effectively to improve the living standards of a nation's people.



For more than 50 years, Fairey Surveys has been surveying and mapping land and surrounding water areas in all parts of the world. As a result, on which was once desert or impenetrable jungle there are now towns and cities, vast irrigation schemes and fertile farms, modern highways, railways, dams and hydro-electric power plants.

Before any of this development could take place, the most accurate measurements of the shape and content of the land surface were required. Fairey Surveys, accurately and professionally supply this information.

Fairey Surveys uses only the most proven ground, aerial or marine surveying techniques. Whatever kind of surveying method is needed – topographical, photographic, geophysical, geological, remote sensing in a number of forms, and resources appraisal – all are available from Fairey Surveys.

From our experience in most parts of the world we are convinced there are very few pure survey problems to be solved. The problems are primarily in the fields of Civil Engineering, Planning and Resources Development and it is the appraisal of these requirements and budgetary limitations that determines the surveying approach required.

The services available from Fairey Surveys are so wide and varied that we welcome enquiries from engineers, planners and administrators with specific projects or queries.

THE FIRST CONTACT

This is of prime importance. Whether it is an enquiry regarding a specific project, or the need for advice on the feasibility of a project, Fairey Surveys is ready to help.

It is not necessary for detailed specifications to be drawn up before contact is made. A telephone call ... or telex ... a letter ... some statement of your needs ... will ensure prompt action from our staff.

A technical appraisal is made of the problem and an estimate of the time and materials required to complete the job is produced. We then discuss the project with you in detail, and after agreement of the specifications would prepare a proposal covering fees and completion date.

OPERATIONAL PLANNING

From the moment Fairey Surveys is awarded a contract, all survey problems are ours. We decide on the best equipment for the job, the people, the aircraft, and we carry out all necessary groundwork and locationing before the actual survey can commence.

Detailed planning is undertaken by the Operational Managers of Fairey Surveys, who draw on their experience of organising and carrying out ground and aerial surveys in more than 50 different countries. They are responsible for the selection and positioning of aircraft. Visa and other travel documents are arranged, flightline planning is detailed, and a careful and practised eye is kept on all subsequent



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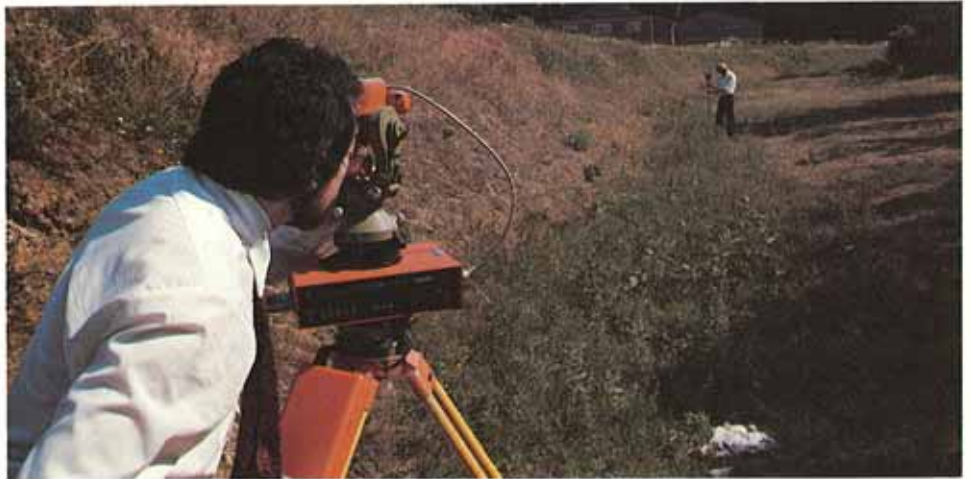


