X1. Delivery list. For each machine-type, sub-model, etc., give a definitive listing of all computers built, with the date of first delivery and destination organisation (plus address) and a note of the applications area(s) and/or distinctive projects. Also, where appropriate, date(s) and destination(s) of subsequent (second-hand) users if the particular machine was passed on. Give accurate references to the sources of all information – see X5 below. (Contributes to blocks A2, B3, B4 and D1 of the final *Our Computer Heritage* database).

E5X1. Elliott 900 Series: Delivery List.

Production of the Elliott 900 Series computers in various forms spanned most of the 1960s and 1970s. Whilst the earlier machines originated from Borehamwood, some of the later spin-offs originated from elsewhere: the 920ATC from Rochester and the MC1800 from *Frimley or Stanmore? Therefore I doubt that there is a central register of all machines sold. I would guess that around 1000 machines were sold in total. The following information is far from complete. Contributions welcome, to Elliott@TJF.org.uk.*

To quote a sales brochure of the era, "Elliott-Automation 900 Series Small Low-cost Computers" [1], these were "Some applications of the 900 series":

INDUSTRIAL PROCESS CONTROL
FIELD ARTILLERY FIRE CONTROL
NAVAL TACTICAL SIMULATION
SHIP NAVIGATION
UNDER-WATER WEAPON TRAINING
FISHERY RESEARCH
AIRBORNE COMPUTING
FIGHTER INTERCEPTION
CIVIL/AIR TRAFFIC CONTROL
ROAD TRAFFIC CONTROL
METEOROLOGY
TELEGRAPH MESSAGE SWITCHING
PROCESS OPTIMISATION
COMPUTER TYPESETTING
MEDICAL DIAGNOSTIC ASSISTANCE
SCHOOLS & TECHNICAL COLLEGES
MOBILE COMPUTER CLASSROOMS
MOBILE RADAR SYSTEMS
MOBILE SYSTEMS FOR ON-SITE WORKING
ON-LINE ANALYSIS OF MINERAL ORES
LABORATORY AUTOMATION
FLOOD FORECASTING
ENGINEERING DESIGN
UNIVERSITY & MEDICAL RESEARCH
ENGINE CONTROL
STATISTICAL & MARKET RESEARCH
INDUSTRIAL & OPERATIONAL RESEARCH
DESIGN AUTOMATION
FUEL MANAGEMENT
RAILWAY TRAIN DESCRIPTION

Given that this is a sales brochure, it is not clear whether this is a list of actual applications or merely of suggested possible applications. The brochure dates from the introduction of the 920C, so this could be a list of actual 920A/920B/903 applications. It will be interesting to see if I can account for at least one delivery in every category, as information flows into this study.

Several projects involved production runs of Elliott 920Bs and 920Ms:

- Elliott 920Bs were used in the British Army's Field Artillery Computing Equipment, FACE.

- There was one 8192-word Elliott 920B in every Maritime Comet aircraft, subsequently named the Nimrod Mk I aircraft, (not to be confused with the ill-fated AWACS Nimrod).
- There was one 8192-word Elliott 920M in each of the *200?* British Jaguar aircraft (but not in the French Jaguars)
- The Elliott 920M was chosen for the inertial guidance system of the Europa 1 satellite launch vehicle. See [9] or [10].

There were about 90 member organisations in the 900 Group of the Elliott Computer Users Association, most of whom would typically have had one 903 or 905 machine. *I have the ECUA membership list on paper, but I'm not sure that the Data Protection Act would permit me put this information on-line. (One contributor to this study has suggested that I can publish the names of organisations but not the names of individuals).*

I've seen a suggestion recently (in correspondence related to this study) that no 12-bit 902 machines ever reached external customers: implying that they were only ever used for program development: I don't know if this is true. However, some 902-equivalent machines certainly were delivered externally: for example, a 102C was delivered to the Royal Aircraft Establishment, Farnborough. And whilst the FORTRAN compiler might have been produced as a marketing aid, I would imagine that a significant project using 12/12s funded the CORAL compiler.