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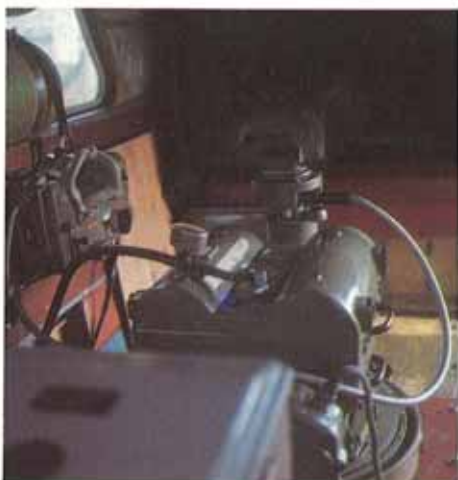
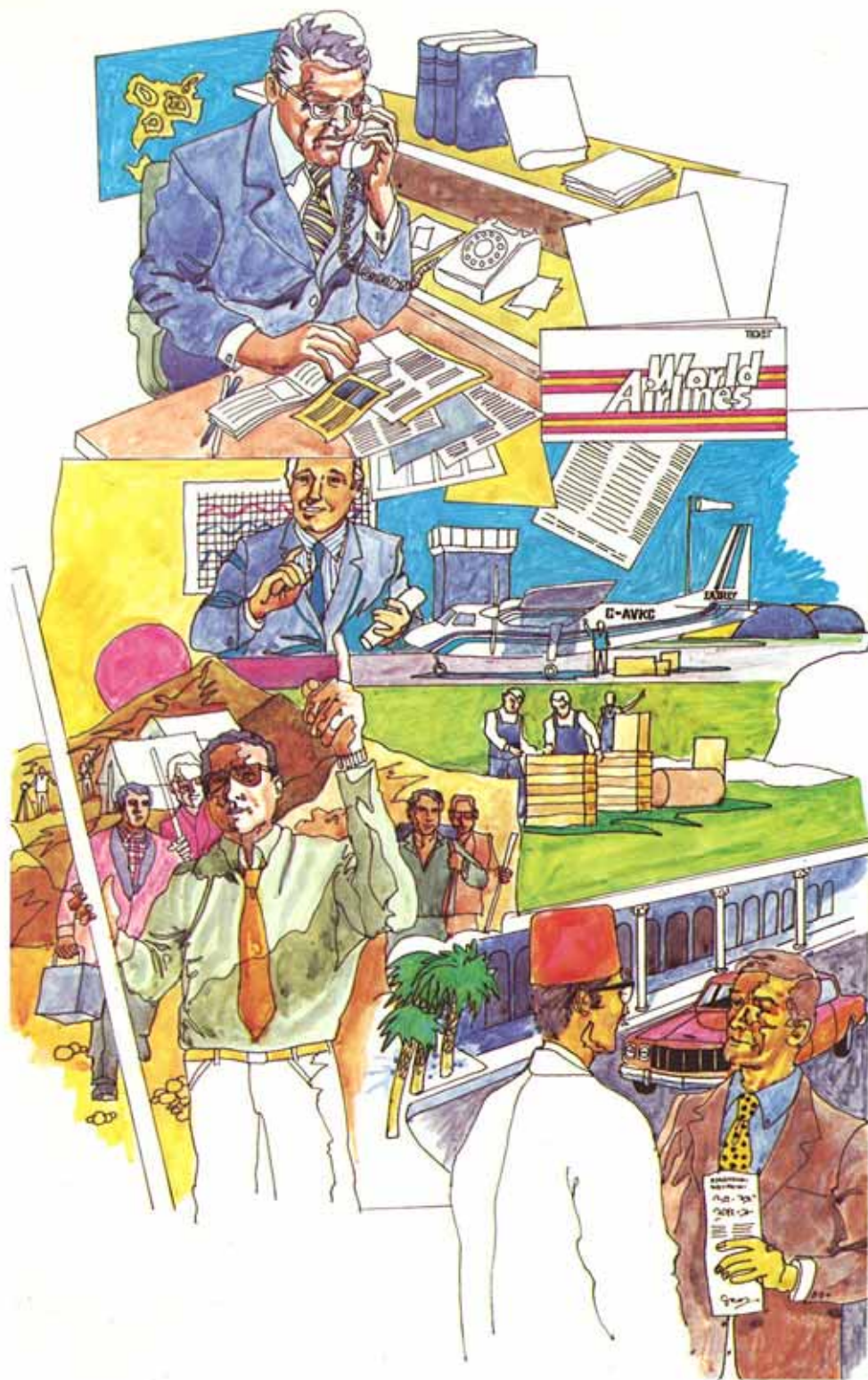
1. Lawrence Scott FRICS, Managing Director
2. Headquarters and Laboratories, Maidenhead, England.
3. Members of the Technical study team assess alternative working methods prior to cost evaluation
4. Modern Electronic distance measuring techniques
5. Fairey Britten Norman Islander modified for aerial photography



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6. Wild and Zeiss cameras installed in the twin installation Islander

prints, enlargements, mosaics and diapositives to ensure that they are only of the finest quality.

The Beechcraft Queen Air B.80, and Fairey Britten-Norman Islander are the photographic aircraft within the fleet. These aircraft have been extensively modified to enable two cameras to be used simultaneously, giving a range of scales from 1:3,000 to 1:80,000.

Primarily used to obtain photographs for mapping purposes, survey navigation is carried out using Fairey side sights, Doppler, or Wild NF28 navigation sights.

Once satisfactory photography is completed prints are made available for the field control survey.

METHODS OF SURVEYING

We use the most sophisticated equipment available, and undertake all types of surveying and mapping. Some of the methods used are:

Ground Surveys

Classical methods are used by our staff of qualified and experienced land surveyors, using the finest equipment, which is continually updated. For example, we were among the first to acquire a Kern ME3000 Mekometer – an instrument which combines the highest accuracy with compactness and convenience, (measuring to an accuracy of one part in one million).

This service is available on either a daily fee or large-scale project basis. Our land surveyors undertake large scale urban mapping, road re-alignments, the setting-out of major works, subsidence levelling, harbour and estuarial surveys and, more recently in developing countries, the establishment of framework traverse or level networks.

Computer Programming

Many modern companies have computers – and Fairey Surveys is no exception. Most of the company's scientific computing is carried out on its own Honeywell 316 minicomputer, with input by high-speed paper tape reader and output by high-speed paper tape punch. Fairey Surveys skilled programming staff maintains up-to-date programs for all field survey and photogrammetric tasks, including the computation and adjustment of traverses, triangulations, trilaterations, independent photogrammetric model triangulations, strips and blocks, digital ground models, area and volume measurement, and transformations from geographicals to grid projections.

Aerial Photography

The most important element in any kind of aerial survey is photography of the highest possible quality and the company operates a continuing research programme, testing new film and cameras.

Fairey Surveys has a modern 'Photolab' and in the United Kingdom, aerial films are sent to these laboratories for processing and photo-mosaics or enlargements can be rapidly produced.

When Fairey Surveys undertakes an aerial photographic mission overseas, part of 'Photolab' goes with the crew to enable on-the-spot processing to be done.

Photogrammetric Mapping

High-precision, stereo-photogrammetric instruments are in use at Fairey Surveys to measure and record planimetric and height data for the construction of line maps, or the output of digital terrain data which is used for a variety of surveying and engineering purposes, i.e. to calculate volumes of slag heaps, capacities of reservoirs, quantities of earth to fill-in on road construction sites, etc.

Conventional line mapping is carried out at all scales, ranging from large engineering plans at 1:200 to topographical maps at 1:100,000. Large scale surveys carried out by Fairey Surveys have been used for highway design, "new town" development, and site design for power stations and reservoirs.

As well as conventional mapping, Fairey Surveys offers a comprehensive ortho-photo mapping service to provide a finished product which not only has the accuracy of a map, but which retains all the information recorded on the aerial photograph.

Fairey Surveys also uses three-dimensional measuring equipment for topographic objects which, otherwise, would be almost impossible to measure accurately.

Some major project areas where Fairey Surveys' photogrammetric mapping skills have been used are:

Power Generation

— the Kariba Dam on the Zambezi River.

Town Planning

— 112 townships in Iran, 40 cities and towns in Saudi Arabia, and 32 towns in Libya.

Transportation

— contoured maps and Digital Ground Models for the construction of 400 Kms. of strategic highway in Iran.

Irrigation

— 3,500 square miles of 1:8000 scale mapping with 1ft. contours in East Pakistan.