The following is a partial listing of Elliott 900 series computers and ARCH 9000 Industrial Control Systems, as at the end of 1966, taken from the booklet: "Elliott-Automation: Computer Orders and Deliveries, 1947 to 1966" [28], pages 21 to 22":

Delivered in 1965 & 1966	On order at the end of 1966	TOTAL
41	103	144

Delivered in 1965:

CUSTOMER	*APPLICATION (* = on line)*
Royal Navy	* Underwater weapon experimental system
Royal Netherlands Air Force (Netherlands)	* Fighter interception control
Services Research & Development Establishment	* On-line communications
Elliott-Automation Ltd.	Development of peripheral equipment
War Office	* On-line military systems
Munich City Council (Federal German Republic)	* Road traffic control
Elliott-Automation Ltd.	Dev'ment of message switching systems
Elliott-Automation Ltd.	Development of airborne computing system
Ministry of Aviation	* On-line navigation system
Ministry of Technology (Warren Spring Lab.)	* Self-adaptive control system research
National Physical Laboratory	* Far infra-red interferometry
Distillers Co. Ltd. (Hull)	* Process investigation & control

Delivered in 1966:

CUSTOMER	*APPLICATION (* = on line)*
Bolidens Gruv. A.B. (Sweden)	* Analytical process control
2 computers: Admiralty	Navigation application
2 computers: Ministry of Aviation	* Airborne application
Ministry of Aviation	* Mobile radar system
Elliott-Automation Ltd.	Meteorological data plotting
University of Birmingham	Traffic survey work
Royal Air Force	* Fighter interception control
Finnish Cable Works (Finland)	* Ore cleaning & refining

CUSTOMER	*APPLICATION (* = on line)*
12 computers: Elliott-Automation Ltd.	Systems & program development
Reading Evening Post	* Typesetting
Royal Liberty School (Romford)	Education & research
Elliott-Automation Ltd.	Mobile classroom for demos & lectures
British Glass Industries Research Assoc. (Sheffield)	Research into improving strength & properties of moulded glass
White Fish Authority (Hull)	Statistical analysis
Elliott-Automation Ltd.	Development of software
Trent River Authority (Nottingham)	Control of water resources.

On order, as at the end of 1966:

CUSTOMER	*APPLICATION (* = on line)*
British Launderer's Research Association	Design of small electrical systems, offline control of laundries
√ Lucas Gas Turbine Equipment Ltd.	Engine calcs for gas turbine development
Undisclosed Research Establishment	Unknown
Scottish Woollen Technical College	Research for Textile Industry
Elliott-Automation Ltd.	Engineer training
√ J. G. L. Poulson Assoc. *Pontefract.*	Civil & structural engineering. Preparing bills of quantity
√ 3 computers: Thomson Regional Newspapers *Warminster*	* Typesetting
British Ceramic Research Association	* Control of instruments for structural res.
An Aviation Company	Control to on-line plotter
Machine Tool Industry Research Association	Gear design
Serck R & D Ltd.	Engineering data reduction, commercial & technical work.
√ Mid Kent College of Technology *(directly opposite Elliotts' Airport Works, Rochester)*	Education, teaching & research
Undisclosed research Centre	Research
A Laboratory	Monitoring of instruments & data proc.
A University	* Teaching & research in behavioural sciences
Girling Ltd.	Design & analysis of braking systems
U.K.A.E.A.	* Control of X-ray diffractometry
An Oil Company *(Might be one of the two machines that I now own)*	* Control of engine test-beds
East Midlands Gas Board	* Control of light distillate gas-making plant
41 computers: Ministry of Defence	* Undisclosed, application in defence
20 computers: Ministry of Defence	* Undisclosed, application in defence
Printing Works	* Typesetting
Sheffield University	* Investigation of learning patterns
9 computers: Ministry of Defence	Development of defence application
Eurocontrol (France)	* Air space control
Royal Netherlands Navy (Netherlands)	* Tactical training simulator
A.S.E.A. (Sweden)	* Undisclosed defence application
Undisclosed customer	* Laboratory instrument control
B.P. Vohburg, Bavaria	* Refinery monitoring
A Hospital in South Africa	* Control of air-conditioning plant
Union International	General computing service
2 computers: Admiralty	Development of defence application
Overseas Agent	Overseas defence application

√ = I can confirm that these organisations did have 903s.

Terry Froggatt, April 2004.