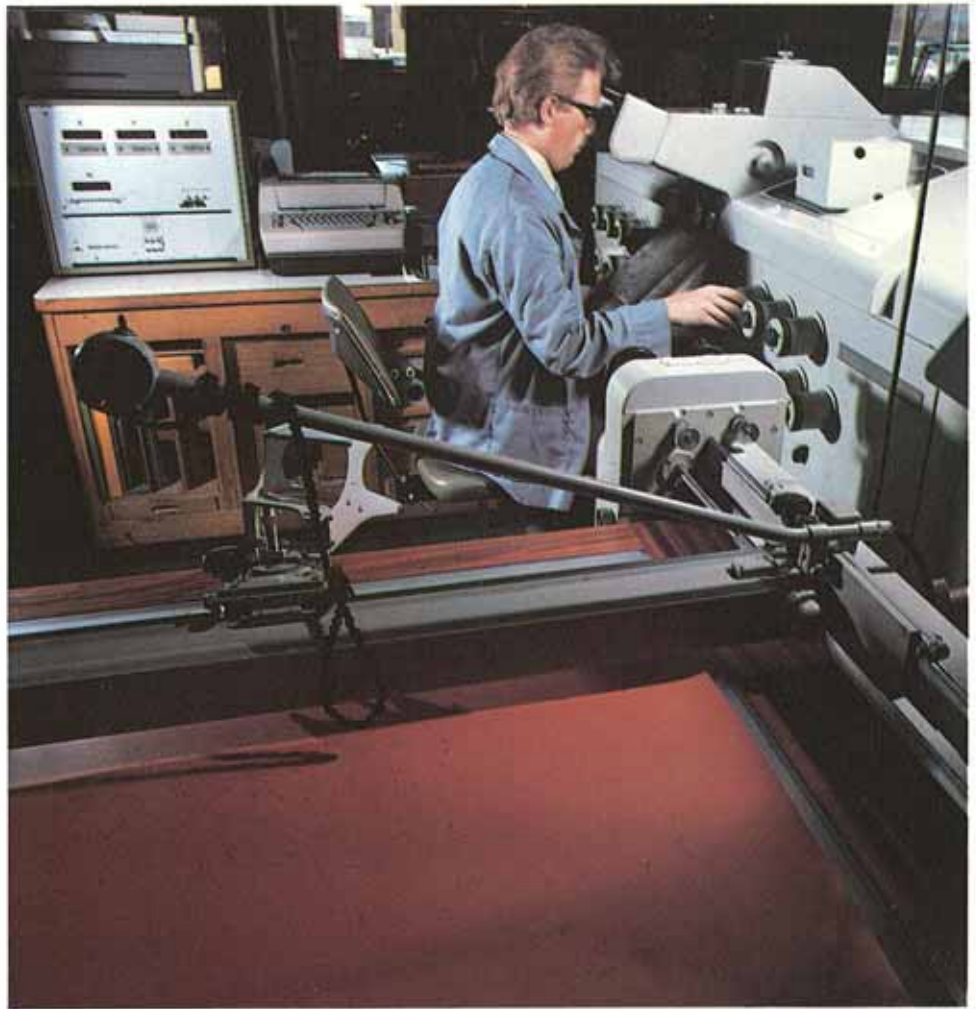
Reconnaissance Surveys

— 1200 Kms. of potential road alignments in Saudi Arabia photographed and mapped in 60 days using Airborne Profile Recorder techniques.

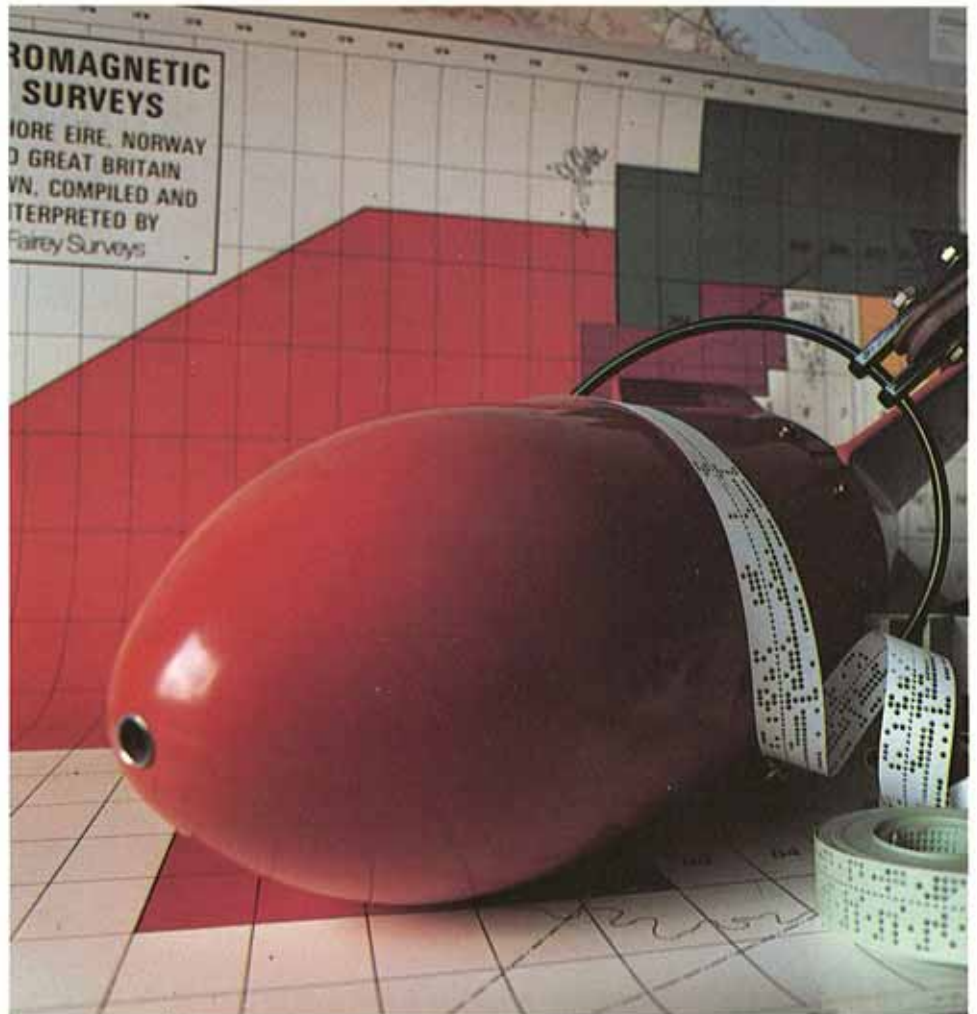
MAP COMPILATION AND PRESENTATION

The mapping can be described as beginning when the data gathered by the survey teams is analysed and carefully detailed as a topographical map. This is a precise science and cannot be reduced to simple routine. A team of specialists is employed, all with the skill and experience needed to collect and assess data from photographs, field measurements and auxiliary equipment such as the airborne profile recorder, from photogrammetric traces, or any other source.

A cartographer must draw consistent lines in varying gauge widths using a variety of inks and materials; ensure that names and figures are positioned in the



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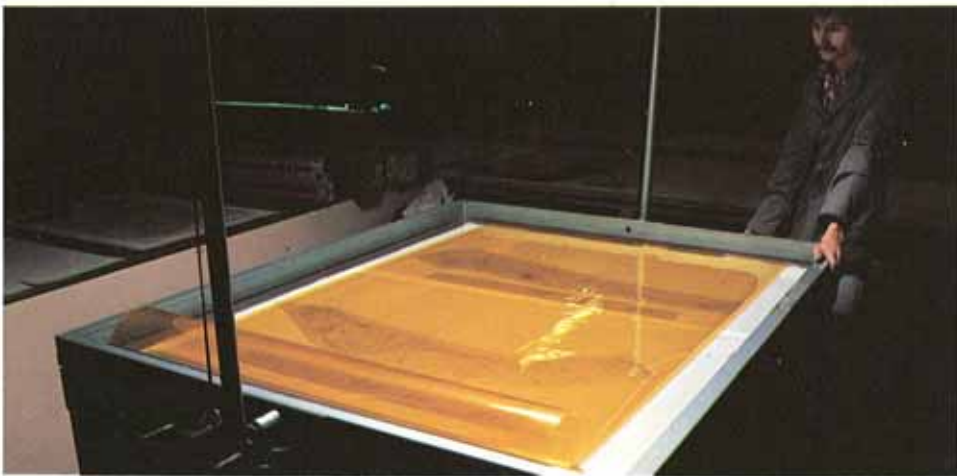
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7. First order stereoplotting instrument, direct scribing through co-ordinatograph

9. The delicate task of 'stripping in' place names on a prepared map sheet

10. A selection of cartographic publications produced by Fairey

11. Senior draughtsman checking a large scale motorway plan.

8. Some of the Airborne Geophysics equipment and data recording instruments currently in use.

12. Modern reprographic facilities

right places and have an artistic eye for design and layout. All these skills are found in the Drawing Office of Fairey Surveys where the staff is justly proud of its reputation for high quality presentation.

Work produced includes large scale engineering drawing at scales between 1:200 and 1:2,500 for road and town planning; drawings at 1:5,000 and 1:10,000 for development areas and overall planning; and medium scale drawings at 1:25,000 and 1:50,000, mainly in developing countries. An international reputation has also been earned for the quality of small scale cartography and design in maps for schools together with road atlases and wall maps produced under contract for publishing houses.

These experts are supported by a modern reprographic department whose work, primarily, is the photo-mechanical reproduction of maps on dimensionally stable plastic film, thus maintaining maximum accuracy.

RESOURCES SURVEYS

The increasing need for more effective use of natural resources, particularly in developing countries where increased food production is a top priority, has involved Fairey Surveys in the planning of integrated appraisal surveys covering soils, agriculture, forestry, irrigation and power potential. Internationally recognised experts are available for consultation.

A recent example of the work of this Group was the Land-Use Study for England and Wales undertaken on behalf of the Department of the Environment.

The survey was compiled under the leadership of our Dr. J.L. van Genderen and comprised a national land-use survey at a scale of 1/50,000 on transparent map overlays using the latest Ordnance Survey sheets at the same scale.

The survey, which was completed within twelve months of commencement, resulted in a series of over 120 land-use maps being compiled to cover the whole of England and Wales.

The Department of the Environment intend to computerise the handling of the mapped information, especially for measurement purposes and in order to relate it to Census information. The mapped areas will be measured as a basis for monitoring changes in developed areas and for the analysis of spatial distribution of land use in England and Wales.

Geophysical Surveying

Geophysical exploration measures and maps certain physical properties of the earth's crust to discover where mineral resources might be found.

Fairey Surveys has its own highly qualified Airborne Geophysics Group which works closely with associated specialists, and is able to offer Induced Polarization, Gravimetric, Seismic Refraction and Electrical Resistivity surveys, as well as Geological Mapping, Photogeology, Geochemistry and Mineral Benefaction and Economics.



CONTOUR MODELLING

Art and precision are also major criteria in the design of terrain models – another service which Fairey Surveys has brought up to date with sophisticated equipment and modern materials. The modelling service provided by the mapping division has all the advantages of being quick yet extremely accurate, lightweight yet stable, and above all, economical. The models are sculpted from expanded polyurethane. They can be supplied in terraced form or smoothed to a true-to-life appearance, incorporating cartographic detail.

Users of terrain models include road construction engineers, town planners, architects, conservationists, boat designers and university lecturers.

RESEARCH AND DEVELOPMENT

Flight Trials

Fairey Surveys Flight Trials Group works mainly on behalf of the British Ministry of Technology through the Royal Aircraft Establishment. Airborne trials of new equipment are carried out in all climatic conditions with an aircraft specially fitted as a 'flying laboratory'. Entrusted for more than 20 years with testing and evaluating the most advanced airborne instrumentation, Fairey Surveys' staff enjoy a pre-eminent position as flight trials experts.

Research and Instruments

To enable Fairey Surveys to maintain its position as one of the world's more experienced and professional surveying

companies, the company has its own Research and Instruments Group which is constantly researching more efficient surveying methods and product design. The department holds the Approval of the Civil Aviation Authority, and it is on the Defence Contractors' list for the design and manufacture of airborne equipment and components.

The main tasks of the Group are:

Provision of anti-vibration mountings for airborne cameras and reconnaissance equipment.

Design of survey installations in aircraft.

Repair and overhaul of airborne cameras.

Design and manufacture of photo-interpretation and remote sensing aids.

Unique instrument developments of the Group include a 35mm/70mm continuous film printer, a 9" x 9" lightweight contact printer, a mirror-lens plotter-scope for use with Wild and Zeiss plotting instruments, a four-channel additive viewer, and a 9" x 9" mirror stereoscope called the Fairey Stereoviewer.

INTERNATIONAL TRAINING AND CONSULTANCY

As much of the surveying work done by Fairey Surveys is in developing countries, the company maintains a deep and lasting involvement in a new nation's

13. Terrain Modelling Workshop

14. Part of a model produced for a study team of the Holy City, Mecca

growth. It does not break contact when a particular project is completed, but offers practical training programmes and consultancy services.

One of the company's largest training and consultancy projects was in Iran establishing that country's National Cartographic Centre. We were responsible for advising on the purchase of equipment and the training of key personnel, the layout of laboratories and offices, and the technical organisation of the new centre.

We are proud to play our part in developing and passing on the practical skills acquired over many years of international surveying and mapping practice to trainees from all parts of the world.



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15. Trainees from Developing Countries receive on-the-job instruction in the Photo Lab.

16. An Overseas Client discusses the progress of his contract with the Project Control Manager and a senior photographic interpreter.

17. The Fairey Additive Viewer designed for analysing and comparing data arrays from satellite imagery.

18. The low cost stereoviewer sold to educational establishments all over the World

The contents of this brochure can only give an outline of the total service available.

Overleaf you will find a list including some of the Government Departments and Consultants worldwide for whom Fairey Surveys has been privileged to work since 1923.

Before our next brochure is compiled Fairey Surveys would like the honour of including your organisation, so contact us with details of your surveying and mapping requirements, current or planned.

We look forward to hearing from you.

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SOME OF THE ORGANISATIONS WITH WHOM WE HAVE BEEN PRIVILEGED TO WORK

CONSULTING ENGINEERS AND PLANNING PARTNERSHIPS

Ove Arup & Partners
Babtie Shaw & Morton
Binnie & Partners
J.S. Bonnington & Partners
Brimer, Maggs, Keeble & Partners
Brian Colquhoun & Partners
Brian Clouston & Partners
Candilis Metra, France
Crough & Hogg
Doxiadis Associates, Greece
W.A. Fairhurst & Partners
Freeman Fox & Partners
Sir Alexander Gibb & Partners
Sir William Halcrow & Partners
Henderson Hughes & Busby
Howard Humphries & Partners
Italconsult, Rome, Italy
Kennedy & Donkin
Sir Malcolm Macdonald
Sir Robert Matthew Johnson-Marshall
& Partners
McGaughy, Marshall & Macmillan, USA
Mander Raikes & Marshall
G. Maunsell & Partners
Merz & McLellan
Mott Hay & Anderson
L.G. Mouchel & Partners
Parsons Brown
Preece Cardew & Rider
Rendel Palmer & Tritton
Scott Wilson Kirkpatrick & Partners
Sir Frederick Snow & Partners
Archibald Shaw & Partners
Travers Morgan
J.D. & D.M. Watson
Sir Owen Williams & Partners
Watermeyer, Legge Piesold & Uhlmann

GOVERNMENT DEPARTMENTS

British Airports Authority
Department of the Environment
Ministry of Agriculture and Fisheries
Ministry of Defence
Forestry Commission
Home Office
National Environment Research Council
Nature Conservancy Council
Ordnance Survey
Welsh Office
Scottish Development Department
Highland & Island Development Board
National Coal Board
Central Electricity Generating Board
UK Directorate of Overseas Surveys
United Nations' Food & Agricultural
Organisation
United Nations' Development Programme
Ministry of Communications, Libya
Ministry of Petroleum and Mineral
Resources, Saudi Arabia
Ministry of Municipal and Rural Affairs,
Saudi Arabia
National Iranian Oil Company, Iran
Survey Department, Iraq
Survey Department, Brunei
Municipality of Dubai
Municipality of Kuwait
Survey Department Bahamas
Public Works Directorate, Bahrain
Survey Department, Thailand
Survey Department, Singapore

Fairey
A world of
wide experience